
Deterrence and Space Warfare

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Authored by: Dr. John J Klein

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Dr. John Klein, Delta Solutions & Strategies, LCC



Dr. John Klein, callsign “Patsy,” is a Senior Fellow and Strategist at Delta Solutions & Strategies, LLC. He also teaches space policy and strategy courses at George Washington University’s Space Policy Institute, Georgetown University’s Strategic Studies Program, and the Institute of World Politics at the undergraduate, graduate, and doctorate levels respectively. He routinely writes on space strategy, deterrence, and the Law of Armed Conflict. He is the author of the books *Space Warfare: Strategy, Principles and Policy* (2006), *Understanding Space Strategy: The Art of War in Space* (2019), and the recently released *Fight for the Final Frontier: Irregular Warfare in Space* (2023), along with a score of other book chapters and articles.

Patsy is also a retired Commander, United States Navy, having received his commission through the NROTC program at Georgia Tech. He served for 22 years as a Naval Flight Officer, primarily flying in the S-3B Viking carrier-based aircraft. Patsy supported combat operations in Iraq and Afghanistan. His tours included the Executive Officer of Sea Control Squadron Twenty-Four and the final Commanding Officer of Sea Control Weapons School.

Patsy holds a master’s in Aeronautical Engineering from the Naval Postgraduate School, a master’s in National Security and Strategic Studies from the Naval War College, and a PhD in Strategic Studies from the University of Reading, England. Patsy is a distinguished graduate of the U.S. Naval Test Pilot School. He has over 2,700 flight hours in 27 different types of aircraft and over 600 carrier arrested landings.

Deterrence and Space Warfare

Dr. John Klein, Delta Solutions & Strategies¹

The strategy of space warfare is a subset of general warfare strategy; therefore, the ideas of deterrence, compellence, and dissuasion have applicability in the space domain. Even though deterrence has a legitimate role in future space strategy, it is not the panacea for preventing conflict. History teaches that deterrence will, at times, fail due to miscalculation, uncertainty, or chance. This may also be the case for deterring acts of aggression during strategic competition in space, especially considering countries such as the US, Russia, and China have fundamentally different perspectives on deterrence, compellence, and escalation control. First, this paper details the foundations of deterrence theory and differentiates between the concepts of deterrence, compellence, and dissuasion. The idea of space deterrence is also introduced. Second, the cultural and societal views of Russia and China are explored to help explain how US deterrence efforts may or may not actually affect the decision calculus of rivals. The idea of those considered “undeterrable” is highlighted, because of the implications for US space deterrence activities. Third, a synthesis of what deterrence means for the future of space warfare is summarized.

¹ Contact Information: kleinjj@email.gwu.edu

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War has an enduring nature. Therefore, millennia of historical experience and the practical implementation of strategy can help highlight the relevant lessons for deterrence in space. Through such foundational understanding, more suitable space strategies may be developed, and effectual technological solutions proposed to achieve political ends during conflict.

This paper will address the broad family of thinking that includes the ideas of deterrence, compellence, and dissuasion. These ideas pertain to affecting the decision calculi of others. While it is sometimes convenient for policymakers and strategists to argue about definitions and terminology associated with this idea, it is postulated in this paper that if the idea is considered as merely seeking ways to affect another's thinking, the concept and methods to achieve the desired end state are easier to consider and develop holistically. This is because when using specific definitional language, it is possible to create unintentional "gaps and seams" in strategic concepts. Furthermore, while words have meaning, there is "intellectual baggage" associated with the previous terms to the point that it is, at times, difficult to have a thoughtful and objective conversation on how these deterrence concepts relate to space strategy.

Underpinnings of Deterrence Theory

When the desired effect is to change others' thinking, avoiding direct confrontation by persuading them that hostilities should not be pursued because of expected failure or associated costs, this is commensurate with deterrence (through either denial or punishment). This may entail affecting—to include changing or reinforcing—the decision calculus of the potential adversary. In a frequently cited definition by Thomas Schelling (1966), deterrence is "persuading a potential enemy that it is in his own interests to avoid certain courses of activity." To Schelling, deterrence is synonymous with defense, because it is based on a response to something considered unacceptable (Schelling, 1966, p. x). The purpose of deterrence is to influence someone's behavior.

