

**Taking Sovereignty Out of This World:
Space Weapons and Empire of the Future***

Raymond Duvall
University of Minnesota

Jonathan Havercroft
University of British Columbia

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Introduction

Explicitly invoking the frightening image of a “Space Pearl Harbor” as a potential disaster the United States must strive to avoid, the 2001 *Report of the Commission to Assess United States National Security Space Management and Organization* urged official policy action on “five matters of key importance”.¹ First among those recommendations is the “demand that U.S. national security space interests be recognized as a top national security priority”.² In making this call, the Commission, originally chaired by Donald Rumsfeld, was speaking in terms unfamiliar to neither the national security community, nor even to Congress. Indeed, the mandate of the Commission on its establishment in the *National Defense Authorization Act for Fiscal Year 2000*³ was similarly framed:

The commission shall, concerning changes to be implemented over the near-term, medium term and long-term that would strengthen United States national security, assess the following: (1) The manner in which military space assets may be exploited to provide support for United States military operations.⁴

These statements, which are now far from unusual, together with the substantial resources being committed to investment in the militarization of space, indicate clearly that earth’s orbital space is currently very much part of the territorial object of military-security planning.⁵ The strategic imaginary of several contemporary militaries, most prominently that of the United States, includes securitization of, through, and from outer space under such rubrics as missile defense, space control, and force application from space. Space weapons, then, are no longer just a fantasy, an unrealizable fiction. They are rapidly becoming a very real possibility. The questions that arise are: What is to be made of this development? What are the implications if that possibility were actualized? Specifically, how will the deployment of weapons in orbital space affect the structure and character of modern international relations? We take up those questions in this article.

The paper opens with a general consideration of theoretical premises, both substantive and methodological, that inform our analysis. Substantively, we assume that technologies and cartographies of political killing have substantial political consequences. For this, we build on insights in the work of historical sociologists, especially Charles Tilly, and work by early international relations theorists, particularly John Herz and Hans Morgenthau. In very different ways, these thinkers argued that shifts in military technology (along with other processes) have generated changes in the forms of political entities (for example, the emergence of sovereign states in late-medieval Europe) and in the nature of relationships between entities (for example, the possibility and character of warfare between states in a context of nuclear weapons). We extend that line of thinking and focus on constitutive effects that emerging space-weapons technologies likely have on the ontology—the social identities—of the political entities that compose the international system, which, in the modern era, is to say on the constitution of sovereignty. This first section also addresses briefly a methodological premise of our argument, that (likely) constitutive effects in the future can be analyzed through the discernment of structural logics revealed in the present. In asking what kinds of subjects are *logically* produced by specific forms of structured social relationships, we are engaged in a variety of constitutive analysis. This premise enables us to analyze constitutive effects of not-yet-realized weapons developments. For the latter, we

present and very briefly defend one additional substantive assumption—that the United States, alone, is apt to develop an effective space weaponization project.

Before analyzing constitutive effects on sovereignty, however, we turn, in the second section, to current manifestations of the project of space weaponization in order to set the empirical ground for that analysis. We identify and briefly describe three types of space weaponization programs currently being pursued, at least by the U.S.: space control, space-based missile defense, and force application from orbital space. In discussing these programs, we argue that existing literature tends to ignore important questions about the consequences of the weaponization of space, focusing instead on questions about the technical feasibility and tactical utility of space weapons. Where consequences are considered, they are almost always cast in terms of causal effects on patterns of strategic interaction among states, particularly impacts on power-balancing behavior (e.g. space arms racing) or cooperation (e.g. globally reformulated collaborative security). While acknowledging the importance of those questions, we ignore them in this paper. Our concern, by contrast, is the constitutive effects of space-based military technologies on world political order, particularly its foundational ontology, sovereignty.

