Ambiguity, Risk, and Limited Great Power Conflict

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Abstract

This article investigates how China and Russia are exploiting ambiguity and American risk aversion as part of their nuclear strategies, particularly with respect to the threat of limited nuclear use. Neither China nor Russia actively seeks to engage in a nuclear exchange with the United States, limited or otherwise. However, their efforts to leverage ambiguity within their nuclear policies and force structure may make limited nuclear use more likely, particularly given the resurgence of great power rivalry that makes great power conflict more probable.

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As great power competition reemerged over the past decade, so too has competition within the nuclear domain. After two decades of deemphasizing the role of nuclear weapons in defense strategy, the United States is finally undertaking a broad-based effort that will modernize all three legs of the nuclear triad, nuclear command and control, and the infrastructure that supports the nuclear enterprise. By contrast, over the same two decades, Russia and China remained committed not only to modernizing and expanding their nuclear forces but also to more closely realigning nuclear policies to support their strategic ends.

As Russia and China complete robust nuclear modernization programs, they seek to deter US activity in their respective regions. In their shift toward nuclear competition, nuclear ambiguity has increased. Additionally, the likely dissolution of the US-Russia strategic arms control regime will only hasten and exacerbate this trend. By exploiting a perceived US risk aversion and fear of nuclear escalation, both nations rely on a certain level of ambiguity in their nuclear policies and posture. Their goal is to shape US use of force and convince US leaders that the risks of miscalculation and unintended escalation are too great to pursue regional interests. Particularly, they aim to restrict US operational latitude in Europe and the Indo-Pacific.

This article explores the sources and implications of nuclear ambiguity in an era of potential great power conflict, particularly in the context of limited nuclear war. It compares the relationship between ambiguity and risk aversion in Russia, China, and the United States. Nuclear ambiguity coupled with a high risk tolerance could dramatically increase the possibility of miscalculation and inadvertent escalation to limited nuclear use. Although limited nuclear war is still an improbable event, increasing competition and ambiguity makes intentional or unintentional escalation more likely. Precisely because it is hard to imagine a limited nuclear exchange, it is more important to do so. The article also offers ideas for the United States to mitigate the impact of ambiguity on US strategy and policy. To preserve US interests and maintain security commitments to allies in Europe and East Asia, US policy makers will need to develop strategies for mitigating nuclear ambiguity.

Sources and Types of Nuclear Ambiguity

No discussion of nuclear ambiguity would be complete without briefly recognizing the contributions of prominent theorists on the subject. These ideas form the basis of our argument. The relationship between ambiguity, escalation, and risk underpins deterrence theory, and the twentieth-century scholarship on these topics heavily influences contemporary nuclear strategy and thinking, if not always force structure and plans. Unilateral deterrence is produced by a combination of capability and will to deliver a secure second-strike attack against an adversary. Mutual deterrence, reinforced by the threat of mutually assured destruction, therefore undermines the credibility of a state's nuclear threats by raising dramatically the costs of a first strike. The result is strategic stability among great powers.[1]

Uncertainty and ambiguity complicate this seemingly straightforward calculation. First, ambiguity exacerbates the security dilemma. States naturally take action to provide for their own security, including building military forces. But peer or competitor states cannot be certain that another state's military buildup is intended for purely defensive purposes and will respond in kind with their own investments in security. Uncertainty about states' intent exacerbates international tensions and raises the likelihood of conflict. Robert Jervis argues that security dilemma dynamics are most pernicious when offensive security measures are difficult to distinguish from purely defensive ones (for example, missile defenses) and when states consider investments in offensive capabilities more valuable than purely defensive investments.[2] Jervis argues that spiraling effects of intense

security dilemma dynamics raise the risks of both preventive and preemptive war, particularly amidst changes in the balance of power.

Moreover, uncertainty fuels the brinkmanship that drives nuclear crises and raises the likelihood of miscalculation and accidental war. Thomas Schelling argues that uncertainty is inherent to international security because crises and paths to conflict are "unforeseeable and unpredictable," and nuclear states often exploit that uncertainty through brinkmanship.[3] Nuclear states will escalate lower-level crises in an effort to coerce adversaries to cede geopolitical objectives rather than risk nuclear exchange. While mutually assured destruction precludes states from credibly threatening a large-scale nuclear attack, they can still pose "the threat that leaves something to chance"—manipulating the risks of unintended escalation and accidental war to compel their adversaries.[4]

