Dominance in a Warfighting Domain Won't Get Us There:
Thoughts on a Comprehensive Approach for Space Security[1]

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Introduction

Over the next several decades, the US is likely to face a continuously evolving set of security challenges involving space. The good news is that US military superiority in the physical and digital domains seems to have raised the perceived cost of serious, direct military conflict with the US for Russia, China, and Iran among others. The not-so-good news is that US military dominance does not appear to have changed the security interests that lead to conflict with the US, but instead has pushed actors to change tactics to avoid open warfare with the US while continuing to pursue security objectives by other means. It is in this context of conflict short of warfare—what some have called the "gray zone"[2]—that the national security establishment frequently finds itself. Space is a vast yet crowded domain where operational challenges are exacerbated by the increasing prevalence of dual-use commercial-military technologies, and the difficulty of maintaining reliable situational awareness. It is perhaps the ultimate gray zone.

In response to the increase in space-based and counterspace activities among potential US adversaries, senior national security space (NSS) leaders have embarked on a public campaign of statements, interviews, conferences, and per newly customary political communications—Tweets, to signal a shift in the way that the US looks at space security. What was previously regarded as a sparsely-populated domain in which the US enjoyed overwhelming superiority, has in the past year or so been described as a crowded, contested "warfighting domain." Air Force Secretary, Heather Wilson, and senior Air Force leaders recently made this point to Congress, arguing that—as in the air domain—the strategic imperative in space is to achieve superiority and dominance by defensive means or, if necessary, by attack.[3]

The suggestion is that the US concept of the threat environment in space is continuing to evolve from one requiring that critical space systems have adequate defenses and that space services are resilient to interruption, to one that includes use of preemptive and kinetic action against adversary space capabilities that threaten our own. In other words, constructs such as deterrence and warfighting that are engrained in US strategic thinking about other domains, should be considered just as essential for space. If this is the case, the question becomes: Does identifying space as a "warfighting domain" and working/spending toward US space superiority constitute a sufficient foundation for sustainable and security in space?

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[1] This paper provides an update and extension of remarks first delivered at the National Security Space Institute (Fall 2017).

[2] For a review of Gray Zone thinking, see Bragg, B. (2017). Integration Report: Gray Zone conflicts, challenges, and opportunities (http://nsiteam.com/integration-report-gray-zone-conflicts-challenges-and-opportunities/), and R. Elder & L. Levi (Eds.) (2017). Gray Zone challenge: intent and military response (http://nsiteam.com/gray-zone-challenge-intent-and-military-response/).

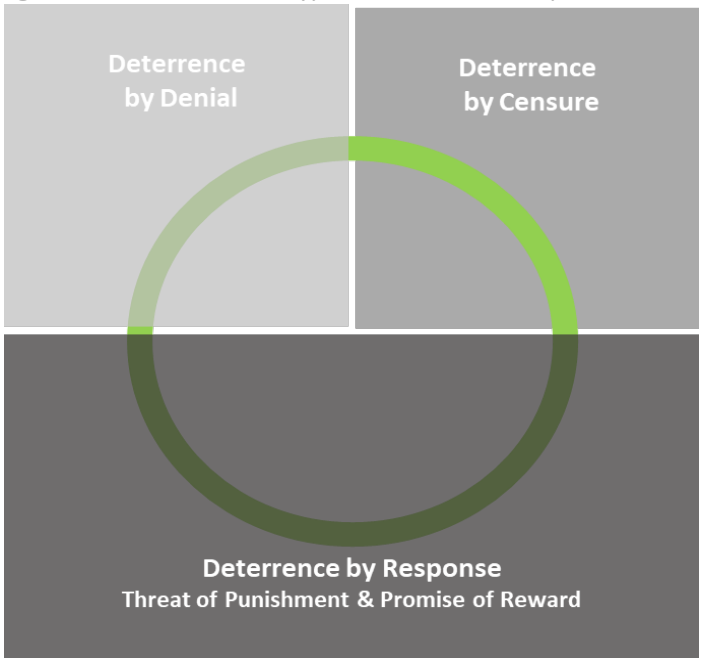
[3] Department of the Air Force presentation to the Subcommittee on Strategic Forces United States Senate: Heather Wilson, Secretary of the Air Force; General David l. Goldfein, Chief of Staff of the Air Force; General John W. Raymond, Commander, US Air Force Space Command; Lieutenant General Samuel A. Greaves, Commander, Space and Missile Systems Center. 17 May, 2017.