In the third section, we engage the constitutive analysis and thereby establish the primary argument of the paper: space weaponization structurally (or logically) constitutes a new type of imperial power through the counteracting forces of centralization of the sovereign power of decision-making and de-territorialization of sovereignty. We build that argument in steps. Specifically, we explore the constitutive effects of each of the three types of space weaponization discussed in section two. We argue that space-based missile defense undermines the cold war defensive logic of mutual assured destruction (MAD) by simultaneously reinscribing the territorial borders of the United States from missile attacks by foreign powers and stripping from all other states their ability to defend themselves against attacks from the United States. Space control, in denying access to space to potential adversaries of the U.S., would privatize the commons of orbital space for (U.S.) commercial and strategic interests, thereby expanding the frontier of American Empire into low-earth orbit, while reinforcing the effects of missile defense in establishing a singularity of effective sovereignty. Finally, force application from space enables a type of global air-superiority, making it possible for the U.S. as sole possessor of such weapons to project lethal force at any target, at any location on Earth, on very short notice. In addition to exploring the constitutive effects of each of these specific modes of space weaponization separately, we consider, most importantly, their conjoint effects in constituting a new, historically unprecedented, type of global political rule, which is simultaneously centralized but de-territorialized sovereignty—empire of the future.

In the final section of the paper we conclude with a consideration of two types of implications of our constitutive analysis. First are implications for currently influential theories of empire and imperialism, which in our view must be revised in light of the constitutional logic of empire of the future. Second are implications for the possible—and the desirable—modes of resistance that might exist under this new imperial form. We wish to be clear that we are neither technological determinists, nor do we believe that such weapons will be so overpowering as to prevent any possibility of resistance.⁶ Just as other military technologies, such as airpower and precision-guided munitions, have proven vulnerable to low-technology strategies aimed at neutralizing their efficacy, space-based weapons systems

may also be vulnerable to similar counter-measures. As such, our paper concludes by examining how resistance and insurgency might be practiced under a new global regime of space-based empire.

I: Theoretic Premises

Modes of political killing matter

Scholars and practitioners have long recognized that technologies of destruction and economies/cartographies of violence have substantial impact on the form and character of relations within and among political societies.⁷ A substantial literature on the war-inducing/war-preventing effects of offensive versus defensive military balances provides testimony to that recognition,⁸ as do arguments commonplace in realist theory that changes in military technology can bring about changes in the distribution of power and, in turn, often violent international systemic change, an argument made especially influentially by Robert Gilpin.⁹ So, too, does the seemingly unrelated concern with the putatively profoundly destabilizing effects of modes of political killing that intentionally target ‘civilians’ or ‘non-combatants’, one such mode frequently labeled terrorism,¹⁰ and another—if carried out by socially legitimate authorities—deemed illegal under the terms of established international humanitarian law.¹¹ All of these lines of thought, and others, rest on the assumption that the dynamics of political interaction and even systemic structure of international relations are causally affected by the availability and use of technologies of violence.¹²

The significant effects of modes of political killing, however, are not limited to causally shaping social-political relations of stability and instability within and among existing political societies. Effects can be in terms of constitutive processes, as well. That is, technologies of destruction and economies/cartographies of violence are, in part, constitutive of what political society *is*; modes of political killing are productive of political subjects. Research by Charles Tilly¹³ and others¹⁴ on the development of the modern states-system rests on and expresses this point. In this highly influential interpretation, the modern, territorial state became—it was socially constituted and produced as—the dominant form of political society in relationship to and through newly emerging technologies of destruction and economies/cartographies of violence (in conjunction, of course, with other processes).¹⁵ On quite a different register, Alexander Wendt’s argument about teleology and the inevitability of a world state also rests on an assumption of the constitutive effects of modes of political killing on political society. In his view, a world state is inevitable, in part because endogenously changing technologies and economies of violence alter what it means to be a state seeking security in relation to other states.¹⁶

The modern state is constituted and produced as subject of global political life—“international relations” and the domestic polis—through and in terms of the institution of sovereignty. To *be* a modern state is to be socially recognized and legitimated as sovereign, even if incompletely and, in some respects, largely symbolically¹⁷ and/or in practice as the “organized hypocrisy” of sustained legal and normative principles that are periodically violated by other sovereigns with greater power.¹⁸ Lacking social acknowledgement that it exists as the locus of sovereign authority—that is to say, in the absence of generally accepted normative principles that it has the capacity and the right (the authority) to make law and

decide the exceptions to that law—the modern state loses its status as subject of global political life.