Types of Nuclear Ambiguity

Uncertainty about a nation's nuclear capabilities shapes nuclear competition, strategy, and decision-making. Three types of ambiguity are evaluated here that, when compounded, may increase the prospect for miscalculation, unintended escalation, and limited nuclear use. First, ambiguity surrounds the size, scope, and scale of a country's nuclear arsenal. It is impossible to assess nuclear balances without insight into the composition of a competitor's nuclear forces and an understanding of the strategic impact of any asymmetries between them. Moreover, without certainty about the scope of a competitor's nuclear arsenal, it is unclear whether that competitor is capable of executing a disarming first strike that would prevent an assured retaliation capability. Ambiguity surrounding a competitor's capacity to deliver a disarming first strike can drive competition to improve the size and survivability of nuclear forces.[5]

Second, ambiguity surrounds the distinction between a country's conventional and nuclear forces. Dual-capable systems that support both nuclear and conventional missions make it difficult to distinguish between conventional and nuclear forces and, therefore, between a conventional and a nuclear attack.[6] Dual-use systems include missiles and aircraft that can be armed with either conventional or nuclear warheads as well as enabling systems that support both conventional and nuclear missions, like early-warning satellites and radars. These delivery systems increase the risk of miscalculation, particularly if a conventional conflict is already underway. An attack that seeks only to degrade an adversary's conventional forces could mistakenly target dual-capable systems integral to the nuclear deterrence mission. An adversary may interpret this as warning of

nuclear escalation or a strategic counterforce attack. When countries complicate efforts to distinguish nuclear from conventional forces, they invite a higher risk of unintended vertical escalation and limited nuclear war.

Third, the strategic conditions and the magnitude of national interests under which countries might consider nuclear use—particularly limited nuclear use—may be ambiguous. Declaratory policy, to include extended deterrence and no-first-use (NFU) guarantees, can shed some light on those policies and provide clarity. However, confidence in a country's commitment to its declaratory policy, particularly in the case of a conventional conflict between great powers, can never be completely certain. As Schelling indicates, the unprecedented nature of a nuclear exchange means that there is no data to suggest how nuclear powers may respond in the case of a large-scale conventional confrontation, and it is difficult to foresee under which circumstances a state might perceive limited nuclear war to be in its interest. Moreover, declaratory policy and state behavior do not always mirror one another. Countries with a restrained declaratory policy may engage in saber rattling, revealing an attempt toward nuclear coercion and brinkmanship to secure geopolitical advantages. Given enduring doubts about the credibility of declaratory policies, states are often forced to infer the intentions of their competitors from other sources, including the size and posture of their nuclear forces and their responses and resolve during crisis situations.

These different types of ambiguities can be mutually reinforcing. On the one hand, the lack of clarity surrounding an adversary's doctrine for nonstrategic nuclear weapons (NSNW) is reinforced by the lack of information that policy makers have about the nature of nonstrategic nuclear capabilities. On the other hand, sources of clarity in any of the above areas can provide useful clues in other areas of uncertainty. Knowing whether new medium- and intermediate-range missiles include nuclear-armed variants would provide finer insight into concepts for employment of nuclear forces and the scenarios in which nuclear use might be thinkable.

Ambiguity can also create leverage vis-à-vis competitors and adversaries who seek to reduce sources of ambiguity and are willing to offer concessions in exchange. North Korea and Iran each extracted concessions from an international community seeking greater insight into and concrete limits on the scope of their national nuclear programs. Similarly, arms limitation agreements coupled with verification measures aim to increase transparency about a competitor's capabilities.[7] Ambiguity and its reverse, transparency, can provide significant benefits, especially if risk-averse competitors are willing to sacrifice to lessen those sources of uncertainty.

Russian Nuclear Ambiguity and Risk

Russia has long leveraged the ambiguity of its nuclear doctrine and red lines to convince the United States to give it an extra-wide berth, particularly on the European continent. Throughout the Cold War, the US government struggled to discern Soviet intentions and doctrine for the employment of the country's nuclear forces. It was clear that Soviet political leaders were willing to resort to nuclear use if necessary, and US policy makers' rejection of Russia's 1982 "no-first-use" pledge as insincere was indeed vindicated when Soviet war plans were later revealed to include the large-scale early use of theater nuclear weapons.[8] For decades Moscow's declaratory policy proved out of sync with its actual calculations for nuclear use, making it difficult for foreign states to discern Russian red lines.

