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Forging a Sino-US "grand bargain" in space

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Abstract

Sino-US competition, and even conflict, in space seems increasingly likely in light of recent anti-satellite events. Advancing the cause of non-weaponization of space has long been limited by the scope of discussions. This article recommends to the incoming US administration a bargaining strategy that encompasses wider issues, increasing the possibility of circumventing this impasse and achieving improved security for US space systems by forestalling an anti-satellite arms race. Including commercial space and civil space issues in discussions with China on space security, in a type of "grand bargain" negotiation, may lead to agreement between the parties on a code of conduct in space. Simultaneously taking certain hedging positions against default may improve the US bargaining position and increase the likelihood of compliance.

In 1970, Mao's senior economic planners warned the Chairman that China's expanding military and economic needs would quickly outstrip China's capacity for oil production. What was more, after years of economic isolation, the only way production could be sufficiently expanded was to import Western technology and expertise [1]. Faced with an economic and strategic imperative threatening China's external stability and bouts of nationalistic fervor threatening internal stability, Mao must have received the overtures of détente from Henry Kissinger with some measure of relief. Nearly 40 years later, China finds itself again dealing with a restive and nationalistic populace, struggling to maintain economic growth, and restrained by technological embargo. On the sidelines, the American superpower is again weighing the mandates of confrontation versus engagement, except this time the mandate lies in the heavens.

In Washington's space security community the debate has coalesced around the question of whether the future of Sino-US relations in space should more closely resemble arms control or an arms race—illustrated by the intercepts and destruction of satellites by both nations a year apart. Whatever direction Washington and Beijing take in their nascent military space competition is certain to be followed by other major and emerging space powers.

Unfortunately, the existing trend in both nations is for promoting an offensive space strategy aimed primarily at one another. With a new US administration, whichever candidate enters office will face the challenge of finding viable alternatives to the anti-satellite arms race that lies at the end of the present course, an outcome that would be in neither party's interest. The incoming president might avoid such a security dilemma with China by utilizing the full range of US soft power, backed by realistic hard power consequences. This will require the incoming administration to expand its understanding of what constitutes a space issue, and to develop a deeper knowledge of what motivates China's leadership. Using both persuasion and dissuasion to craft a kind of "grand bargain" with China regarding space, the next president may be able to steer Sino-US competition toward trade, economics and sport, rather than military one-upmanship. Accomplishing this would strengthen US national security and international stability in the Pacific region.

1. A history of strategic misunderstanding

China's incentive to develop anti-satellite weapons results largely from the US military presence in the western

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Pacific and the US military's reliance on satellites for its doctrine of net-centric warfare. As Ashley Tellis of the Carnegie Endowment for International Peace has argued, "The near-term objective of preventing what Beijing would call Taiwanese secession from the mainland—and defeating any US expeditionary forces that may be committed in support—remains the dominant consideration for China's military modernization" [2]. To wit, the Pentagon has noted China's diversified portfolio of anti-satellite technologies, including "kinetic energy weapons, high-powered lasers, high-powered microwave weapons, particle beam weapons, and electromagnetic pulse weapons for counter-space application" [3]. Some US researchers studying Chinese military doctrine have written that counter-space operations are seen as an increasingly necessary component of China's military concept of "future 'informationalized' warfare", including hacking into satellite systems and other electronic attacks [4].

The logic of China's investment in counter-space operations follows from what it sees as a regional security environment that, in the foreseeable future, will be dominated by an asymmetric balance of power vis-à-vis the USA. Unless altered by domestic political will from the highest echelons of leadership, anti-satellite technologies will probably remain a part of its larger access denial strategy against the USA. Add to that a bilateral relationship peppered with crisis incidents, and often fueled by mutual misunderstanding, and the potential for a crisis situation to spiral out of control should give pause to any responsible leader.

Since the Reagan era, US interest in on-orbit and anti-satellite weapons has stemmed from three intertwining strategic concerns: the threat of ballistic missile strike, protecting the space systems upon which the US military depends, and preventing an adversary from using space in the same way as the US military does to enhance its conventional military prowess. After President Reagan announced the Strategic Defense Initiative in the 1980s, "China began a program to modernize its strategic missile forces because of doubts about the survivability of its small nuclear deterrent" [5]. The Pentagon notes that the Chinese Navy is developing the necessary technologies to field a nuclear submarine fleet, a key to increasing the survivability of China's nuclear deterrent in the face of a second-strike-nullifying ballistic missile shield [6]. The current US strategic policy of "space dominance" aims at ensuring US freedom of action in space, as well as the ability to deny the use of space to adversaries [7]. China, with some good reason, sees itself as particularly vulnerable to such space doctrine, and in response may feel compelled to develop countervailing measures, in order to counteract the proscriptions of US policy. The USA cannot reasonably be expected to abandon its space capabilities, but a more constructive *modus vivendi* can surely be found by demonstrating that both the USA and China are "responsible stakeholders" in the realm of space.