If the constitutive effects of modes of political killing are to be adequately theorized with respect to the changing subjectivity of the dominant form of political society in the contemporary era, then, a central issue must concern consequences for the constitution of sovereignty. Regrettably, few scholars have addressed that crucially important question. A significant exception is the strand of political realism that Daniel Deudney labeled “nuclear one worldism”.¹⁹ That tradition, initiated by Hans Morgenthau and especially John Herz early in the nuclear era, offered an incisive argument about nuclear weapons’ de-territorializing effects on states.²⁰ Herz begins with the assumption that “Throughout history, that unit which affords protection and security to human beings has tended to become the basic political unit; people, in the long run, will recognize that authority, any authority, which possesses the power of protection”.²¹ In his view, the power of protection, on which the constitution of the sovereign authority of the modern territorial state is founded, is completely eroded by nuclear weapons. The state loses its “hard shell” of defensibility, and with it the foundations of its sovereignty. For Herz, nuclear weapons conjoined with air warfare capabilities mean that “Whatever remained of the impermeability of states seems to have gone for good”,²² because even the possibility of their use “obliterate[s] the very meaning of unit and unity, power and power relations, sovereignty and independence”.²³ Succinctly put, and in somewhat tempered terms, “the meaning and function of the basic protective unit, the ‘sovereign’ nation-state itself, have become doubtful”.²⁴

As Deudney points out, this initially influential argument has mostly fallen out of favor with the passage of time, as the horrific potential of nuclear war has receded in political imaginaries, and as a different strand of realist thought emphasizing the stabilizing effect of nuclear deterrence has become widely accepted. According to the latter view, which Deudney labels “deterrence statism,” nuclear war can be, and is, deterred by the assurance of mutual destruction. This deterrent effect serves to re-inscribe the territorial integrity of sovereign state authority. But as Deudney argues

The current near consensus among international relations theorists that the state has weathered the nuclear revolution could turn out to be as far off the mark as the widely held view, proclaimed by Zbigniew Brzezinski in 1986, that the US-Soviet rivalry was ‘an effectively permanent feature of world politics.’ In short, the simplest nuclear one world scenario of ‘after the deluge, the covenant’ retains a residual credibility that forbids us from ever completely dismissing it.²⁵

That “residual credibility,” Deudney believes, should and can be given new theoretical life if a more complex appreciation of the forms and effects of military technologies is developed than that provided by the early “nuclear one worldists,” and if a fuller theorization is offered on the constitution of political societies/political subjects.

We take up that challenge in subsequent sections of this paper, extending but appreciably modifying the “nuclear one worldist” basic insight, by asking how a crucially important, but mostly ignored, set of developments in technologies of destruction and economies/cartographies of violence—specifically, efforts to militarize/weaponize orbital

space—have significant constitutive effects on sovereignty, and accordingly on the sovereign territorial state as subject of global political life.

Constitutive analysis of future effects

In examining constitutive effects scholars ask how structured social relations and the processes of their (re-)production constitute what a referent object *is* as a social kind. To engage in constitutive analysis, then, is to investigate the structural determination of the ontology of a social being or social form.²⁶ Our concern, however, is with not-yet-realized social beings and social forms of the future. How does one analyze the social constitution of that which is not yet constituted? The answer, we maintain, lies in examination of the structural logics of their production. Structured social relations entail (often very powerful) reproductive logics, the constitutive implications of which can be discerned even prior to their effectuation. Those constitutive implications are structural tendencies—likelihoods—not determinant products, of course. But to the extent that operative reproductive logics are strong, future constitutive effects can be identified with some degree of confidence. This is precisely the character of the analysis underlying Alexander Wendt’s argument about teleology and the inevitability of a world state,²⁷ as well as Herz’s argument about the loss of the state’s “hard shell”.