Contemporary Russian nuclear strategy features several ambiguities affecting the potential for limited nuclear war. Decades of bilateral collaboration on strategic arms limitation have provided US policy makers with insight into Russia's strategic forces. The 2010 New START agreement and its verification provisions ensure a relatively high degree of transparency into Russia's strategic forces. However, the scope of Russia's nonstrategic nuclear weapons that is most relevant to a discussion of limited war remains comparatively undefined. Many public estimates suggest that Russia possesses approximately 2,000 operationally assigned nonstrategic nuclear warheads ready for use that include sea-, air-, and ground-launched forces.[9] The number of launchers for these weapons is unknown.[10] The Federation of American Scientists estimates that Russia's navy employs nearly half of these forces, to include both surface and subsurface delivery platforms.[11]

Russia's diverse nonstrategic arsenal includes dual-capable theater- and tactical-range weapons that exacerbate the aforementioned discrimination problem. Pavel Podvig describes the increasingly "blurred" distinction between Russia's nuclear and conventional forces that emerged over the past decade and notes that this kind of ambiguity is a key element of Russia's military posture. Among Russia's dual-capable nonstrategic assets are its Kalibr land-attack sea-launched cruise missile (SLCM) that is not governed by New START limits, its ground-launched variant, and the Iskander-M ground-launched short-range ballistic missile (SRBM) system.[12] As Russia has moved increasing numbers of short-range, dual-capable missile forces into Kaliningrad over the last decade, including the Iskander-M, it is unclear the degree to which it possesses nuclear or conventional warheads. However, it is clear that Russia has undertaken a large-scale overhaul of a nuclear weapons storage site in Kaliningrad close to the Polish border, suggesting the missile forces there are plausibly

nuclear-armed.[13] Given the existence of dual-capable systems in Kaliningrad, which would play a critical role in a potential future conflict in NATO's eastern frontier, uncertainty about the status of weapons that may be involved in the conflict raises the likelihood of a miscalculation that could provoke vertical escalation to the nuclear level.

Finally, Russia's doctrine for employing these NSNWs is widely debated and centers on Russian theories of escalation control, as discussed below. Compared to Russian strategic nuclear forces, there is little transparency surrounding Moscow's NSNW program, including its deployment, targets, operational doctrine, and red lines. Arms control efforts over the past 30 years have sought to increase the transparency surrounding Russia's nonstrategic nuclear arsenal and encourage greater reductions to the arsenal's size, but those efforts have failed to produce any meaningful successes.[14] Many analysts have argued that the intended contemporary purpose of Russia's NSNW arsenal remains obscure and that Russian capabilities are not clearly linked to a well-articulated strategy, either public or classified.[15]

Central to this discussion is Russia's oft-cited "escalate to de-escalate" strategy, alternatively termed "escalate to win" or "escalate to survive."[16] In the wake of the Cold War, Russia leaned heavily on its nuclear arsenal to compensate for the vulnerability of its conventional forces, and this increased emphasis on nuclear use to deter conventional threats was espoused in Russian strategy documents and particularly in declaratory policy. It was in this context that some Russian scholars began advocating a strategy of limited nuclear use to forestall a Russian defeat in an ongoing conventional conflict. By escalating to the nuclear level, Russia might convince an adversary—deeming the potential costs of a protracted nuclear exchange too great—to end the conflict.

Although absent from official Russian military doctrine, a 2003 white paper titled *Important Tasks of the Development of the Armed Forces* by the Russian Ministry of Defense did discuss a strategy of "forcing the adversary to cease hostilities by threatening or actually delivering strikes of various sizes with use of conventional and/or nuclear weapons."[17] A number of Russian government and military officials, including Russia's Security Council secretary Nikolai Patrushev, have since referred to the strategy.[18]

Analysts have suggested that to communicate Russian resolve, an "escalate to win" strategy might be initiated in the form of nonlethal nuclear strikes against uninhabited areas or vacant secondary military targets. A slightly bolder option would involve targeting military infrastructure critical to adversary operations that avoid large-scale human casualties,

which could inadvertently strengthen an adversary's resolve or create pressure to respond in kind. The Zapad-99 military exercise, simulating a limited Russian nuclear strike to stave off defeat by conventional adversary forces, indicates strong consideration of limited nuclear strikes as part of a Russian defense strategy.[19] At the same time, skeptics of the escalate-to-win concept cite Zapad-99 as an isolated example that is two decades in the past, and they note that Russia's official declaratory policy has grown narrower since that period in 2000. Both 2010 and 2014 documents have more restrictive limits on nuclear employment.[20]

In other words, Russia's contemporary nuclear strategy, particularly with respect to its nonstrategic forces, is ambiguous. The frequent saber-rattling by Russian officials that is in direct opposition to Russia's relatively conservative formal declaratory policy shows just how challenging it is to decipher where Russia's red lines for nuclear use may fall. This ambiguity is intentional and benefits Russia, especially were it to convince the United States and its allies to retreat and give Russia an extra-wide berth on the European continent.[21] Prior to a great power conflict, certainty about Russian plans to introduce limited nuclear attacks within the confines of a heretofore conventional conflict would make it easier for US and NATO planners to develop more robust plans to deter, prevent, and—if necessary—limit the damage incurred by a limited Russian nuclear strike. The ambiguity, however, makes it more difficult for US policy makers to take such action, and it fuels debates and internal policy divisions about US overreaction to an unspecified and possible nuclear threat. This ambiguity also affects resource prioritization; without concrete evidence of an escalate-to-win strategy, lawmakers could question the need for new investments that could offset Russia's asymmetric nonstrategic advantages, including new investments in flexible low-yield capabilities.