A Framework for Space Deterrence

Few would argue with the assertions that space is now a contested environment and that US national defense is heavily reliant on space-enabled capabilities. However, we must realize that US dominance in all other domains can easily render statements by US policymakers that call for dominance in space warfighting into textbook examples of how to fuel an arms race, by increasing the threat perception of prospective adversaries—especially among near-peers. The purpose of military capability of course is to avoid or deter militarized conflict in the first place. With respect to space, we are not in the realm of nuclear-era, mutually assured destruction (MAD)-type deterrence in a security environment characterized by a very small number of known, capable opponents with similar enough motivations that we might assume the threat of kinetic punishment is the most effective deterrent. When it comes to space, our deterrence concept must be much broader.

We can posit a system of three overlapping and mutually-reinforcing modes of deterrence that are applicable to space. None of these are sufficient, but together they may represent a framework for thinking about how best to protect and defend US capabilities in space. These are: a) *deterrence by denial*, b) what we will call *deterrence by response*, and c) *deterrence by censure*. The most successful, stable and cost-effective national security strategy—for space or otherwise—will require a balance of the three (see Figure below for a graphic representation).

Figure: Overview of Three Types of Deterrence in Space



Deterrence by Denial: System Protection

Of the three types of deterrence, solutions for system protection and service reliance (e.g., hardening, anti-jamming capabilities, reconstitution, disaggregation, etc.) have received significant attention and funding to the point of what appears to be a significant imbalance or over-prioritization of technical solutions and activities related to this component of the defense triad. The financial and personnel resources and bureaucratic attention devoted to this certainly are crucial for national defense. However, failing to act on other types of deterrence makes it extremely difficult to make design decisions like determining when systems are protected enough. The point is that the various protective measures under debate in the national security space community operate based on the same influence mechanism: They are intended to prohibit adversary gain from aggression either because the protections are very difficult to penetrate or because the cost of doing so would far outpace the desired gain. Relying on physical and other protective measures—deterrence by denial—alone is insufficient to assure a secure space environment. While protective measures are effective means for redirecting a prospective adversary's tactics or the targets it chooses, they do not necessarily block an adversary from pursuing aggressive intent by other means.

Deterrence by Response: Influencing Political Decisions with Carrots and Sticks

This discussion leads us to the second type: deterrence through direct threat of punishment or promise of reward. An adversary's intent, goals, objectives, and strategy—critical constructs in security policy and planning—are *cognitive* constructs; they live in the mind. Competition, conflict, and warfare are each governed by human knowledge, emotion, will, and desire. Deterrence is another cognitive construct that lives only in the mind. In the context of international relations, it is a *political choice* that a potential adversary makes; it is the result of some decision calculus.

Twentieth century US deterrence thinking often overlooked the possibility of influencing with carrots as well as sticks. In either case, before deterrent costs or rewards can be associated with particular activities, we must have a set of behavioral expectations for space. That is, we need to communicate our concept of the rules of the game, providing some sense of what is likely to be acceptable and what is not. It is a risky proposition to begin making deterrent threats while the targets of those threats (not to mention the one making the threats) are unclear on which behaviors, effects, targets, and contexts will provoke a negative response.

There are certain categories of effect that are deterrable in all contexts. First among these are efforts to disrupt, degrade, or eliminate kinetically or non-kinetically US nuclear forces, including command and control. Second are attacks on the homeland that involve significant damage to infrastructure (including the economy) or populations. Beyond these, the differences among and between actions or effects in space that are considered acceptable (e.g., announced launch of commercial satellites from one's own territory); annoying but generally tolerable competition; unacceptable but below the threshold of open warfare (e.g., jamming or interfering with a non-essential satellites), or identified as open acts of aggression or war (e.g., possibly interfering with nuclear command and control) must be made clear.

Once the bounds of space behaviors or effects have been communicated, the minimum requirements for successful deterrence are capability and credibility. Specifically, the actor to be deterred must believe that the deterrer has the capability to implement the threatened retaliation for a prospective adverse act, and/or deliver the promised rewards for abstaining from that act. The trickiest part of successful deterrence for the US is not capability—we have demonstrated pretty handily to the world that if there is a coercive capability out there, we have it or are about to get it. The trickiest part for the US is convincing adversaries and friends that we *will use* our capabilities to respond—that our threat is credible.