U.S. singularity

Finally, we assume that, *if* a wholesale and effective project of placing weapons in orbital space is to be achieved, that achievement is likely to be first, and quite possibly solely, by the United States. We emphasize the word, *if*, because we acknowledge that the feasibility of space weaponization is far from decided. But we also recognize that, on the other hand, there *are* military strategists who are already designing potential missions for such space-based weaponry. And, by all publicly available indications, the U.S. is far ahead in leading the implementation of these missions. Consequently, if the U.S. military can overcome the obstacles of cost and launch technology, as many in the security community now believe that it can, then it is quite conceivable that within the next ten to twenty years the U.S. will place weapons in space. *If* it is successful in doing so, the fact that part of its project is to deny access to orbital space assets to its enemies implies that the U.S. might well establish itself as the sole, or pre-eminent, actor in respect to space weaponization. Accordingly, we focus our analysis in this paper on that situation, ignoring here the possibilities of either a competitively balanced multi-actor arms race in space weapons, or a multi-national collaborative process.²⁸ Both of those scenarios are worthy of analysis. But, we maintain, so too is the scenario of U.S. singularity, which is the focus of analysis here.

II. The Project of Space Weaponization

The placing of weapons in orbital space has an intimate relationship to space exploration, in that the history of the former is embedded in the latter, while the impetus for space exploration, in turn, is embedded in histories of military development. Since the launch of Sputnik, states that have ability to access—and hence to explore—orbital space have sought ways in which that access could improve their military capabilities. Consequently, militaries in general and the U.S. military in particular have had a strong interest in the military uses of

space for the last half century. Early on, the military interest in space had two direct expressions: enhancing surveillance; and developing rocketry technologies that could be put to use for earth-based weapons, such as missiles. Militaries also have a vested interest in the “dual-use” technologies that are often developed in space exploration missions. While NASA goes to great lengths in its public relations to stress the benefits to science and the (American) public of its space explorations, it is noteworthy that many of the technologies developed for those missions also have potential military use.

The multiple interests that tie together space exploration and space weaponization have been vigorously pursued and now are beginning to be substantially realized by a very small number of militaries, most notably that of the United States. For example, since the 1990 Persian Gulf War, the U.S. military has increasingly relied on assets in space to increase its C4ISR (Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance) functions. Most of these functions are now routed through satellites in orbit. In addition, new precision weapons, such as JDAM bombs, and unmanned drones, such as the Predator, rely on Global Positioning System satellites to help direct them to their targets, and often these weapons communicate with headquarters through satellite uplinks.²⁹ For another instance, NASA’s recently completed Deep Impact mission, which entailed smashing part of a probe into a comet to gather information about the content of comet nuclei, directly served the U.S. military in developing the technology and the logistical capabilities to intercept small objects moving at very fast speeds (approximately 23,000 miles per hour).³⁰ As such, the technologies can be adapted for programs such as missile defense, where a similar problem of intercepting an object moving at a very high speed is confronted.

So, in a certain sense, the military colonization of orbital space has already begun to a significant extent—it is no longer a distant future vision, nor an unrealizable fiction. We are not in a position to detail all of the technological or strategic manifestations of this important development. Pretending to be able to do so would distract from the purposes of this paper. Our concern, instead, is with the broad forms of space weaponization that are now being actively pursued—again, especially by the U.S.—and/or that are very much alive on the drawing board and in the U.S. military imagination.

On the near horizon, three new military uses of orbital space are becoming increasingly possible, and all three seem particularly likely to be carried out by the U.S. The first, which has been an active pursuit since at least the 1980s, is the possibility of using weapons based in space to intercept missile attacks from foreign enemies before these weapons reach their destinations—a space-based missile-defense shield. Second, there is serious discussion in the U.S. military of developing “space control,” which the U.S. Department of Defense defines as “the exploitation of space and the denial of the use of space to adversaries”.³¹ A third front on which space weaponization is being pursued by the U.S. is through the practice of force application from space. In this instance, weapons of varying types (discussed briefly below) would be placed in orbit, with the ability to attack objects either flying in the Earth’s atmosphere or on or near the Earth’s surface (including even under ground or under water).