It is worth noting that an escalate-to-win strategy is inherently risk tolerant, given the potential for rapid and devastating escalation. This risk-tolerant attitude toward the benefits of strategic ambiguity is in line with Russian actions over the past decade, and Putin consistently leverages ambiguity in pursuit of greater status and wider operational latitude on the European continent. Russia's nonattributable gray zone operations in Ukraine are a clear example of Putin's exploitation of ambiguity. His nuclear ambitions and policies are just as stark. Uncertainty about Putin's willingness to use nuclear weapons, combined with considerable uncertainty about which platforms are nuclear capable and support a nuclear mission, magnifies ambiguity. Putin has exploited this uncertainty as part of a brinkmanship strategy that has made US policy makers wary of taking

any action, including conventional, that might be perceived as threatening to the Russian government.[22] Given these overlapping sources of ambiguity, a great power conflict with Russia would imply a decided risk of either intentional or unintentional escalation.

Chinese Nuclear Ambiguity and Risk

China has never entered into any arms control treaties, which contributes to the relative opacity of its nuclear weapons programs. It tends to officially withhold most information about the particulars of its nuclear enterprise. Ambiguity and risk surrounding limited nuclear use in China are of a significantly different character than in Russia. Unlike Russia, China historically has perceived nuclear weapons to be valuable exclusively for defensive purposes against other nuclear powers. It has maintained a policy of no first use, or threats of use, of nuclear weapons against nonnuclear states. The Chinese Communist Party (CCP) has traditionally prioritized a "lean and effective" nuclear deterrent and resisted the pull of Cold War–era arms races and nuclear buildups, instead maintaining a smaller collection of high-yield deterrent forces.[23] As a result, China did not figure prominently into US or Russian decision making during nuclear competition in the twentieth century. In the years since the Cold War, China has maintained a comparatively limited nuclear force structure. However, recent decades indicate that China is thinking more, not less, about its nuclear strategy and the potential use of nuclear weapons during a great power conflict.

Generally speaking, US analysts understand the broad strokes of China's nuclear capabilities, but achieving high levels of confidence about the numbers and specific characteristics of deployed systems and warhead stockpiles is more difficult. Although the particular composition of China's nuclear arsenal is somewhat enigmatic, we can be certain of a trend line that projects a nuclear force growing in quality and quantity. However, China's nuclear arsenal will not approach parity with the United States' within the next decade without a big change in Chinese behavior. As of May 2019, the Defense Intelligence Agency (DIA) projected that China will at least double the size of its nuclear stockpile over the course of the next decade.[24] Although the size of its arsenal pales in comparison to that of the United States and Russia (China has an estimated 280 warheads, while the United States has roughly 3,800), the increases to the Chinese stockpile puts China on track to surpass France as the third-largest nuclear-armed state.[25] Importantly, China's warheads are strategic in nature; China does not maintain nonstrategic, low-yield forces. Nongovern-

mental estimates indicate older Chinese missile systems carry multimegaton warheads while newer road-mobile ICBMs have yields in the range of several hundred kilotons.[26] As a result, China might have far more difficulty delivering a one-off limited nuclear strike than would the United States or Russia, which have more flexible low-yield options.

China appears to be developing a more flexible nuclear triad that includes improvements to its ballistic missile submarines and a new air-breathing leg that comprises a nuclear-capable strategic bomber and air-launched cruise missile (ALCM). Many of its advancements have focused on bolstering the survivability of its nuclear forces by expanding road-mobile missile forces and the Jin-class SSBN.[27] The rapid and expansive modernization of China's nuclear arsenal implies an overall greater level of uncertainty as to the size, scope, and specific characteristics of China's nuclear forces, particularly over a 10-year horizon.

