A cultural neuroscience perspective on North Korean strategic culture

Implications for tailored deterrence

John M. Friend, *University of Hawai'i at Mānoa*

ABSTRACT. **Given the complexity of the current nuclear age and the absence of work on deterrence under true multipolarity, interdisciplinary models can provide new perspectives on tailored deterrence. Drawing from recent findings in the life sciences, this article offers a cultural neuroscience approach to deterrence decision-making, with special attention given to the ways in which culture interacts with cognition and the security environment to shape behavioral outcomes during conflict. Since North Korea remains largely a "black box" in international relations, a cultural neuroscience perspective can provide valuable insight into the effects of cultural conditioning on perception and cognition within the context of nuclear deterrence on the Korean Peninsula. Through an analysis of the bureaucratic and military structures, leadership characteristics, and institutional landscapes shaping North Korean strategic culture, this article examines the influences of historical memory and cultural values, such as collectivism, honor, and face-saving, on political decision-making in Pyongyang.**

Key words: North Korea, cultural neuroscience, decision-making, tailored deterrence, strategic culture

Nuclear deterrence served as a key component of American foreign policy during the Cold War.[1,2] Today, in an international system with nine nuclear powers and the possibility of regional proliferation in the Middle East as Iran gets closer to acquiring the bomb[3] or in East Asia in response to China's rise,[4,5] deterrence theory and strategy will continue to play an important role in international security. In particular, deterrence strategies must now, more than ever, account for the diverse sociocultural values, behavioral characteristics, and external factors affecting leaders' decision-making.

The ongoing struggle to roll back North Korea's nuclear proliferation, for example, suggests that further study of the norms, values, identities, and motivations underlying decision-making in Pyongyang is desperately needed. Recently, North Korea participated in the 2018 Winter Olympics and, shortly thereafter, signaled a willingness to suspend all nuclear and missiles tests while reopening talks with the United Stated and South Korea.[6]

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Correspondence: John M. Friend, Shidler College of Business, University of Hawai'i at Mānoa, 2404 Maile Way, Honolulu, HI 96822. Email: *jfriend@hawaii.edu*

However, some have suggested that this behavior is consistent with the regime's "propaganda ploy,"[7] as North Korea has a record of breaking from diplomatic talks once the regime receives what it wants (e.g., financial assistance, sanctions lifted, etc.).[8]

Past events suggest that North Korea will most likely remain defiant of the Non-Proliferation Treaty and refuse to abandon its nuclear weapons program completely. In fact, Pyongyang has responded to such pressure with hostile rhetoric and displays of aggression on numerous occasions. As North Korea continues to improve its missile technology, as well as the capability to miniaturize nuclear warheads successfully,[9] the security threat that the regime poses to regional stability will undoubtedly grow, in turn increasing the possibility of nuclear war.[10]

Most would agree that deterring North Korea from using nuclear weapons is the best option, as the likelihood that the regime will completely dismantle its program is low. Despite this general agreement, the type of deterrence strategy that the United States needs to confront Pyongyang and similar security challenges continues to be debated. At the center of this debate is an argument about the limitations of traditional (Cold War) deterrence theory and its rational actor assumptions.

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Most, but not all, have concluded that the United States needs to abandon the Cold War deterrence paradigm for a model that is better suited to confront a diversity of nuclear actors, such as revisionist states and nonstate actors,[11] as well as account for the complexity of political decision-making during periods of uncertainty, risk, and conflict.[12,13]

For example, Keith Payne argues that today's international security challenges, such as North Korea, require us to develop and identify new deterrence strategies that account for why leaders operate outside the boundaries of rational deterrence theory.[14] This is not to say that North Korea is an irrational actor, but rather to recognize that political decision-making often deviates from cost-benefit calculations because of emotions and cognitive biases.[15] Therefore, such an approach demands a deeper understanding of the factors affecting leadership decision-making. Along these lines, previous research on strategic culture has offered a great deal of insight into the effects of norms, values, and historical experiences on the beliefs, behaviors, and actions of political leaders. Foundational work by Colin Gray has shown that "culture shapes the process of strategy-making and influences the execution of strategy" by providing the "context for events and ideas."[16] According to Gray, strategic culture matters for the study of leadership decision-making because the "culture of the strategic players, individuals and organisations influence strategic behaviour."[17]

More recently, scholarship drawing from the life sciences has been at the forefront of this critique of rational deterrence theory, in turn providing multidisciplinary approaches to the study of international relations theory in general and political decision-making and intergroup relations in particular. Some have referred to this emphasis on psychological models and biological influences as the "new behavioral revolution" in the field of international relations.[18,19] It is new in that this revolution draws from experimental research and ongoing advances and technological breakthroughs in behavior genetics, neuroscience, and social psychology. Regarding the study of deterrence and foreign policy, researchers working within the new behavior revolution have deepened our understanding of human behavior during conflict and highlighted the ways in which adaptive behavioral traits, such as overconfidence, emotions, and cognitive shortcomings, can cause leaders to make less than rational decisions.[20,21,22,23] In short, the defining characteristic of this stream of research has been the use of empirical research on preferences, beliefs, and decision-making to better explain the complexities of political behavior.[24]

While this line of research has, undoubtedly, pushed the study of deterrence in the right direction, providing much-needed empirical evidence to international relations theory, the ways in which context, culture, and cognitive processes interact to shape decision-making have received far less attention. Since previous research has already shown that brain-culture interactions influence political and ethnonational violence,[25] the application of a cultural neuroscience approach to the study of deterrence theory and foreign policy decision-making is an important next step. Most importantly, advances and technological breakthroughs in cultural neuroscience allow us to revisit the "culture turn"[26,27,28] in international relations with new perspectives and deeper insight into the biocultural processes that shape decision-making and intergroup relations.

Drawing from a cultural neuroscience framework, this article seeks to offer a more comprehensive understanding of the ways in which the beliefs, values, and historical memories embedded within a country's strategic culture interact with the surrounding security environment to shape foreign policy decision-making, with special attention given to how perception is culturally contextualized and institutionalized over time. Given the complexity of the current nuclear age and the absence of recent work on deterrence under true multipolarity,[29] interdisciplinary models can provide new ways of expanding deterrence theory and improving tailored deterrence strategies toward North Korea and similar threats.