The underlying basis of space deterrence theory—a subset of general deterrence—is that the threat of credible and potentially overwhelming force or other retaliatory action against any would-be adversary is sufficient to deter most potential aggressors from conducting hostile actions in space. This definition may also be referred to as deterrence by punishment. In contrast, when the idea is to convey to an adversary that they should cease some current action—requiring the adversary to respond—this is more along the lines of compellence. Schelling describes compellence as a direct action that persuades an opponent to give up something that is desired (Schelling, 1966, pp. 69-72). Any effort to affect the decision calculus of another is best served by clearly communicating one's desire, intent, capability, and rationale for military response. This requisite communication is not achieved solely through official statements or policy documents, but also through a demonstrated history of consistent actions.

Of note, both military and non-military means are applicable in affecting the thinking of others. These non-military means equate to soft power, or the diplomatic, informational, and economic instruments of national power. Non-military means can be used to affect another state leader's thought processes—whether reinforcing a currently held view that is beneficial to the affecting state or changing the view of another state's leadership or politics. Consequently, practical implementation may entail political and diplomatic efforts, such as new international treaties or agreements, multimedia stories presenting news in a favorable perspective,

and commerce and trade activities that increase one's own economic influence or negatively affect a potential adversary or opposing alliance.

James Finch and Shawn Steene (2011) have noted the need to think about space deterrence as deterring attacks against space systems while bolstering an overarching deterrence posture. They suggest an approach utilizing the familiar means of imposing cost, denying benefit, and encouraging restraint. Through such an approach, it is thought that should deterrence fail in space, national leaders have options and capabilities that allow them to prevail in the broader terrestrial conflict.

Some critics may question whether there is, in fact, space deterrence or if the idea should just be called deterrence, implying that there is only one multi-domain war to be deterred (Vedda & Hays, 2018). While intending to be thoughtful, this question misses the point. A better question to ask is whether current activities and systems in space can change the thought processes of potential adversaries. This answer is simple, at least to this strategist: "Yes." Words having meaning and any terminology should be as clear as possible. Yet any phrase or terminology chosen to convey the concept is of secondary importance to an understanding that there are indeed actions that can be taken relative to space that affect the decisions of others. Moreover, there are actions relative to the instruments of national power and operations in the other domains that can affect decisions relative to operations and actions in space.

Dissuasion

Another aspect of a holistic space strategy seeking to influence the decision calculus of potential adversaries is dissuasion, which is meant to discourage the initiation of military competition. Often, the term dissuasion is used when describing actions "that should be taken against those identified as posing a threat to American interests prior to such potential adversaries having the actual capability to pose a danger" (Segall, 2008, p. 1). To be effective, dissuasion activities must occur before a threat manifests itself. Dissuasion includes "shaping activities," which are typically non-military in scope and are conducted during peacetime (Krepinevich & Martinage, 2008). Within the US military lexicon, dissuasion is said to work outside the potential threat of military action and has been called a kind of "pre-deterrence" or deterrence by denial using Glenn Snyder's (1960) terminology. According to Snyder's definition, deterrence by denial is "the capability to deny the other party any gains from the move which is to be deterred" (Snyder, 1960, pp. 163-178). Drawing upon Snyder's thoughts, Paul Davis defines the concept as "deterring an action by having the adversary see a credible capability to prevent him from achieving potential gains adequate to motivate the action" (Davis, 2014, p. 2). A strategy incorporating dissuasion seeks to convey the futility of conducting a hostile act, thereby causing a potential adversary's leadership to not pursue a military confrontation in the first place.

A potential adversary may be dissuaded if it concludes that an attack in space will be ineffectual in achieving the desired effect. In the parlance of today's US space professionals, this is the realm of space mission assurance. Space mission assurance efforts consist of three parts: (1) defensive operations, which include off-board protection elements; (2) reconstitution, which includes launching replacement satellites or activating new ground stations; and (3) resilience, which includes on-board protection elements (Office of the Assistant Secretary of Defense, 2015). Of note, resilience includes disaggregation, distribution, and diversification. Disaggregation of capabilities is "the separation of dissimilar capabilities into separate platforms or payloads" (Office of the Assistant Secretary of Defense, 2015, p. 6). Distribution utilizes several nodes, working together, to perform the same mission or functions as a single node. Diversification is contributing to the same mission in multiple ways, using different platforms, different orbits, or systems and capabilities of commercial, civil, or international partners. In the end, space mission assurance may leverage cross-domain or alternative government, commercial, or international capabilities. Viable dissuasion measures include actions resulting in

a potential adversary not seeking a military confrontation. Therefore, multiple measures—including distribution, redundancy, maneuverability, and protection—are all appropriate for promoting dissuasion in space.