In order to carry out these three forms of space weaponization, the U.S. government—or any other presumptive space power—will need to develop new types of military technologies. To achieve “space control” it will be necessary to pursue anti-satellite

technology aimed at attacking the satellites of rivals and protecting one's own satellites from attack. Missile defense will require the placement of lasers and kinetic-energy interceptors in orbit that will be able to destroy ballistic missiles in the boost phase. The combination of these two forms of space weaponization potentially turns space into a battleground. In addition, these weapon technologies can be adapted and modified in the long term to launch attacks from space against targets on earth, thereby bringing about the third form of space weaponization: force application from outer space, which will require yet additional technologies for placing targetable means of destruction in orbit.

Anti-satellite technology already exists to some extent. For instance, any state with ballistic missile technology and a nuclear warhead could launch the warhead into orbit and detonate it near a targeted satellite.³² Current advances in micro-satellite technology and space robotics, however, are making it easier to disable or destroy satellites. For example, in 2005 the U.S. Air Force launched an XSS-11, a satellite the size of a dishwasher weighing only 100 kilograms. This satellite has the ability to meet other satellites in orbit, thereby potentially disabling or destroying them.³³ The proliferation of such technologies means that it is becoming increasingly likely that military operations in the future could be carried out against the satellite systems of rivals.

Kinetic-energy weapons use the force of a collision to destroy a target, and have two potential uses. The first is to collide with objects either in space or entering space in order to disable or destroy them. The second is as weapons like precision-guided meteorites to destroy targets on Earth. In this instance, the force of gravity would provide the kinetic energy that would enable the destruction of the earth-based target. Such a kinetic-energy system would use two coordinated satellites: one to lock onto targets and communicate with bases on the ground; the other to carry actual weapons, such as a series of 20 foot long tungsten rods that can be dropped on a target from orbit. "The guided rods enter the atmosphere, protected by a thermal coating, traveling at 36,000 feet per second—comparable to the speed of a meteor".³⁴ The velocity of the rod on impact would lead to the destruction of the target, even if it is under ground.

Alternative and complementary to kinetic-energy weapons is a space-based high-energy laser system. While laser technology has existed since the 1960s, only recent technological advances have made it possible to produce sufficiently powerful lasers to be used as weapons. The U.S. Army has successfully demonstrated the ability of a ground-based laser to destroy rocket shells while in flight. In addition, the United States Air Force, as part of the missile defense program, has developed an airborne laser that is mounted on a modified Boeing 747 and is capable to operate at an altitude of 40,000 feet, destroying ballistic missiles while they are still in the boost phase.³⁵ Furthermore, the Air Force and the Ballistic Missile Defense Organization are currently collaborating on a project known as the Integrated Flight Experiment, which plans to launch a space-based laser and attempt to destroy a ballistic missile between 2010 and 2012.³⁶ While the initial purpose of developing a space-based laser is as part of a missile defense plan, once the technology is in place it will be possible to modify space-based lasers so that they can destroy ground-based targets as well. A system of relay mirrors orbiting around the Earth "could overcome horizon limitations and generate alternate line of sight paths to attack targets occluded by clouds or other obstacles".³⁷ A laser system that places relay mirrors in space could enable the laser itself to be based on the land, sea, air, or in space and attack any point that could be reached by a relay mirror

network. In short, this laser system would be capable of nearly instantaneously attacking any point on the Earth.

There are major obstacles to the realization of these weapons systems. The most significant obstacle is cost. The demonstrator model alone for a space-based laser will cost between \$3.5 and \$4 billion,³⁸ with the costs for deploying a constellation of 24 space-based lasers estimated to be around \$50 billion.³⁹ A second major obstacle is that the designs for the space-based weapons exceed the size and weight limitations of current launch vehicle technology. An attempt to develop new launch technology capable of overcoming this obstacle is one of the central objectives of President Bush's recently announced manned mission to Mars, as this program will inject new funds into launch-vehicle technology research.⁴⁰ Additionally, there is the strategic problem. If the military can find a less expensive way of destroying a target it is not likely to use expensive space-based weapons systems such as the ones discussed here.