To achieve this, the article first provides a brief overview of the current deterrence debate and the recent call for "tailored" (individual-centered) deterrence strategies. This move toward customizing deterrence strategies to account for an enemy's cultural values, operational codes,[30] regional security concerns, and institutional constraints requires U.S. defense decision makers to incorporate findings from cultural neuroscience and cultural psychology into their assessment of the factors motivating an adversary's behavior. The U.S. Department of Defense has already expressed interest in "leveraging" neuroscientific and neurotechnological developments to better understand a leader's "neuroscientific propensities."[31]

Second, drawing from recent cultural neuroscience research, the article explores the ways in which sociocultural values, norms, and beliefs operate as influencing agents in political decision-making and discusses

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why the recent life sciences approach to deterrence needs to include cultural theories and neuroscience perspectives. However, this article goes beyond previous cultural explanations of foreign policy, such as the seminal work of Valerie Hudson,[32] by addressing the effects of cultural conditioning on political behavior and the ways in which cultural values are contextualized and interact with the surrounding environment to shape decision-making outcomes. Acknowledging that humans have "culture-ready brains,"[33] this article argues that it is impossible to fully appreciate the psychological and biological mechanisms underlying political decision-making without considering the specific sociocultural contexts in which such mechanisms are embedded.[34] Because cultural meanings shape people's interpretations of situations, a cultural neuroscience perspective can help us better understand how brain-culture interactions influence "psychological and behavioral outcomes via neural structures and responses."[35]

Third, I apply the cultural neuroscience framework to the study of strategic culture and foreign policy behavior in the Democratic People's Republic of Korea (DPRK, henceforth North Korea). Through a close examination of North Korea's strategic culture, along with an analysis of speeches and statements given by the regime, this section identifies the values, ideologies, and current and historical contexts shaping threat perception and decision-making in the country. While North Korea remains largely a "black box," some have started to explore the influence of bureaucratic and military structures, leadership characters, and institutional landscapes on Pyongyang's political behavior.[36] However, the study of the effects of historical memory and cultural values, such as collectivism and face-saving, on North Korean deterrence decision-making remains underdeveloped and overlooked in the literature. In particular, deeper investigation into the mechanisms of "cultural conditioning" in North Korean society is needed.

Finally, this article concludes with recommendations for U.S. defense decision makers. Here, I will discuss how policymakers can use a cultural neuroscience approach to identify "asymmetric methods"[37,38,39] that can be employed to undermine the North Korean regime's control over the population and possibly hinder its development of nuclear weapons. With few options available, new and creative nonmilitary tactics should be incorporated into a tailored strategy to improve nuclear deterrence on the Korean Peninsula.

Overview of the current deterrence debate

Following the end of the Cold War, the debate over deterrence theory and strategy received less attention in academic and policymaking circles. In fact, during the 1990s, some went as far as to suggest that nuclear deterrence was no longer relevant in the post–Cold War security environment.[40] Considering that America's deterrence posture was initially developed to address a specific enemy — the Soviet Union — that no longer posed a direct threat,[41] it is no surprise that some viewed nuclear deterrence as a relic of the past, incongruent with America's new grand strategy. To be sure, the United States was experiencing a "unipolar moment,"[42] a period of unprecedented military and economic power with no peer competitor in sight.[43]

This break from deterrence did not last long. The attacks of September 11, 2001, and growing concern over "rogue states" such as North Korea and terrorist organizations with nuclear weapons quickly reignited policy discussions on deterrence theory and strategy. This concern was clearly conveyed in the Barack Obama administration's 2010 National Security Strategy: "There is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists and their proliferation to additional states."[44]

U.S. defense decision makers once again called for a credible nuclear deterrent and emphasized the importance of strengthening extended deterrence to key regional allies. On the importance of building security globally through deterrence, the 2014 Quadrennial Defense Review noted,

> Our nuclear deterrent is the ultimate protection against a nuclear attack on the United States, and through extended deterrence, it also serves to reassure our distant allies of their security against regional aggression. It also supports our ability to project power by communicating to potential nuclear-armed adversaries that they cannot escalate their way out of failed conventional aggression.[45]

Since 9/11, many have rightfully pointed out that Cold War deterrence strategy is less effective against the threats that define the current international security environment. The rise of regional powers driven by hypernationalism and the growth of expansive global networks of criminals and terrorists capable of buying and selling nuclear materials challenge the utility

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of traditional deterrence theory.[46] Furthermore, in this "Third Nuclear Age,"[47] some have argued that deterrence postures need to consider both military and nonmilitary options, especially since the symmetrical situations of mutual deterrence that shaped U.S.-Soviet relations have been replaced by asymmetric threats such as terrorism, cyberwarfare, and revisionist states.[48,49] Therefore, according to Admiral James Stavridis, U.S. national security is now, more than ever, faced with a convergence of threats. The "darker side of globalization," as Admiral Stavridis puts it, has caused a "merger of a wide variety of mobile human activities, each of which is individually dangerous and whose sum represents a far greater threat."[50] In this sense, deterrence theory and strategy must not only account for traditional interstate conflict but also the different organizational structures and leadership characteristics of a diverse set of new actors.

In other words, it has become increasingly clearer that what deters one actor may not deter another, and as a result, the "I think; therefore, I deter"[51] logic of rational deterrence theory must be replaced with actor-specific strategies that address variation in decision-making behaviors and characteristics. This, in turn, requires a better understanding of the broader cultural and structural factors that shape such behaviors. On this point, the 2006 Deterrence Operations Joint Operating Concept (DO-JOC) concluded that "exercising decisive influence over the decision calculations of adversary decision makers requires an understanding of their unique and distinct identities, values, perceptions, and decision-making processes, and of how these factors are likely to manifest themselves in specific strategic contexts of importance to the US and its allies."[52,53]

According to the 2006 DO-JOC, deterrence strategy must not only be context specific and culturally sensitive but also tailored to an adversary's capabilities (military and nonmilitary) and communication styles and preferences.[54] This new emphasis on tailored communication, such as words and declaratory policies, is especially important considering the body of literature that reveals that customized messages (individual, cultural, and/or situational) improve processing fluency because they are more congruent with the receiver's mind-set.[55,56] Such a perspective makes good sense considering the importance of cultural differences in foreign policy behavior.[57]

Tailored deterrence acknowledges that deterrence can fail under certain conditions, and as a result, military strategy must manage escalation and nuclear risk. In this sense, to move beyond a standard "one-size-fits-all" approach, tailored deterrence requires that we account for the antecedents and mediators of leadership decision-making, as well as how leaders will respond during conflict when deterrence fails. As Colin Gray correctly notes, a successful deterrence strategy requires the enemy to cooperate; in the end, "he must choose to be deterred."[58] Effective deterrence, according to Gray, is partly dependent on gathering information on the values, motivations, and personalities of the leadership involved.

U.S. and South Korean defense decision makers have been exploring the possibility of tailored deterrence toward North Korea. Most notably, General Curtis M. Scaparrotti, former commander of U.S. Forces Korea, argues that strategic deterrence needs to "focus on options that raise the cost of North Korean WMD or ballistic missile use; deny the benefit of their use; and encourage restraint from using WMD or ballistic missiles."[59] One way to bolster tailored deterrence is to incorporate innovative, nontraditional tactics that undermine the North Korean regime's authority and hold on society, in turn raising the cost of vertical nuclear proliferation. Prior work on military strategy shows that strategic asymmetries can be used to take advantage of the opponent's weaknesses and/or vulnerabilities.[60]

Since North Korea appears to be undeterred by global pressure and sanctions, the threat of punishment alone may not work. In fact, during his 2018 New Year's Day speech, Kim Jong-un made clear that the United States "is within the range of our nuclear strike" and "the nuclear button is on my office desk all the time."[61] As a result, tailored strategies should focus on manipulating the regime's motivations and opportunities in such a way that state resources are shifted away from nuclear weapons development to address more pressing issues such as internal stability. This can be done, in part, by "employing nonnuclear means of coercion"[62] that undermine the regime's legitimacy and encourage deterrence through adversary restraint.[63] This approach is consistent with what Steven Metz and Douglas Johnson call political-strategic asymmetry, that is to say, "the use of nonmilitary means to gain a military advantage" over the enemy.[64]

Through an assessment of the ideas, values, and identities that shape North Korea's strategic culture, this article argues that it is possible to develop strategic asymmetries that support tailored deterrence toward Pyongyang. The models and theoretical perspectives

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found within the field of cultural neuroscience can assist with this, as the closed society of North Korea makes identifying influences on leadership decision-making difficult. Research has noted that North Korea's nuclear weapons program serves a variety of functions: a deterrent to external intervention, a means to improve internal cohesion, a diplomatic tool for negotiation, and a means to maximize military effectiveness.[65] However, less is known about the values, norms, and belief systems shaping strategic culture in Pyongyang. Considering that the North Korean leadership rejects the global nonproliferation regime and considers nuclear weapons to be a viable option in asymmetric warfare,[66,67] more attention to the cultural factors shaping decision-making during conflict is, indeed, needed.