A key element of these examinations of dissuasion, or deterrence by denial, is the recognition that to dissuade aggression in space attacks, would-be aggressors must perceive that their attacks will be futile. This agrees with Everett Dolman's (2002) writings that significant defensive and offensive space capabilities may dissuade others from attempting to compete in space. As with deterrence, any space mission assurance effort, however, must be widely publicized to be effective in dissuading others. Mission assurance, inclusive of the idea of resilience, remains a primary means to affect a potential adversary's thinking when employing a deterrence by denial strategy.

The Strategy Mismatches

The strategist's job is to develop a practical strategy given the unique conditions in which it is to be implemented. Such a process is far from perfect. When formulating what would appear to be a logical and sound strategy, a time-tested adage must be remembered: "the enemy gets a vote." Framing the problem when considering deterrence, Steven Lambakis puts it poignantly, "Our values are not necessarily their values. Our ways may not be their ways. Just because we would not do it, does not mean they would not do it" (Lambakis, 2001, p. 183). A strategy—including one in which deterrence is a central element—should only be judged as effective in relation to how the strategy affects the mental calculus of another. Therefore, when considering deterrence by denial or punishment approaches, it is necessary to understand how a potential adversary's view may differ from one's own world view or implementation of a deterrence strategy.

Strategy mismatches—where there are different cultural and social understandings of deterrence and escalation control—are some of the most dangerous situations between states. This danger is because states, whose leaders may consider themselves to be rational and reasonable in not seeking direct military confrontation, may find themselves in such a war, regardless of their intent or desire. Because of the different understandings of deterrence in preventing war or deterrence's ability to control escalation during conflict, it is useful to contrast American and many Western countries' views against those considered "undeterrable," along with the different deterrence definitions of Russia and China. The Russian military's strategy of "unacceptable losses" and the Chinese view of using "compellence" through military actions to avoid conflict are two different strategy approaches that American policymakers and strategists should understand well.

The Undeterrable

When considering deterrence, it must be remembered that some people or foreign leaders will not be deterred. Putting forth the correct perspective on the efficacy of deterrence, Colin Gray observes, "Polities are not always deterrable; they may decline to be coerced, or even when heavily physically damaged, they may elect to soldier on and hope for a change in strategic fortune" (Gray, 2012, p. 296). In reference to those who will not be swayed in their decision for violence regardless of the threat of a severe military response to a hostile attack, Gray calls such individuals "fools," because they are far more likely to commit errors of a kind that result in wars, or at least a high measure of regional disorder (Gray, 2007, p. 125). He goes on to say, "Deterrence could be irrelevant in such a case, because the foolish foreign leader may not believe in the latent or explicit threats we issue, or, just possibly, may not care whether or not we execute them" (Gray, 2007, p. 125). Karl Mueller has similarly noted, "if the enemy has nothing to lose, even a very risky action may be preferable" to maintaining the status quo (Mueller, 2013, p. 43).

So, it does not matter whether one thinks a potential adversary should be deterred given an action or situation; it only matters how the adversary's leadership and decision-makers interpret any action within their worldview and mental constructs. While such a situation may be disconcerting for those seeking the "guarantee deterrence," that is the reality of international affairs.

Russia

Over the last decade, Russia has been implementing its vision of strategic deterrence that is built on demonstrating a spectrum of capabilities and resolve to use military force. Russia's strategic deterrence is conceptually different from its Western namesake in that it is not limited to solely nuclear weapons. In describing strategic deterrence, Russian military writings (as cited in Fink, 2017) describe the term as an approach seeking to "induce fear" in opponents, whether in war or peacetime. Therefore, the concept includes elements of what others could call deterrence, containment, and coercion. Russia's strategic deterrence approach is grounded in its understanding of internal and external threats, including a sense of military asymmetry compared to the West. Russian military doctrine (Embassy of the Russian Federation, 2015) describes perceived dangers from the US and NATO readiness to use military force, instability and terrorism that could challenge Russia's sovereignty, and a local conflict on its vast borders that could escalate into hostilities, which could include the use of nuclear weapons.