Additionally, there is considerable ambiguity surrounding which of China's new missile systems are dual-capable. This vagueness appears to be a deliberate strategic decision. China has undertaken a major expansion of its missile forces over the past two decades, developing a range of highly capable medium- and intermediate-range precision-guided munitions that threaten the ability of US forces to project power in the Indo-Pacific region. It is not clear from open source materials whether many of China's newer missiles are dual-capable and, if so, what the ratio between nuclear and conventional variants might be.[28] In particular, China's new DF-26 road-mobile IRBM is believed to be dual-capable, but it is indeterminate as to what portion of the estimated 80 systems now deployed might serve a nuclear mission. Analysts also disagree as to whether China's DF-15 SRBM can carry a nuclear warhead. A 2013 US Air Force Global Strike Command briefing indicated that China's CJ-20 long-range cruise missiles can deliver both nuclear and conventional payloads, an assertion that was not made again publicly until the 2018 Nuclear Posture Review (NPR) reported that China possesses both air- and sea-launched nuclear cruise missiles.[29] China's nuclear and conventionally armed forces are intermingled, which makes discriminating between the two more challenging.[30] If China has large numbers of dual-capable systems, Beijing could significantly influence the nuclear balance during a great power conflict even if only a small percentage were nuclear variants.[31]

Finally, the conditions under which China would consider nuclear use may be less straightforward than its NFU policy implies. A policy against first use would suggest that China would use its nuclear weapons only if attacked first as part of an assured retaliation strategy. Overall, there is

limited evidence of a prospective change to China's NFU policy. Chinese military publications focus exclusively on nuclear counterattack campaigns and do not reference contingencies for first or limited nuclear use.[32] It is more plausible that Russia—which reserves the right of nuclear first use in its declaratory policy—would escalate to nuclear use within the context of a conventional conflict than would China.

The DIA's most recent *China Military Power* report notes that "there is some ambiguity . . . over the conditions under which China's NFU policy would apply."[33] In some track 2 dialogues, Chinese participants have clarified that "first use" refers exclusively to situations in which an adversary executes a nuclear attack against Chinese targets of any kind; a conventional attack against China's nuclear forces would not permit nuclear retaliation.[34] But the "leanness" of China's nuclear forces raises the marginal cost of any counterforce attack against China. Chinese military analysts have increasingly debated whether a conventional attack on China's nuclear forces or command and control might warrant nuclear retaliation.[35] In private, Chinese officials have said that China would respond with nuclear weapons if its nuclear forces were attacked with conventional weapons, reflecting a much broader interpretation of a NFU pledge as typically understood.[36] Concerns about US global conventional precision strike and integrated missile defenses are driving this particular conversation and could potentially "loosen" the NFU policy while increasing the probability of a great power conflict.[37]

The ambiguity surrounding NFU and the conditions under which China might employ nuclear weapons becomes more problematic when considered in conjunction with the ambiguity around which of China's missile forces are nuclear capable. Particularly in the event of a conventional conflict with China, the uncertainty about China's dual-capable systems introduces opportunities for miscalculation and vertical escalation, especially if China employs a broader definition of "first use" to involve a conventional counterforce attack. The prominence of China's missile forces in its nuclear counterattack plans necessitates their survivability. This is particularly true in the case of a small-scale counterattack that would require China to hold additional forces in reserve if follow-on strikes were required. Because China's nuclear and conventional forces are intermingled, US targeting plans for conventional forces would almost certainly threaten China's nuclear capabilities as well. Accordingly, US efforts to neutralize China's conventional missile forces that destroy nuclear-armed, dual-capable missiles—either intentionally or by mistake—could be perceived as an attempt to undermine China's strategic deterrent.[38]

If the US military is unable to reliably distinguish China's nuclear missiles from conventional weapons, and if policy makers fear that an attack on China's nuclear forces could provoke unintended nuclear escalation and calibrate their decisions accordingly, China can leverage its nuclear ambiguity to restrain US actions in the Indo-Pacific. The ambiguities surrounding China's dual-capable force have a deterrent effect similar to those surrounding Russia's red lines for nuclear use. The United States may be forced to behave in a manner that is extra cautious when engaging China's military forces. During a great power conflict, as China seeks to impede US access to the Indo-Pacific region as part of its effort to establish regional dominance, that extra caution may come at the expense of US interests and regional allies.

US Nuclear Ambiguity

Ambiguity plays a valuable role in US nuclear strategy and hosts the same vulnerabilities as well. However, on balance, US strategy has trended toward increased transparency and less ambiguity during the post–Cold War period. In particular, the United States maintains a much higher degree of transparency with respect to the number and composition of its nuclear forces than do Russia and China. Arms control treaties with Russia have contributed mutual insight into the size and shape of US and Russian strategic nuclear forces. New START's verification and transparency regimes include biannual data exchanges, notification of deployment and basing of strategic delivery vehicles, and pre-launch ballistic missile notification. Nonstrategic weapons fall outside the New START agreement, but the United States has provided significant information and insight into the composition of its nonstrategic forces.[39]

Moreover, the nature of a government that is beholden to an electorate requires US leaders to make a public case justifying new nuclear systems and capabilities. Conversations about appropriate nuclear strategy and resources have been a part of the policy debate for decades, and decisions about new investments are also subject to heavy congressional debate. The broad characteristics of and strategic rationale for new systems, in addition to comprehensive cost estimates and data, are available to the public as a result of US government processes, providing competitors additional insight.