Revisiting the "culture turn" in foreign policy analysis: Insights from cultural neuroscience

Within the field of international relations, contemporary analyses of culture tend to draw from Clifford Geertz's definition of culture as "an historically transmitted pattern of meaning embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their knowledge about attitudes towards life."[68] This understanding suggests that culture is public, shared, and deeply embedded in the behaviors, institutions, and structures of a society. It also implies that culture defines identity groups (establishing boundaries between in-group and out-group members) and, most importantly, that cultural identity is layered and situational.[69]

The study of cultural influences on foreign policy behavior often includes an analysis of the relationship between politics and culture, which Lucian Pye notes is "the product of both the collective history of a political system and the life histories of the members of that system, and thus it is rooted equally in public events and private experiences."[70] On this point, Charles Tilly argues that culture makes possible political organization and mobilization by providing repertories of collective action, which he defines as "a limited set of routines that are learned, shared, and acted out through a relatively deliberate process of choice."[71] In short, culture provides a repertoire of "adaptive responses from which members build off-the-self strategies of action,"[72] such that leaders tend to follow the belief systems and patterns that correspond to cultural values and ideologies deeply embedded within their societies.

Building on this understanding of culture, studies on strategic culture have found that national role conceptions, national styles, and the historical and political factors of a society shape the belief systems of leaders and policymakers.[73,74,75,76] Research on strategic culture either takes a norms-based approach and/or looks at national cultural identity, ethnic national homogeneity, elite allegiance to tradition, and organizational culture.[77] As a concept, strategic culture has a great deal of utility, serving as an important element in net assessments, the study of grand strategy, and as a useful frame of reference for analyzing leadership decision-making.[78] In short, the application of strategic culture to the study of deterrence has offered valuable insight into designing tailored strategies that account for the values and norms of leaders and policymakers.[79]

Despite its important contributions, many have pointed out the need to deepen this perspective,[80] as much of the work on strategic culture takes a static view of "culture" and thus overlooks how cultural values and beliefs evolve and interact with different social contexts to influence psychological processes. A cultural neuroscience perspective is helpful in this regard, as numerous studies have shown that the brain is dependent on sociocultural contexts. In fact, through its incorporation of cultural theory,[81] the cultural neuroscience framework highlights the ways in which intercultural contexts trigger a neurobiological, psychological, and behavioral chain of events that greatly shape emotional responses and thus how actors interact.[82] Ultimately, the field of cultural neuroscience seeks to better understand "how the culturally shaped mind is housed in a brain built by biological processes in the body," in turn demonstrating that such processes are not independent from "meaningful inputs from the socio-cultural world."[83,84]

Moreover, through the use of biocultural models, this line of research has offered a better understanding of the culture-specific rules underlying emotional expression and regulation and how cultural environments contextualize human behaviors across different societies.[85] On this point, Shihui Han and Yina Ma's culture-behavior-brain loop model proposes that cultural values shape the brain by contextualizing behavior, and the brain, in turn, fits and modifies culture by means of behavioral influences.[86]

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For example, recent cultural neuroscience research has shown that cultural primes, such as psychological conditions and stimuli, shape behavior by manipulating the cultural value systems that make up group identities, institutions, and social structures. According to Joan Chiao, cultural primes heighten "individuals' awareness of a given cultural value system" through explicit or implicit means.[87] The theoretical basis for cultural priming is that "some concepts in the brain are more active or accessible than others," certain situations can "cause related concepts to be automatically activated," and "knowledge that was previously active will carry over to the current task."[88]

The extant literature has identified the ways in which cultural value systems are institutionalized within a society and reinforced by the political elite. For example, Anthony Smith's work on ethnosymbolism suggests that political actors are constantly manipulating old and enduring cultural symbols in new ways to mobilize groups for new political purposes at different points in time. According to Smith, cultural symbols, composed of shared myths, memories, and values, have a great deal of emotive appeal, which the elite harnesses to promote national unity.[89] These myths, memories, and values are often reinforced through state-led education campaigns (e.g., content included in history textbooks and lesson plans) and political propaganda.[90]

North Korea is case in point. The regime's personality cult "permeates every aspects of North Korean life," and the brainwashing starts as early as kindergarten, when North Korean children are introduced to nationalistic, anti-American revisionist history and taught to be loyal to the leadership.[91] According to a 2014 United Nations Human Rights Council report, "the state operates an all-encompassing indoctrination machine that takes root from childhood to propagate an official personality cult and to manufacture absolute obedience to the Supreme Leader (*Suryong*), effectively to the exclusion of any thought independent of official ideology and State propaganda." The report further notes that this propaganda is used by the regime "to incite nationalistic hatred towards official enemies of the State, including Japan, the United States of America and the Republic of Korea, and their nationals."[92]

As Shihui Han suggests, neuronal content is flexible and continuously shaped by environments and sociocultural experiences, such that "everyday situations can have downstream consequences on thinking, feeling, and doing."[93] In this sense, the prolonged exposure of North Koreans to the values and ideas associated with the regime's political messaging has directly influenced their neurocognitive processes. In particular, the regime's propaganda has relied on Confucian discourses,[94] such as the emphasis on hierarchy, paternalism, and the family, to shape the "thinking, feeling, and doing" of the people. On this point, Jin Woong Kang argues that within North Korean society, each individual is expected to serve as "a devoted revolutionary fighter for the nation through his or her family." He further adds that the regime integrates "family and individual cells into the body of the state and nation" such that social relations are "conceived in terms of the harmonious integration of individuals into a collective whole."[95]

A cultural neuroscience approach to decision-making, including political decision-making, suggests that behaviors, actions, and perceptions of an in-group are, in part, reflective of a shared "cultural syndrome," which Harry Triandis defines as "attitudes, beliefs, norms, roles, values, and other such elements of subjective culture."[96] While not all individuals within a group exhibit these salient values equally, all members are still influenced by the cultural syndrome because it has a "cultural logic" that clusters "certain behaviors as going together," and, as a result, "individuals pattern their lives at least in part according to these culturally predefined clusters."[97] In this regard, culture has a powerful influence on an individual's perception and judgment because "culturally shared meaning systems provide varied frames to make an interpretation, and different interpretations lead to divergent psychological and behavioral responses."[98]