Since the SDI debates of the 1990s much of the scholarly and policy oriented literature has focused on obstacles and questions of feasibility with regard to space weaponization, largely ignoring consequences if implemented.⁴¹ For instance during the 1980 SDI debates the Union of Concerned Scientists published several reports questioning the technological feasibility of Reagan's proposed "Star Wars" plan.⁴² In the 1990s opponents of the more limited Missile Defense System proposed by Congress succeeded in derailing the program by pointing out the technical flaws in the proposed system.⁴³ More recently critics have attacked space-weaponization proposals put forward by the Bush administration on several fronts, including, as suggested above, the program's cost and the technical feasibility of such a project, as well as the likelihood that such a system would spark new arms races, and how such weapons might increase threats to the U.S.⁴⁴ Others have pointed out that the placing of weapons in space may have the unintended consequence of making the United States less secure as rival states, such as China and Russia, would respond to space weaponization by building up their own military capabilities.⁴⁵ Exceptions to this focus on feasibility are arguments about the power-balancing concerns posed by these systems⁴⁶ and Deudney's argument that an outer space regime aimed at protecting Earth from potential collisions with large Asteroids could lead a communal approach to planetary security in which states would treat orbital space in a manner similar to Antarctica.⁴⁷ Our position is that there is an unfortunate omission in the literature on space weapons. We acknowledge the importance of this policy debate, and that it has not yet been definitively settled. But our concern in this paper is with the constitutive and socially productive effects of such a system, if it were to be successfully established. Specifically, we ask, how would such systems affect the sovereignty of the U.S. and other states?

III. Space Weapons, Sovereignty, and the Constitution of Empire

Each of the three new forms of military use of space, if brought into effect, will dramatically affect political societies on Earth. Missile defense has as its aim the creation of a shield for the territory of the U.S. (and possibly some selected allies). To the extent that it is accomplished, this would partially re-inscribe, through a truly three-dimensional shield, the borders of the United States—in Herz's terms, its "hard shell"—and accordingly its effective sovereignty as political subject. At the same time, it would reduce or even eliminate the

capacity of other political subjects to exercise an effective deterrent defense against U.S. intervention in their affairs—that is to say, it would further erode their sovereignty.

The second type of militarization—space control—is both a form of “privatizing” the commons of orbital space and a form of military exclusion, an extra-territorial complement to the effort to create an exclusive territorial “hard shell” for just one state (and perhaps its “friends”) through missile defense. In the first respect, it can be understood as a type of “primitive accumulation”,⁴⁸ whereby the commons of orbital space is effectively colonized and “made safe” for the capitalist interests that flow through it—primarily information services at this point in time. Here, the project of space control is constitutive of the U.S. as expressly capitalist state—sovereign subject of a particular global socio-economic order. In the second respect, that moment of constitution is conjoined with the constitution of an exclusive—a singular—sovereignty in regard to the workings of that socio-economic order through the global commons of orbital space.

Finally, the placing of weapons in space capable of targeting objects on or near the Earth’s surface creates a new form of territorial rule. Whereas modern military action has been concerned principally with occupying and controlling territory, and whereas modern sovereignty is accordingly territorially defined, this form of weaponization of space would dispense with the need for such cumbersome military practices, and the pretense of sovereign territorial authority. Instead, through increased precision in space-based weapons systems, combined with the ability to target and attack anywhere on the Earth on a very short notice—ranging from minutes to seconds depending upon the weapon system—it becomes possible to “surveil and punish” any potential enemy of such a system.⁴⁹ This is constitutive of a globally singular sovereign, capable of deciding the exception for the entirety of humanity, with no terrestrial “outside” to the scope of its sovereignty.⁵⁰

Our argument, in simple terms, is that the militarization of space reconstitutes and alters the social production of political society in three interlocked ways that are rooted respectively in three distinct forms of putting economies/cartographies of violence into practice in outer space. The conjoint effect of those three processes of reconstitution is to substitute the consolidation of an extra-territorial system of rule—which we refer to as empire of the future—for the competitive sovereignties of the modern states-system.