From a security perspective, clearly delivered and understood messages delineating which behaviors are considered unacceptable, and thus subject to response, are essential. The only area where ambiguity can in some cases help to stabilize deterrence is how and when a response might come. To date there is little to no guidance on what the US and its allies see as the bounds of acceptable and unacceptable behavior in space, or even what types of responses may be on the table. We have established no rules of the game. This deficit makes effective deterrence messaging very difficult, and has undermined the credibility of our messaging. It is imperative that the norms or rules regarding security operations involving space systems be clarified. Not only with our near-peers, but also with US partners in enduring rivalries (e.g., India-Pakistan; Israel-Iran), some of which expect US support and extended deterrence guarantees.

Deterrence as Censure: Development of International Norms

Although we do not commonly think of "norms leadership" as a key component of US defense strategy, development of favorable international norms is likely to be more crucial to successful US deterrence of

aggression in space than either system protection or threats of retaliation or offers of rewards. By norms, we mean simply implicitly shared understanding of what is acceptable or expected behaviors. These can grow from unstated precedents, to tacit, informal, formal, or legal agreements. Importantly, not all norms are "good" or "favorable" to most parties; there are "bad" or negative norms, but they nonetheless are norms if they are expected behaviors.

Calls for US leadership in development of international space defense norms have met with some push-back from within the national security space community. These arguments include: 'there is no such thing as international norms,' as well as 'international laws and accords are unenforceable, so have no impact on behavior.' Yet another objection is that the US working to establish norms and "rules of the road" for military activities in space is fruitless, as near-peers will be interested only in establishing rules that constrain the US and will hold us to those rules, while violating them themselves. In other words, taking a leadership role in developing international standards of behavior for space is at best a waste of time, and at worst self-defeating.

Of course, there already are norms relating to space activities, including principles like the right of self-defense that is invoked in the UN Charter and Outer Space Treaty, universal access to space, space management like launch notification, avoiding creating space debris, keeping distance between satellites, etc. More to the point, however, norms of behavior play an important role in the effectiveness of deterrence not just by helping to clarify and communicate the rules of the road, as discussed above, but also by presenting an additional type of cost for prospective violators to calculate. Consider Bashir Assad's recent use of chemical weapons against his people. Syria is not a signatory to the chemical weapons ban, but it was not difficult to justify and gain widespread support for taking action against the regime on the grounds that his actions represented clearly and internationally understood intolerable behavior.

In working to forge international consensus on standards of acceptable activity in space, the US must consider a much broader cast of stakeholders than has been the case in many past national security efforts. Showing up and listening to others in international fora, using the great advantage the US has in the size and dynamism of its commercial sector, will propel us closer to influence over space operations than will pursuing the increasingly costly and possibly elusive goals of hardening space assets from weapons and dual use technologies, and seeking space dominance or control. Moreover, while we may not avoid an arms race altogether, a less strident approach may be to slow the pace by clarifying the US position as consistent with what our principles always have been—that is, supporting free access to trade and opportunities for economic growth along with protecting our homeland and those of our allies.

Here is the real value in shaping the creation of international norms for space: Only established norms have the potential to alter an adversary's objectives relative to US national security space capabilities and thus to deter actions before they are considered. Precedents and norms are being established all the time—whether or not the US likes it or leads their development. If the US does not lead, or does not take an international and collective view of space, it is a certainty that other actors with less experience in space, or commercial enterprises that do not share the US security agenda and principles, will step in and possibly set unfavorable norms or precedents which at that point can be very difficult to turn back. Of course, the US is not immune from inadvertently helping to set precedents that over time can develop into unfavorable norms of behavior in space. Especially coming from the US, referring to space as a warfighting domain may be such a precedent. It has let the world know that the US is willing to strike first in space or on the ground when our space assets are threatened, and will escalate there if necessary. Regardless of how our opponents may think of space, they have been put on public notice

that, from the US perspective, use of force in space is not really beyond the pale and the threat to their own systems from the US has likely increased.

A Final Word

Simply pursuing control or dominance in space as a security objective is not likely to serve as an effective or credible deterrence strategy for space. Without clarity about the range of acceptable behaviors involving space and international coordination to help standardize these, the currently proposed approach encourages prospective challengers to arm against the newest threat posed by the state with the greatest capacity to attack or retaliate in space or on Earth. Fueling an arms race will in turn make it more difficult to achieve dominance and space control, and even more expensive to sustain once achieved. Here is the thing for space policy makers and defense strategists to consider: Do we really need to dominate in space, or can we get to a secure space environment by employing multiple modes of influence? If the US can influence adversaries' choice of targets and tactics, the political calculation to seek or avoid conflict, and ultimately take the lead in helping the international community to formulate norms that shape the objectives in space that actors feel are necessary to pursue, it may not be necessary to dominate or fight a war in space.