One well-studied example of a cultural syndrome is collectivism,[99,100] which refers to a social way of being and emphasizes the importance of membership in, and obligation to, the in-group, with relatively stable and impermeable boundaries between the in-group and out-groups.[101] Understanding the effects of collectivism on foreign policy behavior is especially important, as collectivist values are widespread in non-Western countries.[102,103,104] In collectivist societies, members tend to share a strong social identity or self-concept, which "derives from knowledge of their membership in a social group (or groups) together with the value and emotional significance attached to that membership."[105]

The enforcement of collectivist norms has been shown to shape cognitive processes during intergroup conflict and periods of ethnonational violence.[106] Work by Albert Bandura reveals that retaliation for

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norms violations is motivated, in part, by "moral disengagement."[107,108] During conflict, leaders tend to "cast their enemies in the most dehumanized, demonic, and bestial images to make it easier to kill them," a process of dehumanization that Bandura argues perpetuates inhumanities such as genocide and ethnic cleansing. Situations of uncertainty and heightened threat perception, in particular, appear to trigger group entitativity,[109] as decision makers' cultural beliefs and social identities have the greatest impact on policy during ambiguous, nonroutine situations.[110]

Building on theories of group processes, the intergroup neuroscience literature has provided deeper insight into the psychological processes that influence intergroup conflict. In particular, this line of research highlights the dynamic nature of social identity and the contextual factors that shape intergroup relations, in turn suggesting that the underlying biological systems that represent self and others (i.e., the social world) are not hardwired but rather flexible and, under the right conditions, easily manipulated.[111] In other words, external stimuli, notably the rhetoric of the political elite, influence behavior by (re)shaping social identity.

Prior research suggests that the norms, values, stereotypes, and behavior patterns that shape an individual's social identity can be triggered by different contexts.[112] Within conflict situations, for example, culture interacts with the surrounding environment to shape an actor's perception of threat and the likelihood that deterrence will work. Social cognition and behavior are context dependent in that "we are always situationally embedded in a certain environment . . . which substantially influences our perceptions of others and our understanding of the behavior of others."[113] According to Daphna Oyserman, culturally situated cognition refers to the often nonconscious impact of social context on thinking and action, such that context primes an individual's cultural mind-set in a way that makes individualist or collectivist thinking more accessible.[114] This, in turn, means that cultural syndromes such as collectivism are malleable, context dependent, and socially sensitive. A context that produces a meta-cognitive experience of disfluency, for example, can cause misperception, hinder negotiation, and, possibly, lead to conflict. Mistakes are often replicated because a leader's cultural mind-set may not be receptive to or may misinterpret signals from an adversary. In essence, what is intended to be a message of peace may be interpreted as an escalation of hostility by the opposing side.

Within the context of irregular warfare, such as counterinsurgency, counterterrorism, and stability operations, Phil Reynolds argues that information is filtered and processed by cultural norms, with military planners and defense decision makers particularly susceptible to these influences.[115] According to Reynolds, culture affects the way military leaders "read" the security environment, perceive connections, and react to the enemy. In the cases of Afghanistan and Iraq, U.S. forces with strong independent mind-sets experienced cultural blindness when operating in people-centric conflicts because they often attributed "actions to individuals' internal traits at a greater rate than to environmental factors."[116] Because of their strong independent mind-set, many American soldiers easily overlooked the external constraints that influence the enemy's behavior, such as role obligation and other social pressures common in collectivist cultures. Along similar lines, a study by Severance and colleagues suggests that there are "important culture-specific (i.e., emic) construals of aggression that render identical acts to be perceived quite differently across cultures."[117] That is, the interpretation of aggressive or peaceful acts depends on the cultural syndrome of the actors involved.

What do these findings tell us about deterrence decision-making? First, contextual cues can heighten the accessibility of cultural norms, and failing to acknowledge both internal and external influences on decision-making can be particularly detrimental to strategic deterrence.[118,119] Second, these studies suggest that what deters one actor may not necessarily deter another since external factors and culturally shaped perceptions of risk may cause an enemy to make less than rational decisions. On this point, Lawrence Freedman is correct to remind us that "plans may be hatched by the cool and calculating, but they are likely to be implemented by the passionate and the unpredictable"[120] Third, culture shapes intergroup relations.[121,122] In fact, Nisbett and Miyamoto found that westerners tend to engage in context-independent and analytic perceptual processing, causing a person to attribute events to causes that are internal to the individual. East Asians, on the other hand, tend to engage in context-dependent and holistic perceptual processing, with emphasis instead placed on relationships and similarities.[123] As a result, analytic and holistic cultural groups perceive conflict differently in that cultural themes salient in one group can be commonly imposed on the out-group. For example, one study found that Japanese participants perceived conflicts to be more

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compromise focused (*giri* or obligation violations), while Americans considered them to be more focused on infringement of the self.[124]

With these findings in mind, the following section applies the cultural neuroscience framework to an analysis of the sociocultural contexts in which North Korean deterrence decision-making occurs. The objective here is to probe the "links between culture and deterrence"[125] by analyzing group processes and intergroup relations in the country. However, it is important to note that the methods commonly used in many cultural neuroscience studies to understand human behavior (e.g., brain-imaging techniques such as functional magnetic resonance imaging [fMRI]) cannot be easily applied to the study of international relations. There are limitations to consider, most notably inferential issues related to the trade-off around experimental control and experimental realism.[126] Since cultural neuroscience research relies much more so on experimental control than realism, the inability to include North Korean political elite and policymakers in controlled fMRI studies is a setback.

Nonetheless, as Matthew Lieberman, Darren Schreiber, and Kevin Ochsner suggest, these limitations can be addressed, in part, through the integration of a "preexisting body of theory and data derived from a variety of methods."[127] Moreover, within the field of international relations, many have noted the value of neurobiological theories for exploring "complex social behavior" and the "neural bases of cognitive emotional processes" involved in political decision-making.[128,129] The conceptual contributions offered by advances in neuroscience, particularly its refinement of cultural theory, have deepened our understanding of the effects of culture on decision-making within the context of the leader-follower relationship. Leadership studies drawing from neuroscientific approaches have noted that leaders and followers are greatly influenced by socialized visions[130,131] and that leaders must tap into widely shared sociocultural norms and values to motivate and communicate effectively with their followers.[132] In this sense, a neuroscience framework[133] that accounts for the interaction between environmental, cultural, and cognitive factors can be used to better understand how the political elite draw on shared values and social identities to collectively mobilize people, as well as the ways in which cultural contexts shape decision-making in closed societies such as North Korea.