Mark Schneider observes that from the Russian perspective, strategic deterrence is not entirely defensive. Within US security circles, some may consider Russia's view of strategic deterrence as an "escalate to deescalate" (Schneider, 2017, p. 368) strategy—even though that term is not used within Russian military doctrine or strategies—because the idea includes using military force and actions to potentially deescalate hostilities or tensions. The Russian concept transcends a traditional perception of deterrence having failed if conflict erupts. Therefore, deterrence can continue to work "in times of war to prevent escalation, to ensure de-escalation, or for the swift termination of conflict on terms acceptable to Russia" (Russian Federation Ministry of Defense, 2018). Strategic deterrence seeks to influence wartime calculations through demonstrating Russian willingness to use coercive measures. Whereas the sheer destructiveness of nuclear weapons means their mere existence should be enough to deter, it is thought that non-nuclear and non-military measures, in particular, must be demonstrated or used coercively to deter a potential adversary. The Russian term strategic deterrence is thus an inclusive concept describing the following: activities aimed at preventing any threat from materializing against Russia; activities aimed at deterring any direct aggression against Russia; and, lastly, activities focused on coercing an adversary to cede in a confrontation to terms dictated by Russia (Adamsky, 2015).

Besides the large-scale use of strategic nuclear weapons—which is considered to inflict "deterrent damage" (Kalinkin, Khryapin, & Matvichuk, 2015, pp. 18-22)—the threat of limited or non-strategic nuclear weapons use is also thought to have a deterrent effect. Limited use of nuclear weapons could de-escalate and terminate combat actions on terms acceptable to Russia through the threat of inflicting "unacceptable damage" (Bogdanov & Chekinov, 2012, pp. 11–20) upon the enemy. Consequently, limited use of nuclear weapons is thought to deter both nuclear and conventional aggression. Although many Western analysts may assume that non-strategic nuclear weapons are the most likely option for such limited use, most Russian analysts make no distinction between strategic or sub-strategic nuclear weapons in this respect.

Additionally, Russian doctrine (as cited in Sobolevskii, Protasov, & Sukhorutchenko, 2014) describes the threat of the massive use of non-strategic nuclear forces and strategic non-nuclear forces, under the idea of regional deterrence, the result of which might include the destruction of the opposing military forces and irreparable damage to the economy of the aggressor. Emphasis on the interchangeability of conventional precision

weapons and limited or non-strategic nuclear weapons is habitual within Russian doctrine. Current Russian thinking is that conventional weapons could carry out missions like those of nuclear weapons, such as demonstration strikes and limited strikes aimed at de-escalation, while also destroying targets critical to the enemy.

Russia's strategic deterrence concept highlights that a misunderstanding regarding intent could well fuel escalation dynamics, especially with those holding to a Western view of deterrence. In a nascent crisis, it is thought that Russia is likely to engage in deterrence signaling and increase the readiness of selected conventional and perhaps nuclear capabilities. Most notably, Russia's plans to control escalation by using conventional precision-strike missile systems on an opponent's military and economic targets increases the likelihood of unintended escalation, especially when employed alongside cyber and electronic warfare attacks (Oznobishchev, 2016). Communicating what actions may result in retaliation constitutes a key element of deterrence strategy, but Russia's expanded deterrence concept is noted to be deficient in this regard. While Russia's strategic deterrence seeks to exploit the attention and fear generated by indirect uses of military force, Russian analysts have also argued that Moscow must seriously engage Western proposals on transparency of conventional forces.

China

As with Russia, the Chinese concept of deterrence is fundamentally different from US and Western thinking. In their analysis, Alison Kaufman and Daniel Hartnett note the Chinese concept of deterrence (*weishe*) includes a significant element of compellence and coercion; therefore, Chinese deterrence goals may include actions seeking to intimidate the opponent through economic, diplomatic, or military coercion in a way that "directly affect[s] an opponent's interests in order to compel him to submit to Beijing's will" (Kaufman & Hartnett, 2016, p. 54). In the 2001 edition of the Science of Military Strategy, the dual nature of this idea was highlighted in defining strategic deterrence as "a military strategy [in which one] displays or threatens to use force in order to compel (*poshi*) the adversary to yield" (Peng & Yao, 2001, p. 230). Analysts of Chinese strategy urge readers to also keep in mind the nuances in the terms used, especially those with more coercive connotations (Kaufman & Hartnett, 2016). Dean Cheng has similarly noted the following when describing the difference between Chinese and American views of deterrence: "The Chinese focus is on compellence, including coercion, rather than solely, or even primarily, on dissuasion. Thus, the idea of 'deterrence' is seen in both coercive and dissuasive terms." (Cheng, 2018, p. 2) As a result, the Chinese see deterrence as a means to achieving political ends.