In 2010, the Obama administration declassified the history of the US nuclear weapons stockpile as well as the annual number of nuclear warheads dismantled since 1994 and, in 2014, the number of retired warheads awaiting dismantlement.[40] Greater transparency helped prove the US

commitment to Article 6 of the Non-Proliferation Treaty, requiring nuclear states to work in good faith toward eventual disarmament. However, the Trump administration decided in April 2019 to suspend the public release of US stockpile information, indicating that the United States would share less public information about its nuclear enterprise going forward and thus suspending transparency.[41]

The United States has a limited number of dual-capable platforms, most notably the nuclear-tipped AGM-86 ALCM, which has a conventional variant (CALCM). The long-range standoff weapon (LRSO) in development to replace the ALCM may also have a conventional variant. It is possible that a US adversary would struggle to determine the nature of an incoming CALCM attack, raising the risk of miscalculation and unintended response. It is for this reason that former secretary of defense William Perry has argued against the acquisition of an ALCM replacement, calling the nuclear-armed cruise missile a "uniquely destabilizing type of weapon."[42] European-based F-16 and F-15E aircraft and most US long-range bombers are capable of both nuclear and conventionally armed payloads.

Non-offensive dual-use systems that support the nuclear enterprise are worth considering as well. James Acton has argued that the dual-use nature of US command, control, communications, and intelligence (C3I) systems—including early warning satellites and ground-based radars and transmitters that enable both nuclear and nonnuclear operations—leaves the United States vulnerable to unintended escalation. In a conventional conflict, it might benefit an adversary to attack dual-use US C3I assets to undermine conventional operations. However, a sufficiently degraded space-based radar capability may be misinterpreted as indication of an incoming nuclear attack, creating incentives for escalation.[43] These ambiguities could nevertheless create a deterrent effect.

But the most prominent example of strategic ambiguity in US nuclear policy is the matter of when the United States might employ a nuclear first strike. The final report of the 2018 NPR echoes decades of US declaratory policy when it asserts, "It remains the policy of the United States to retain some ambiguity regarding the precise circumstances that might lead to a U.S. nuclear response."[44] From the earliest stages of US nuclear strategy, US policy makers have asserted the right to use US nuclear weapons to deter nonnuclear actions, and as a result, US leaders have repeatedly opted against committing the United States to a policy of no first use. The circumstances that might warrant a nuclear response have shifted slightly across various administrations. Post–Cold War nuclear strategy has re-

served the right to use nuclear weapons to defend against large-scale or "extreme" conventional or chemical and biological warfare (CBW) attacks against the United States and its allies. The scale of a CBW attack that would justify a nuclear response is undefined and intentionally so. The 2018 NPR does somewhat expand the circumstances under which the United States might consider nuclear use to include response to cyber aggression in "extreme circumstances."[45] Presumably the NPR is conceiving of large-scale cyber attack on strategic targets, including US nuclear or dual-use command and control infrastructure.

The United States does employ strategic ambiguity in its declaratory policy related to the use of nuclear weapons to deter nonnuclear threats. However, US strategy rarely derives the benefits of overlapping ambiguities that Russia and China can exploit. US nuclear strategy leverages ambiguity with respect to declaratory policy, but far less so with respect to the size and composition of US nuclear forces. To communicate a combination of capability and resolve, US extended deterrence commitments necessitate a certain level of transparency about the size, scope, and intended use of the US nuclear arsenal.[46] The US convinces allies that it is both willing and able to defend them from nuclear threats by revealing some of its nuclear strategy, force structure, and posture. Russia and China have not developed the web of extended deterrence commitments like the United States. Without the imperative to reassure allies, both Russia and China can afford to maintain less transparency.

Risk aversion has also influenced the US inclination toward nuclear transparency. The value of risk aversion when considering scenarios as grave as great power nuclear war cannot be overstated. The problem, however, is that deterrence does require some level of ambiguity to be effective. This ambiguity about whether the United States might really be willing to intervene with nuclear weapons on behalf of an ally also extends to adversary calculations, and Russia and China will likely seek to exploit that ambiguity to undermine the credibility of US security guarantees.