A cultural neuroscience approach to group processes and intergroup relations in North Korea

As Jihyun Kim points out, "North Korea has long been treated as an enigma and an impenetrable mystery to much of the world," in turn making the study of North Korean society "an excruciatingly difficult subject to comprehend given its closed system."[134] Ongoing work on North Korean decision-making seeks to move beyond the treatment of North Korea as "irrational" and "uncontrollably dangerous" by dealing "with the regime in Pyongyang as it is and as it is becoming instead of diminishing it as a crazy, ruthless, helpless and isolated government."[135]

Taking the rationalist perspective, some have argued that North Korea's domestic and foreign policies are not the product of a "crazy" leader, an image often found in Western media, but rather represent "a quite rational survival strategy,"[136] as the development of nuclear weapons and intercontinental ballistic missiles serves as a deterrent to foreign intervention. Although reasons for proliferation are diverse and complicated, this perspective suggests that North Korea will continue to develop nuclear weapons and strengthen its retaliatory capability in order to deter its enemies, gain diplomatic leverage on political and economic issues, and obtain security within a threatening and deteriorating security environment.[137,138,139,140,141]

On this point, Andrei Lankov argues that North Korea's belligerent and often militaristic rhetoric is an example of strategic posturing, as the leadership has shown that it knows "where to stop, how not to cross the red line, and how not to provoke an escalation of tensions into a full-scale war."[142] According to Lankov, "North Korea remains, a problem for the outside world because in order to survive, its decision-makers have no choice but to live dangerously."[143] Along similar lines, others have suggested that nuclear weapons, compared to the more expensive conventional munitions, allow North Korea to obtain security cheaply, as such weapons provide "a bigger bang for a buck." Victor Cha submits that North Korea's artillery is "poorly maintained" and in a "state of disrepair," resulting in an overreliance on nuclear deterrence to solve its regional security concerns. This is dangerous, according to Cha, "because if a crisis arises in the future, the DPRK will have less confidence in its conventional deterrent and more in its nuclear shield."[144]

Statements by Pyongyang on lessons learned from the dismantlement of Libya's nuclear program suggest that

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the leadership is extremely concerned with self-defense and skeptical of Western promises of a "security guarantee." For example, denouncing the 2011 U.S. intervention in Libya, the North Korean Foreign Ministry proclaimed, "The present Libyan crisis teaches the international community a serious lesson . . . It proves once again the truth of history that peace can be preserved only when one builds up one's own strength as long as high-handed and arbitrary practices go on in the world."[145]

However, recent research on North Korean strategic culture offers more than the cost-benefit considerations of rationalist perspectives by investigating the norms, values, and historical experiences that appear to influence both domestic and foreign policy decision-making in the country. In particular, culturalists point out that North Korea's continued proliferation, along with its blatant defiance of international norms, makes the regime more vulnerable in the long run, as heavy sanctions could weaken the government's hold over its population as well as make it more difficult to bargain with other countries.[146] As a result, cultural approaches seek to understand the symbolic value of nuclear weapons, identify the role these weapons play in a society, and explain why Pyongyang continues to pursue nuclear weapons despite the high costs.

Previous research has identified three key culturally relevant influences on North Korean national identity and decision-making: *juche ideology*, the *suryong system*, and *songun politics*. Using path-dependency theory and cognitive psychology, in particular, some have posited that these influences have become institutionalized and culturally engrained in North Korean society to the point that they restrict decision-making, including decisions regarding nuclear development.[147,148] Within this perspective, North Korean strategic culture can be understood as a dynamic set of norms and values that are not only a product of historical experiences but also continuously evolving to adjust to changes, such as power transitions, in the surrounding environment.[149]

The functions of juche ideology in North Korean society

Since juche ideology was introduced by Kim Il-sung in his 1955 speech titled "On Eliminating Dogmatism and Formalism and Establishing Juche in Ideological Work," its effects on North Korean society have received a great deal of attention, as this ideology is believed to provide "specific guidelines for the behavior of North Koreans."[150] According to Kim Il-sung, juche ideology is concerned with achieving collectivist self-reliance, and thus it requires "being the master of revolution and reconstruction in one's own country." Kim further adds, "This means holding fast to an independent position, rejecting dependence on others, using one's own brains, believing in one's own strength, displaying the revolutionary spirit of self-reliance, and thus solving one's own problems for oneself on one's own responsibility under all circumstances."[151]

Juche became official state ideology in 1972 and has since been used by Kim Jong-il and Kim Jong-un to promote "a fiercely nationalistic drive for North Korean independence and to justify policies of self-reliance and self-denial in the face of famine and economic stagnation in North Korea."[152] The juche principles of independence in politics (*chaju*), self-reliance in economy (*charip*), and self-defense in national security (*chawi*) are deeply embedded in the political and cultural landscapes of North Korea, such that these principles have become, over time, "the central feature that shapes North Koreans' lives in a predictable manner" and, as a result, have "produced divergent outcomes in response to dramatic changes in contingent factors."[153] To consolidate power, these principles were revisited by Kim Jong-il in *On the Juche idea*. In this document, Kim, like his father, argues that juche is "the struggle of the masses to create ideological and cultural conditions for an independent life, free from the shackles of outdated ideas and culture."[154] To promote the revolutionary struggle, Kim Jong-il called for a "juche-oriented culture" and "political work aimed at educating and rousing the people into action."[155]

Within the juche worldview, according to Jae-Jung Suh, there is a strong belief in a "culture of our own" that portrays the North Koreans as distinctly unique and constantly under the threat of "imperialist culture and thought."[156] Suh suggests that juche "is a form of defensive nationalism that views the outsider's cultural influences as an invasion that undermines Korea's own culture."[157] Likewise, Jung Woo Lee and Alan Bairner submit that juche ideology is a combination of nationalism and socialism that emphasizes "a shared blood line and ethnic ties bringing its members together" in opposition to external threats.[158] On this point, B. R. Myers argues that the North Koreans see themselves as the cleanest race, one that is morally pure and exceptional.[159] This exceptionalism is made possible through the manipulation of historical memory and propaganda that emphasizes past and ongoing

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trauma and glory — that is, the aggression and violence committed by imperialist powers such as Japan and the United States, as well as North Korea's triumph over these hostile forces.

The threat of imperialism has been the central theme in North Korean nationalism since Kim Il-sung and continues with Kim Jong-un today. For example, in 1978, Kim Il-sung warned the people of "a fierce struggle" in the international arena between "the forces of independence and dominationism," one in which "old and new dominationists are making desperate efforts to maintain their supremacy."[160] Most alarming for Kim Il-sung was American intervention on the Korean Peninsula, which he believed was part of the United States' "aggressive design to create 'two Koreas,'" maintain its "colonial rule" in South Korea, and, ultimately, "gobble up the whole Korea."[161] Under the "specious sign of peace," Kim believed that the United States would continue to pursue armament expansion, conduct nuclear tests secretly, and increase its military involvement in the region.[162]

As the work of Zheng Wang notes, historical trauma, while often rooted in real and widely shared grievances, is manufactured by the elite for the purposes of instilling nationalism and fostering unity.[163] The case of North Korea is no different. As a result of the aggressive and nationalistic rhetoric of the regime, anti-Americanism has become a key dimension of North Korean national identity.[164] Although the image of the "American imperialist warmonger" originated prior to the Korean War in 1948–49, Taewoo Kim argues that anti-Americanism became increasingly more widespread throughout the Cold War and during the 1990s because of active stigmatization of the United States by the North Korean government. Interestingly, before 1948, Kim Il-sung praised the United States as a "liberator" in the fight against imperial Japan, but after siding with the Soviet Union's "two camps" theory, in which the United States represented the evils of imperialism and the Soviet Union the true champion of anti-imperialism and democracy, Kim adopted the "American invader" discourse. During this time, Kim Il-sung often spoke of hostile and evil forces surrounding the country with the sole purpose of undermining the regimes legitimacy.[165]