2. Spacefarers' code

While China and Russia have long sought a treaty to ban weapons in space, off-and-on interest in Washington in space-based missile defenses and a US reluctance to close off options for ensuring "space superiority" have thwarted any forward motion for decades. That said, one cannot easily dismiss the concerns of many in the US military leadership that China's interest in a space weapons ban stems primarily from a desire to block US space-based missile defenses, as well as to limit the ability to contain China's growing military presence in space. Indeed, while the draft treaty tabled by China and Russia earlier in 2008 at the UN Conference on Disarmament would prohibit space-based missile defenses, it would not ban terrestrially based anti-satellite weapons of the kind Beijing tested in January 2007. Further, one cannot totally dismiss US government arguments that using a traditional, technology-based arms control approach to ban counter-space weapons might prove to be problematic given the inherent difficulty of distinguishing between benign and offensive technology.

In response, some who advocate a negotiated solution in space have put forth concepts for a "code of conduct" for space activities, which would outline rules of behavior in peacetime, something similar to those that govern traffic on the high seas, or set limitations on the rules of engagement during conflict [8]. Under such a code, for example, space users could agree not to engage in intentional creation of persistent debris in peacetime and foreswear destructive measures against satellites during conflict, as debris contaminates the space environment and thus presents a threat to all users. Another provision might be the establishment of a "zone of control" around a satellite into which intrusions of foreign objects would be seen as violations of sovereign territory and threats to the satellite. These provisions would establish norms of behavior that temper the headlong rush toward an arms race in space. Such interactions and mutually agreed upon norms may help provide escape ramps in future crisis escalation scenarios. In 2001, when a Chinese fighter jet collided with a US Navy reconnaissance plane, the lack of established norms of communication hampered a quick resolution to the crisis. Only some seven years later have the militaries of both countries established a crisis hotline, underscoring the need to open a dialogue earlier, rather than wait for a sudden emergency.

While the Bush administration has recently signaled interest in voluntary transparency and confidence-building measures regarding the use of space, it continues to reject any legally binding instrument. China, meanwhile, has refused to consider anything less than a full-blown weapons ban treaty, to be negotiated under the auspices of the UN Conference on Disarmament. Thus, the quest for diplomatic constraints on any future anti-satellite arms race continues to be held hostage to the China–US stalemate.

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3. Fist in a velvet glove

The USA has the opportunity to use both dissuasion and persuasion to break the impasse and open a dialogue. Short of withdrawing from the western Pacific, the USA can employ many different methods to convince China to play a more responsible role as an emerging space power.

First, in the matter of dissuasion, many analysts have pointed out that anti-satellite weapons provide very little in terms of added security for US space assets. Rather, the best way to preserve US conventional force lethality and information dominance is through implementation of defensive measures for on-orbit assets, transition to more flexible networks of satellite constellations, and diversification to alternative service delivery platforms. These measures would spread the risk of losing any one segment of the network, reducing the potential strategic or tactical payoff in targeting the space segment in the first place [9]. Such measures require no bilateral negotiation, and can in effect enhance the bargaining position of the USA. Given very real resource constraints, the Chinese military may elect to divert to other projects the investment needed for research, development, and procurement of an effective and reliable anti-satellite capability. Therefore, an early and decisive policy of dissuasion on the part of the USA, and allies, could effectively dampen enthusiasm in China for destructive technologies and behaviors.

Nevertheless, without an agreed upon understanding, the incentive to strike at what many Chinese strategists consider the Achilles' heel of the US military machine is likely to remain a dominant consideration in China's space strategy. Clearly, China's leaders are driven by the strategic imperative to protect and project national sovereignty. This motivation has resulted in the *Shenzhou* manned spaceflight program and the *Chang-e* lunar probe mission, as well as the formation of cooperative associations such as the Asia–Pacific Space Cooperation Organization. An important dividend of these programs is the promotion of China's national prestige, both domestically and abroad. As the defenders of China's sovereignty and international image, the Chinese Communist Party (CCP) relies on such programs as a bulwark for the regime's claim to legitimacy. Yet, even as the CCP stokes nationalistic zeal, it fears losing control of its citizens, making constructive outlets for nationalism, such as can be offered through international space cooperation, of vital importance.

The next US president must recognize these incentives in the regime's calculus, and leverage them as key points for agreeing on limits to the nascent space arms race.