Mitigating Nuclear Ambiguity

The reemergence of possible great power conflict has refocused attention on the value of nuclear deterrence within Russia, China, and the United States. As Russia and China execute ambitious nuclear modernization programs, both countries are obscuring information about the size of their nuclear arsenals, the missions assigned to dual-use systems, and the conditions under which nuclear use might be considered. By leveraging a strategy of nuclear ambiguity, Russia and China are seeking to

restrain US actions in Europe and the Indo-Pacific, respectively. Many of these overlapping sources of nuclear ambiguity, however, increase the risks of limited nuclear use and escalation. To defend US interests and allies while simultaneously lowering the risk of limited war, the United States will need to develop strategies for dealing with the increased ambiguity inherent in great power nuclear conflict.

New damage limitation capabilities and more flexible nuclear options involve specific investments the United States could make so its nuclear and conventional force structure is better suited to meeting the challenges of nuclear ambiguity to deter and, if necessary, respond to a limited nuclear attack. With respect to China, the United States could pursue damage limitation capabilities that would reduce US vulnerability to China's nuclear forces and reinforce deterrence by denial. The large imbalance in size between the US and Chinese nuclear arsenals makes this a possible, albeit challenging, option. Damage limitation capabilities might include expanded ISR capabilities that could facilitate identifying and tracking China's mobile nuclear missile forces, improving integrated cruise and ballistic missile defenses, and developing left-of-launch strategies.[47] These technologies would also assist in solving the current nuclear discrimination problem as they would require the ability to distinguish nuclear from conventional forces.

Improved damage limitation would not directly target Russian and Chinese sources of nuclear ambiguity. Even if imperfect, it could reinforce deterrence against limited nuclear attacks—particularly those on US allies—in a few ways. First, Charles Glaser and Steve Fetter note that greater investments in damage limitation capabilities designed to counter China's nuclear forces might signal to China the seriousness of the US commitment to its security guarantees in East Asia.[48] It would, in essence, serve to eliminate ambiguity about whether the United States might really be willing to intervene with nuclear weapons on behalf of an ally. Moreover, a damage limitation capability would make US retaliation after a limited nuclear attack more credible by lowering the costs of escalation that often undermine the believability of US extended deterrence guarantees.[49] Finally, the prospect that the United States might neutralize China's nuclear capabilities in response to a limited attack on a US ally would dramatically lower the attractiveness of executing that limited attack in the first place. The downside, however, is that stronger damage limitation capabilities might incentivize a larger scale nuclear attack along a "use it or lose it" logic, thus creating a security dilemma. Moreover, if US conventional prompt global strike and missile defense forces are already encouraging Chinese strategists to revise the NFU, then doubling down on a strategy

that would render China's nuclear arsenal impotent seems likely to exacerbate those fears and encourage a more expansive Chinese attitude toward nuclear use.

A second option to mitigate the risks of limited war posed by nuclear ambiguity is to develop more flexible offensive options capable of responding in kind to the range of limited nuclear capabilities held by US competitors. The United States has long sought increased flexibility as an antidote to nuclear uncertainty and to hedge against sudden strategic shifts in the nuclear landscape. The flexibility that the triad affords hedges against a competitor's rapid technological developments in a particular area, such as antisubmarine warfare, to ensure the continued viability of the US deterrent. To manage the risks of a limited nuclear strike, US policy makers could pursue nuclear investments prioritizing diversity and flexibility. Doing so would reinforce US credibility to respond in kind to a limited nuclear attack.

The Trump administration is already pursuing more flexible low-yield options for precisely this rationale. The 2018 NPR outlines plans for a new low-yield Trident II D5 SLBM intended to "counter any mistaken perception of an exploitable 'gap' in U.S. regional deterrence capabilities."[50] As the 2018 NPR lays out, new low-yield capabilities might be particularly relevant to a limited nuclear scenario in Europe. The ambiguity surrounding Russia's escalation doctrine poses a particular challenge for US analysts seeking to understand how Russia might employ its sizable nonstrategic arsenal, particularly if engaged in a conventional conflict in Europe. New, more flexible low-yield options could help NATO counter the risks associated with this ambiguity by ensuring that, whatever Russia's concept for employing nonstrategic nuclear weapons, an in-kind nuclear response is possible. NATO's current options include B-2 or legacy fighters equipped with gravity weapons, which may be inadequate facing Russia's advanced integrated air defense systems (IADS). NATO's strategic inventory would fare better against Russian IADS; however, their employment would require more vertical escalation that may not be credible to Moscow, nor preferable to NATO. A wider range of options would provide a hedge against the uncertainty in how Russia might employ its nonstrategic weapons to ensure that, regardless of Moscow's true intent, NATO is capable of responding in a proportional manner.