This perception of the United States as the "mortal enemy" of North Korea is further intensified by accounts of heinous atrocities committed by U.S. forces during the Korean War,[166] such as mass bombardment and attacks on civilian targets, which Charles Armstrong notes had a "long-term psychological effect on the whole of North Korean society."[167] Following the Korean War, the United States was "degraded to a subhuman level in North Korea," taking on the image of "a wild dog," "a vampire," and "an invader" whose "only goal had been to pillage Korea from the initial phase of contact with the Koreans."[168] Like the leaders before him, Kim Jong-un continues to incite anti-Americanism by reminding the North Korean people of the "hair-trigger situation teetering on the brink of armed conflict owing to the grave political and military provocations by the hostile forces."[169] Kim Jong-un further adds that the Korean Peninsula "has become the hottest spot in the world and a hotbed of nuclear war owing to the U.S. aggressive strategy for the domination of Asia and its reckless moves for war against the DPRK."[170]

Moreover, in his 2015 speech at the 4th National Conference of War Veterans, Kim Jong-un declared that the "Fatherland Liberation War, which the Korean people fought against the haughty U.S. imperialists who had battened on aggression and pillage, was in fact a hard fight that could be likened to a bare-handed man versus brigandish robbers."[171] As far as Kim Jong-un is concerned, this fight against the "robbers" is not over: "the United States and its vassal forces are making a last-ditch attempt to stifle our republic, as they are oblivious of their ignominious defeat in the war in the 1950s and the lessons from their complete failure in the decades-long policy hostile towards our country."[172]

In many ways, the historical trauma of American brutality manufactured by the North Korean leadership, but nonetheless rooted in the real destruction caused by U.S. bombing campaigns during the Korean War[173] and thus considered to be completely true by the people, explains the deep-seated animosity toward the United States that remains today.[174] Washington's ongoing involvement on the Korean Peninsula, be it U.S. military bases in South Korea or the more recent addition of a Terminal High Altitude Area Defense in the region,[175] is used by the North Korean government to support its allegation of continued American imperialism in Asia. Even among some North Korean defectors, as the work of Changyong Choi highlights, anti-Americanism remains strong: "Honestly, when I was there [in North Korea] working as a party secretary [at the county level], I felt proud of the North Korean society about one thing. North Korea is confronting the United States, right? That was the only pride I had in North Korean society."[176]

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On the contentious issue of North Korea's nuclear weapons program, the regime has placed full blame on Washington's aggressive policies in the region, arguing that its military buildup, both conventional and nuclear, is a direct response to American hostility. During the Kim Il-sung period, the United States was accused of bringing nuclear weapons into the Korean Peninsula to threaten the regime.[177] Such accusations continue to serve as justification for North Korea's militarism. A 2009 statement released by North Korea's Foreign Ministry captures this belief well: "the nuclear issue on the Korean Peninsula was produced by the U.S. hostility and nuclear threat toward North Korea, not vice versa."[178]

With the collapse of the Cold War order and the erosion of Pyongyang's support system, specifically Soviet and Chinese ideological and financial support, the regime's list of threats has grown to include not only the United States and its "puppets" (i.e., South Korea and Japan), as was the case during the Cold War, but also "subversive means of inducing changes and reforms that are designed to destroy the very fabric of the political system."[179] For example, during his 2016 New Year address to the North Korean people, Kim Jong-un announced that "the whole nation should struggle resolutely against the sycophantic and treacherous manoeuvres of the anti-reunification forces."[180] In this sense, the regime has become increasingly more concerned with the infiltration of foreign ideas that challenge the status quo in North Korea by offering a different understanding of the world than the one promulgated by the regime. To counterbalance foreign influence, according to Han Park, the regime has accelerated "the course of ideological purification along the line of an antithesis to capitalist consumerism and socialist revisionism."[181]

The byproduct of the juche ideology and widespread anti-Americanism, along with the regime's emphasis on self-reliance, political autonomy, and self-defense against imperialist forces, is a closed group mentality and strong sense of collectivism or groupism.[182] Collectivist rules and ideological solidarity are rewarded, and thus reinforced, in North Korean society, while individualism is actively suppressed. For example, to promote development and protect North Korean society from insidious foreign influences, Kim Jong-un, like his father and grandfather, has called for the promotion of collectivist values:

> Our target is a Juche-oriented socialist power, and the might of socialism is none other than the might of collectivism. All sectors and all units should attach primary importance to the interests of the state, the Party and the revolution, introduce the successes and experiences gained by the leading units and make leaps and bounds in flames of collectivist competition. . . . Worship of big countries and dependence on foreign forces is the road to national ruin; self-development alone is the road to sustaining the dignity of our country and our nation and to paving a broad avenue for the revolution and construction.[183]

Through collectivist rituals and the "routinization of politics," according to Choi, North Koreans "accept the commitment to the group and loyalty to the state as absolute truths," with "commitment, solidarity, and loyalty" serving as central virtues within this shared belief of commonality.[184] Choi further adds that North Korean collectivism produces a culture of "honor" (face-saving), which serves as a standard of behavior "deeply embedded in many North Korean perspectives."[185,186] Likewise, a study by Jihwan Hwang notes the importance of face-saving in North Korea's strategic assessment. Hwang concludes that the regime will fight to save face, as it feels humiliated when it fails to gain the strategic benefit originally expected.[187]

The field of cultural neuroscience highlights the effects of honor and face-saving on decision-making within collectivist societies. A study by Robert Braun and Michael Genkin found that honor correlates with a strong willingness to sacrifice oneself, even to the extent of committing suicide terrorism, during conflict.[188] By placing greater value on the group over the individual, a closed group mind-set makes it easier to convince extremist members to sacrifice their lives with little to no societal backlash from the community. This belief that the group is a coherent unit and members are substitutable can easily lead to conflict escalation,[189] as a strongly shared social identity and desire to maintain personal and group honor produces retaliatory behavior (revenge) among in-group members against out-group provocations. Thus, under the right conditions, honor and face-saving can cause groups and individuals to commit both acts of heroism and heinous violence.[190,191,192]

Furthermore, this closed group mind-set, which is constantly primed by the regime through patriotic education campaigns and other forms of propaganda, produces a strong "us versus them" mentality with xenophobic and chauvinist tendencies. By tapping into

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historical grievances and animosity toward the West, the North Korean leadership triggers what Bojana Blagojevic refers to as "ethnic emotions" of fear, hate, resentment, and rage.[193] Through this process, the regime is able to mobilize the population against perceived foreign threats, which, in turn, makes conflict negotiation and bargaining extremely difficult, if not impossible.[194]

The importance of North Korea's suryong system and songun politics

In addition to the study of juche ideology, recent work on North Korean strategic culture has found that the *suryong* (supreme leader) system drives North Korea "towards a militaristic, communist 'ideal' by enforcing routine instillation of the military spirit at all times and at all levels of society."[195] According to Young Chul Chung, the suryong system was developed for the specific purpose of arming the North Korean people "with a single collectivistic ideology" that would not only unify them into a "collectivist whole" built on "fraternity" and "loyalty" but also foster solidarity between the party and the masses.[196] As Chung notes, such a society demands a "tightly woven order among all elements of ideology, politics, economy, society, and culture."[197]