4. All options on the table

Considering Chinese investment in its space program as a centerpiece of national prestige and as a lever for economic development, the USA has the opportunity to link a variety of related economic incentives with opening, and concluding, negotiations on a code of conduct in space, including Chinese abandonment of destructive anti-satellite weapons programs. These potential bargaining chips include such options as participation in the International Space Station (ISS), joint exploration missions, reform in US policies restricting sales of commercial satellite hardware, and licensing of Chinese launch services. In exchange, China might willingly restrict behaviors that could lead to strategic miscalculation in space, as well as certain forms of counter-space capabilities.

Providing what the Chinese want in civil and commercial space arguably would cost the USA little, and in this value–cost differential exists the potential of a mutually beneficial agreement. In international prestige, no greater prize currently exists for China than to be recognized and be admitted as a partner in the ISS. While the ISS program would benefit from Chinese investment and the potential use of *Shenzhou* modules for crew or cargo transport, the reality is that China needs ISS more than ISS needs the Chinese, even with the imminent retirement of the Shuttle fleet. With the successful docking and cargo transfer of the European Space Agency's Automatic Transfer Vehicle in March 2008, the need for a backup to *Soyuz* is not yet a dire urgency [10]. The approach can be gradual, with perhaps the visit of a Chinese space tourist to the station, before the docking of a *Shenzhou* cargo vehicle, then perhaps the inclusion of a Chinese module to the station, culminating in a routine rotation of Chinese personnel on the station. Indeed, ISS participation offers a stepwise schedule of incentives in negotiations with the Chinese.

After the 1998 Strom Thurmond Defense Authorization Act imposed restrictions on the export of commercial satellites and related technologies under the State Department's Munitions List and the International Traffic in Arms Regulations (ITAR), Beijing considered such policies as primarily an effort to contain China's rise as a space power and to prevent its space industry from competing with US industry on the international market. The congressional rationale for the move was, and remains, concern about the transfer of space technology that could be used by the Chinese to improve their intercontinental ballistic missiles, even though technology migration has traditionally gone the other way around, from ballistic missiles to space launch vehicles. Whatever the motivation, the immediate effect of the export control shift was to all but close the Western satellite and launch market to China and vice versa, since US export law extends to all space systems that use US parts.

US export laws may have slowed, but have demonstrably failed to "contain" China's progressive development of space launch and satellite technology. They have also failed to prevent—and some argue have instead provoked—Sino-European cooperation in space, leading to the growth of an "ITAR-free" business model in both Europe and China, to the detriment of the US space industry. As noted by a recent report by the Center for Strategic and International Studies, "Not only have these requirements harmed our domestic technological and manufacturing

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base, but they have had a drastic negative effect on both the hard and soft power utilization of space'' [11]. Further, the commercial satellite industry has long advocated the exemption of certain technologies from the list, arguing that these technologies are already available off-the-shelf. It seems that US government officials are finally listening, as the Pentagon's Defense Technology Security Administration and the National Security Space Office are working to review satellite components with an eye to removing at least some of them from the Munitions List [12]. Thus, the cost of ITAR reform, with regard to commercial space, is in reality likely to be much less than some fear, and may be necessary for maintaining the viability of the US satellite industry.

Finally, lifting the ITAR restrictions, in whole or at least in large part, opens the previously blocked path of cooperation with China in space exploration. Cooperation on civil space traditionally has been seen in the USA as a tool of soft power and a method of dampening tensions between potential adversaries, dating back to the *Apollo–Soyuz* Test Project. Enabling, for example, a multi-nation cooperative program in lunar exploration would again be a ''prestige'' incentive for China, which wants very badly to be seen as a world-class space power. Arguably such broad international cooperation on space exploration would also benefit the USA directly by allowing NASA to more widely share the nontrivial cost burdens at a time when budgetary pressure on the US government is growing rapidly.

There will no doubt be those in the US Congress who oppose opening commercial satellite trade with China—some on the basis of the military technology transfer argument and some out of concern about another low-cost competitor to US launch firms on the international market place. Yet, given the above facts and the fact that doing so would remove a long and deeply held thorn from China's space hand and thus provide a powerful incentive for Chinese cooperation regarding a code of conduct, this option should be strongly considered by the next administration.

The relationship between the USA and China will remain a complex one and perhaps the world's most important bilateral relationship in the 21st century. The issue of space security, while only one of many issues of contention, is a high-stakes one that can either stabilize or further destabilize the relationship. A code of conduct establishing clear boundaries delineating the behaviors of responsible stakeholders in space would be an important step toward improving Sino-US ties. By using a two-pronged approach of mitigating US space systems' vulnerability, and negotiating Chinese acceptance of a space code of conduct using incentives like joint space missions and commercial space policy reform, the next president could open a window to avoid an incipient space race with China. Managing such a feat would not only serve peace and stability on Earth and in the heavens, but also it would make a fitting legacy to Nixon's opening of China.

Disclaimer

Both authors' views are solely their own.

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