A third option—new efforts to increase transparency through strategic dialogue—involves political and diplomatic efforts to combat nuclear ambiguity prior to multipolar competition and conflict. This would be a different approach to mitigating ambiguity, leaning on political and diplomatic

levers to enhance transparency through greater engagement with both Russia and China. Bilateral strategic arms control efforts between Washington and Moscow during and since the Cold War fostered predictability in the strategic relationship and, for some periods, managed to remove entire categories of systems from the nuclear balance—including ballistic missile defenses and intermediate-range missiles. Greater transparency can mitigate the tendency to hedge for the worst-case scenario by providing evidence to the contrary.

Even without formal bans or limitations, though, US policy makers could still pursue dialogues with China and Russia to foster better insight into Russian and Chinese perceptions of nuclear balances and attitudes toward nonstrategic weapons and limited nuclear use. Cooperative transparency could include asymmetric exchanges of information based on what might be valuable to each country. For instance, the United States could offer a structured reporting of its strategic forces while China reciprocates with information about its nuclear-capable delivery systems.[51] This type of greater transparency does not necessarily require ambitious treaties, though it is such a departure from China's standard approach to disclosure that there is little cause for optimism. Russia and China made no moves to increase disclosure of their own nuclear forces from 2010 to 2017—when US nuclear stockpile figures were declassified—indicating that unilateral efforts to improve transparency may prove fruitless. Given Russia's reluctance to engage in arms limitation efforts related to its nonstrategic weapons, it is improbable that they will suddenly do so without some kind of major concession from the United States.

Fourth, the United States could adopt a NFU policy in an effort to mitigate the ambiguity inherent to current US declaratory policy. By adopting a NFU policy, the United States would effectively eliminate the most significant ambiguity in contemporary US nuclear strategy, providing competitors insight into the size, posture, and intended use of US nuclear forces. The United States could adopt a NFU policy unilaterally or in exchange for certain commitments or concessions from Russia and China. In the best-case scenario, increased unilateral transparency would mitigate the security dilemma, reduce tensions between the great power competitors, and encourage improved in-kind transparency from Russia and China. It is worth noting, however, that the United States' unilateral deprioritization of nuclear weapons over the past 20 years did not produce corresponding behavior from Russia or China. In other words, recent precedent does not suggest that the United States will necessarily achieve success seeking to ameliorate the security dilemma through unilateral action.

A major challenge would be reinforcing the credibility of a NFU guarantee. The United States has reserved the right to use nuclear weapons in response to nonnuclear threats for as long as it has maintained a nuclear arsenal. Failure to demonstrate enduring bipartisan support for NFU would undercut the credibility of the US commitment to no first use and blunt the improvements to Russian and Chinese behavior that the policy would intend to produce. When Brezhnev announced the Soviet Union's NFU pledge in 1982, US policy makers immediately dismissed it as hollow rhetoric, and the pledge had no real impact on the trajectory of US-Soviet competition or cooperation. It would take skillful diplomacy and tangible action to convince China and Russia of the sincerity of a US NFU pledge. Lastly, a NFU pledge would erode the credibility of US extended deterrence guarantees in Europe and Asia, which could unintentionally incentivize Russian and Chinese risk-taking aggression by lowering the costs of regional aggression and brinkmanship.

Finally, the United States can meet ambiguity with ambiguity and make it more difficult for competitors to exploit the relative transparency of US nuclear forces and doctrine surrounding nonstrategic forces and attitudes toward limited nuclear use. It might entail greater reluctance to engage in strategic dialogues or to offer unilateral sources of transparency. The Trump administration's disinterest in the bilateral US-Russia arms control regime and the renewal of New START is one indication that US policy may already be headed in this direction. At its most effective, a strategy of increased ambiguity might recalibrate Russia and China's risk tolerance and convince them to take steps that reduce sources of ambiguity most relevant to limited nuclear war. By withholding information about its nuclear forces and policy, the United States could create new sources of leverage to secure other strategic objectives.

Multilateral ambiguity involves risks; a lack of information can lead to worst-case thinking, exacerbate the security dilemma, and foment arms races. A multipolar, competitive nuclear landscape faced with a dearth of information could be a dangerous landscape, prone to mixed and unclear signals and a high risk of unintended escalation. This option would also introduce new challenges for extended deterrence given that ambiguity often degrades the credibility of security guarantees. Mitigating ambiguity is thus likely to become one of the central tasks of nuclear policy and strategy in an era of renewed great power competition and may well prevent great power conflict. SSQ

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Notes

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