As explicitly stated in the regime's "Ten Great Principles of the Establishment of the Unitary Ideology System," North Koreans must "respect and revere highly and with loyalty the Great Leader Comrade Kim Il Sung," "dedicate everything to fighting to maintain the great revolutionary value of Juche ideology," and view the Great Leader's instructions with "endless loyalty and sacrifice."[198] To instill this loyalty, the Ten Great Principles call for participation in "more than 2 hours of study groups, lectures, and collective studies devoted to revolutionary ideas of [Kim Il Sung]" and making "these studies a habitual part of daily life."[199] The regime also expects the people to "subordinate personal interests to organizational interests, and conspicuously display the collective spirit."[200]

In other words, the suryong system not only enables the North Korean regime to institutionalize the juche ideology but also ensures that the party, the nation, and the masses act in accordance with the suryong's direction. Over time, this system, through heavy doses of propaganda in the media and school curriculum, has contributed to the growth of a personality cult around the supreme leader's "genius," "achievements," and "superiority" over foreign threats.[201] To maintain this cult-like system, the regime must continuously manipulate information, isolate the North Korean people from the outside world, and maintain "a sense of hostility toward the outside world in order to reinforce internal unity."[202] A cultural neuroscience perspective suggests that the suryong system promotes group entitativity to the degree that North Koreans become "less sensitive to individual differences within the group" and "more focused on invariant similarities across members."[203] Through this process, a strong groupism is reinforced and prejudicial behavior toward unfamiliar out-groups is rewarded.

North Korea's military-first politics (*songun chongch'i*) can be seen as a way to reinforce a cohesive social identity through the promotion of collectivistic qualities that the military embodies, such as "absolute loyalty to the leader, a spirit of individual sacrifice for the common good, a high degree of discipline and order, and a commitment to collectivity."[204] Started under Kim Jong-il, songun chongch'i institutionalized militarism in the name of self-defense and continues to serve as an extension of juche's emphasis on self-reliance. Realizing that military support is important to the regime's survival, especially during periods of economic hardship and famine, Kim Jong-il gave full priority to the Korean People's Army and argued that the military serves as the "main impetus of revolution and the pillar of the country."[205] According to Han Park, "the principle of militarism is not new in North Korea; it has been sustained since the Korean war."[206] However, since then, military leadership has gained more influence in the North Korean political system, as the "military-first policy was applied to every sphere of the society including economy, society, foreign policy, and politics."[207,208] As the military became the "backbone of state governance,"[209] nuclear weapons development was quickly deemed vital to upholding and maintaining military-first politics.

Similar to Scott Sagan's argument on the symbolic function of nuclear weapons,[210] the value placed on such weapons by the North Korean regime is not solely about deterring foreign invasion; nuclear weapons also play an important role in nation-making. Because North Korea sees itself as exceptional — that is to say, the last true challenger of imperialism — nuclear weapons serve as a means to "retain its closed social order and groupism."[211] That is, nuclear weapons have become a key component of North Korean identity and part of its larger national narrative of "us against the world."

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For example, in a 2013 statement released by the Ministry of Foreign Affairs, the regime declared,

> Now our nuclear deterrence provides the powerful assurance to safeguard our sovereignty and right to survive, it is the Almighty Sword that crushes the American provocation of nuclear war and hastens the historic accomplishment of the unification of the homeland.[212]

A fact lost on many Americans, yet alive and well in North Korea, is that the Korean War is not over, and the issue of unification remains unsettled. Thus, nuclear weapons development, just like economic development, has become part of the nation-making process in North Korea.[213] This process has only become more intensified under Kim Jong-un's "Nuclear-Economy Parallel Line" (*byongjin roson*), which highlights the interconnectedness of the military use of nuclear power and economic development, as well as their importance for national prosperity.[214] As Park notes, byongjin roson not only allows the new leader to consolidate the regime and draw a distinction between himself and previous leaders, it signifies that North Korea "no longer differentiates its nuclear energy for peaceful use from military use."[215]

Thus, by recognizing both the strategic and symbolic functions of nuclear weapons in North Korea, we can conclude that the regime is unlikely to abandon its program anytime soon, regardless of the combination of incentives offered.[216] Furthermore, this institutionalization of militarism has created, a Son notes, a "wartime preferring strategic culture," which not only prioritizes national defense, even in peacetime, but also projects military values cross the society and provides the basis for mass mobilization inspired by fear and threat perception.[217] A cultural neuroscience perspective suggests that negative emotions associated with threat perception like fear, revenge, anger, and humiliation can produce less than rational, "heat-of-the-moment"[218] decisions that lead to conflict escalation and impact deterrence decision-making.[219,220,221,222] With widespread anti-Americanism in North Korean society, the regime taps into the desire for revenge over past humiliations to promote groupism and rally support for the regime's continued development of nuclear weapons.

An analysis of North Korea's juche ideology, the suryong system, and songun politics reveals that these ideas and values make possible an enduring hypernationalism in North Korean society. According to Stephen Van Evera, hypernationalism usually requires a strong nationalist self-image, unresolved past crimes, and perception of vulnerability.[223] As mentioned earlier, the regime's promotion of groupism, specifically norms of collectivist self-sacrifice and honor, has produced a national self-image in which North Koreans are portrayed as unique and exceptional. At the same time, the widespread practice of militarism has fostered a siege mentality and heightened threat perception, with the United States serving as the evil, imperialist force seeking to destroy the purity of North Korean society. Finally, anti-Americanism is reinforced through state propaganda that taps into historical memory, specifically feelings of humiliation and revenge over crimes committed by the United States since the Korean War.

As a result of this hypernationalism, the regime will not always behave in accordance with rational deterrence theory. Rather, an assessment of the historical experiences of and cultural influences within North Korea suggest that these political dynamics shape, and will continue to shape, decision-making in Pyongyang. Recognizing this, a tailored deterrence strategy must account for the "scope conditions within which cultural factors may play a larger role in strategic decisions."[224] In particular, it should include strategic asymmetries that undermine the strong national cultural identity in North Korea by, in part, challenging the regime's core ideologies and dominant historical narratives. The following section offers suggestions for how this can be done.

Conclusion: Recommendations for U.S. defense decision makers

North Korea's continued refusal to deproliferate, along with its recent development of a more sophisticated long-range missile capability that could feasibly target the mainland of the United States, has made the possibility of nuclear war appear all too real.[225,226] Recognizing the difficulty of counterproliferation on the Korean Peninsula, some have understandably concluded that the world must come to accept, and inevitably live with, a nuclear North Korea, as previous efforts such as multilateral negotiations, economic interactions, and cultural, intellectual, and familial interchanges have failed.[227]

To roll back North Korea's nuclear program, many in Washington have argued that China must be pressured to intervene. In fact, this appears to be a popular policy

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position, as some believe that Beijing holds the key to solving the "North Korea problem."[228,229] While China can, and should, work with the United States and Europe to pressure Kim Jong-un, particularly on the issue of sanctions, this approach is, nonetheless, severely limited. First, China has little incentive to aggressively intervene and surely does not want regime change to occur, as North Korea serves as a geostrategic buffer between Beijing and the U.S. sphere of influence. Second, despite popular belief, China does not call the shots in Pyongyang, and in fact it has a tenuous relationship with the regime.