More importantly, the phases of crisis and conflict differ between the United States and China. According to Kaufman and Hartnett, Chinese writings consistently identify a continuum of conflict by describing a series of stages in the progression from least to greatest crisis and conflict. These stages across the continuum are crisis, military crisis, armed conflict, local war, and total war (Kaufman & Hartnett, 2016, p. 20).

The most potentially dangerous state on the continuum of conflict is thought to be the middle part of the continuum, in which military activities are taking place and the objectives are less clear. This middle of the continuum includes military crisis and/or armed conflict, in which militaries are involved but war has not yet broken out. Military operations in the state of "quasi-war" appear to have dual objectives. The first is to resolve the crisis and prevent the onset of war, and the second is to prepare to win a war should one break out. Several People's Liberation Army (PLA) texts argue that during a state of pre-war, "armed conflict," countries may take limited military action to "clarify the situation" or persuade the other side to de-escalate (as cited in Kaufman & Hartnett, 2016, p. 20). According to PLA writings, military activities in this stage may resemble combat operations, even if the countries involved do not consider themselves to be at war. Of concern is that PLA

writings do not provide any clear indications of how an outside observer would discern the differing intentions of these military operations.

Another difference in thinking relates to deterrence during war versus deterrence in each domain of warfare. China does not appear interested in “deterrence in space” or deterring an adversary from acting in the space domain or acting against space assets. Deterrence is thought of holistically and not isolated to each domain of potential conflict. Instead, China’s strategists are focused on “deterrence through space,” thereby integrating space activities with conventional, cyber, and even nuclear to influence an adversary (Kaufman & Hartnett, 2016, p. 20). Additionally, Cheng has observed the following regarding the Chinese view of space deterrence’s broad impact: “This reinforces the point that, from the Chinese perspective, ‘space deterrence’ is not about deterring adversaries from acting in space but exploiting space-related systems to achieve certain political and military aims (largely on Earth)” (Cheng, 2018, p. 2).

Kaufman and Hartnett (2016) are concerned, because it is unclear whether US leadership, policymakers, and strategists grasp the important distinctions between Chinese and American views. PLA writings promote several crisis and conflict control actions that could appear escalatory. In combination, the PLA notion that there can be a stage of armed conflict short of war—together with a doctrine that advocates going on the offensive early in a war—has serious escalatory implications. The 2013 Science of Military Strategy says that it is important to “not be afraid to (ganyu) use military deterrence methods, particularly in space, network and other new domains of struggle, to smash the enemy’s warfighting command systems” (cited in Kaufman & Hartnett, 2016, p. 56). Any of these could be perceived by an opponent as escalatory if initiated during a crisis—even if the PLA does not intend them to be perceived as such. As a result, Kaufman and Hartnett warn that there is a high likelihood of misperception and misunderstanding between China and the United States in the state of “quasi-war” (Kaufman & Hartnett, 2016, p. 56). Because of the PLA’s well-known emphasis on seizing the initiative in war, one can envision a situation where the PLA takes what it intends to be a limited military action in a state of pre-war, but an adversary assumes that it is the beginning of a large-scale attack.

Conclusion

The strategy of space warfare is a subset of general warfare strategy. Consequently, the ideas of deterrence, compellence, and dissuasion have applicability in space strategy, just as they do in the other domains. Even though deterrence has a legitimate role in future space strategy, it is not the panacea for preventing conflict. History repeatedly teaches that deterrence will, at times, fail due to miscalculation, uncertainty, or chance—an idea incorporating the concept of Clausewitzian friction. This may also be the case for deterring acts of aggression in space, especially considering countries like the US, Russia, and China have different perspectives on deterrence, compellence, and escalation control.

Finally, more dialogue and debate regarding deterrence should be welcomed among the national security space and policy communities, even if it results in the acknowledgement that the United States lacks the requisite capabilities and processes. The United States and other space powers need to be able to respond at any point within a space competition continuum and at any location. Such dialogue—including any resulting refinement to US space strategies and development of novel space capabilities—aids in promoting international peace and stability, while also helping ensure that US national interests in space are better protected.

The views represented here are the author’s alone and do not necessarily represent those of the US Department of Defense, the Georgetown and George Washington Universities, or Delta Solutions & Strategies.

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