According to Jae-Jung Suh, the *minsaengdan* incident, in which 500 to 2,000 Korean communists were killed between 1932 and 1935 by their Chinese comrades for being "Japanese spies," "dealt a heavy physical blow to the Korean communists, left a deep psychological scar, and almost broke the united front that the Koreans and Chinese had formed against the Japanese invaders."[230] This sense of betrayal and alienation was exacerbated during the Korean War, when North Koreans "wrangled with the Chinese over the conduct of war," and during the height of the Cultural Revolution, when the "Red Guard charged Kim Il Sung of being a 'revisionist' and spread rumors about an anti-Kim coup in a not so subtle campaign to undermine Kim's legitimacy."[231] Within North Korean historical memory, China is viewed skeptically, albeit much less so than the United States and Japan. Nonetheless, the Sino–North Korean alliance remains rocky, with China clearly classified as part of the out-group by Pyongyang. As a result of these tensions, North Korea's relationship with China should not be considered a "pure friendship," in which Beijing pulls the strings, but rather, in very realist terms, based on shared pragmatic interests. In fact, consistent with juche ideology, North Korea "assiduously avoids providing any concession of strategic value to China" and, as a result, will not easily fold to Chinese pressure that appears to jeopardize its "survival and development."[232]

Recognizing the limits of Chinese influence on the Korean Peninsula, U.S. defense decision makers must employ a wide range of options that support a tailored deterrence strategy against North Korea. Lankov is, indeed, correct to note that "there is no silver bullet or magic potion that can solve the North Korean problem instantly, easily, and painlessly."[233] A preventive attack, even a surgical strike on a limited number of targets,[234] would have significant consequences, as North Korea would likely retaliate with a massive counterstrike against South Korea, Japan, Guam, and U.S. forces in the region.[235] Such a conflict could quickly spiral into nuclear war. Therefore, given the high costs associated with military options, defense decision makers should consider implementing, as part of the U.S. strategic deterrent, asymmetric methods that both exploit North Korea's weaknesses and give the United States greater freedom of action.[236] This approach requires taking advantage of North Korea's key vulnerabilities and capitalizing on its limited preparation against such methods.[237]

Building on the cultural neuroscience framework discussed here, the United States should consider ways of undermining the strong groupism and entitativity in North Korean society, as these mind-sets support anti-Americanism and an "us versus them" worldview. One such strategy would be to introduce, with the help of South Korea's intelligence community and nongovernmental organizations,[238,239] counternarratives into North Korean society that directly challenge the regime's propaganda. For example, by providing North Koreans with access to global popular culture (e.g., films, television shows, music, etc.), prodemocratic literature, international news stories, and new technologies, it is possible to slowly liberalize the country from below, open up the closed group mentality of the population, and challenge the cultural and ethnic chauvinism promoted by the regime. While complete regime collapse is an unlikely scenario, one with an entire set of additional problems attached,[240] the United States and its allies can encourage bottom-up cultural and societal shifts in North Korean society that weaken the regime's influence and authority to the point that it has no choice but to negotiate with the outside world on arms control. That is, in order to effectively address internal instability, the regime would need to find solutions to external pressures.

Pyongyang is already concerned that the infiltration of foreign "cultural pollution" will weaken its grasp over the population, as new ideas and values could challenge juche collectivism by disrupting the suryong system. In fact, in the Ten Great Principles, the regime warns of "anti-Party and anti-revolutionary thinking trends" that contradict, or seek to sabotage, the thought of the "Great Leader Kim Il Sung."[241] It further calls upon the people to "resolutely struggle in opposition to anti-Party elements such as factionalism, regionalism, and nepotism that could destroy the uniform solidarity of the Party and never waver a the slightest hint of such menace to completely overcome it."[242]

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This fear has only intensified over the years. Since the widespread famines and economic instability of the 1990s, "the collectivistic social order that the suryongje intended to build began to decay. Individualism rose as many tried to provide for themselves."[243] Furthermore, with the growth and spread of information technologies, the suryong system has been further compromised. Despite the Hermit Kingdom's tightly policed borders and control of information, Woo Young Lee and Jungmin Seo point out that South Korean popular culture (*hallyu*) has found its way into North Korea, usually smuggled into the country on MP3 players, memory chips in cellular phones, and USBs, and has become extremely popular among the young population in the North.[244]

In fact, recent interviews with North Korean refugees found that K-pop, a form of South Korean soft power,[245] serves as a strong "influencing agent" for defection.[246] A cultural neuroscience approach suggests that the introduction of new ideas and values can influence the cognitive processes of the North Korean people and the regime's constituents, such as high-level party members and policymakers. As Hyo Jong Son submits, by exposing "the isolated North Korean populace to information such as world news and the realities of North Korean politics,"[247] it is possible to induce change in their awareness, restore their right to information, and undermine the narratives promoted by the regime.

Moreover, the establishment of numerous circulation routes into North Korea has already contributed to the rapid growth of rudimentary markets across the country.[248] Bradley Babason notes that North Korea has pursued a strategy of "controlled capitalism" to promote economic development, as the regime has come to accept the limits of economic isolation and the need to attract foreign trade and investment.[249] This inflow of capital has produced outdoor markets and the emergence of an entrepreneurial class, or what Lankov calls the "new rich"[250] in North Korean society. Sanctions against the regime will revitalize the private market economy and weaken the closed order of the suryong system.[251] Thus, as a powerful counterculture takes shape in North Korea through the inflow of new ideas and cultural values, it will be harder for the regime to hide social and political contradictions. As a result, the regime may be forced to replace its current "reform without openness" model with one that looks more like Chinese-style reform — that is to say, the "reform and openness" policy started under Deng Xiaoping.

In conclusion, U.S. strategists have been "particularly fearful of nondemocratic countries," since leaders of such countries are portrayed as being more prone to irrational decision-making and willing to sacrifice their populations during a nuclear conflict.[252] A cultural neuroscience approach suggests that less than rational decision-making is part of human nature, not limited to nondemocratic societies, and influenced, in part, by cultural values and social contexts.

The life sciences critique of deterrence theory has offered a great deal of empirical evidence on how biological and neural mechanisms shape political decision-making and intergroup relations, in turn suggesting that Kenneth Waltz's "first image" matters just as much as, if not more than, the "second image" in foreign policy analysis.[253] The study of deterrence has, undoubtedly, benefited from advances in the life sciences, particularly research that explores the ways adaptive traits like overconfidence and xenophobia cause deterrence to fail. However, absent from the life sciences critique is work that explores the processes through which cultural values shape decision-making and social identity. Findings from the fields of anthropology, social psychology, and cultural neuroscience have shown time and again that we have culture-ready brains and that cultural values and beliefs have a significant effect on how we perceive the actions of out-group members and read our surrounding environments.

Because of this, the study of tailored deterrence requires a cultural neuroscience approach that accounts for the ways in which culture interacts with the security environment to shape cognitive processes during periods of uncertainty, risk, and conflict. This approach offers a better understanding of the importance of culturally tailoring signals during crisis management, as well as ways to develop asymmetric methods that offer more freedom of operation. Considering the diversity of nuclear powers in the international system, along with the growing possibility of regional proliferation,[254] sociocultural factors should be incorporated into tailored strategies to improve the overall effectiveness and credibility of deterrence.

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