Missile defense

The first instance of weaponization of space will probably be the deployment of a space-based missile defense system. Indeed, the U.S. military is already testing several prototypes of components of such a system. Two of the most notable examples of this are NFIRE (Near Field Infrared Experiment) and the MDA (Missile Defense Agency) Space Test Bed. “NFIRE ... is an experimental satellite to be launched in on (sic) a rocket in 2006 that is designed to distinguish between a ballistic missile’s fiery plume and the rocket itself, according to an official at the Missile Defense Agency (MDA)”.⁵¹ The MDA Space Test Bed is slated to receive funding in 2008, with the aim of integrating already existing space technologies into a system that can intercept ballistic missiles in their boost phase from orbital space.⁵²

Such a system replaces deterrence with defense. In realist literature, the sovereignty of states is often closely linked to their ability to deter enemies from attacking. During the Cold War, nuclear weapons, through their capacity to deter attack, were cited as one of the potential means by which states could protect their territorial integrity, and, in turn, their sovereignty.⁵³ Kenneth Waltz has argued that the proliferation of nuclear weapons and their deterrent effects actually stabilizes international relations, making the world safer and, implicitly, strengthening the security of sovereign states.⁵⁴ A missile defense system, developed by and operative for only one state (or that state and its allies), undermines the logic of deterrence. States lacking the missile defense system become increasingly vulnerable to (even nuclear) attack by the state that has such a system.⁵⁵ In a fashion entirely consistent with the logic of John Herz's predictions made in the 1950s, the "hard shell" of defensible territory is thereby lost for those states. The realist argument that has largely carried the day for the past half century in critical response to Herz—that the deterrent effect of mutual assured destruction of two states possessing nuclear weapons re-inscribes the logic of territorial state sovereignty—accordingly is brought into doubt. With the advent of exclusive missile defense, it is worth re-examining—indeed reinvigorating—Herz's original argument, because if the U.S. were to develop a sufficiently sophisticated missile defense shield the de-territorializing effect on the sovereignty of other states would be precisely those that he forecasted. There would be a significant twist, however, because, for the U.S., control of an effective missile defense system would markedly re-inscribe its territorial "hard shell" and its sovereignty in exclusively shielding it from the threat of (missile-based) nuclear attack by others. The sovereignty of one state is reproduced, while that of other states is eroded.

Space control

The doctrine of space control has emerged in the U.S. military out of the belief that assets in space represent a potential target for enemies of the U.S.⁵⁶ There are two kinds of vulnerable U.S. assets: private-commercial; and military. One concern is that rivals may attack commercial satellites, thereby disrupting the flow of information and potentially inflicting significant harm on global markets. Militarily, a second concern is that, through its increasing reliance on satellites for its Earth-based military operations, the U.S. has created an "asymmetrical vulnerability". An adversary (including a non-state, "terrorist" organization) could effectively immobilize U.S. forces by disabling the military satellites that provide communication, command, and control capabilities. As noted above, U.S. military planners are already warning about a possible "Space Pearl Harbor". Consequently, the doctrine of space control is designed to protect commercial and military satellites from potential attacks, and ultimately to prevent rivals from having access to space.⁵⁷

As of the year 2000 there were over 500 satellites in orbit owned by 46 countries, worth in excess of \$250 billion. With the rise of the information economy, satellites are playing an increasing role in international trade and finance. As such, U.S. military planners are concerned about commercial satellites. One rationalization for the weaponization of space is that these commercial assets represent a vulnerability to economic sabotage and terrorism. As Lambeth has argued,

The most compelling reason for moving forward for dispatch toward acquiring at least the serious elements of space control capability is that the United States is now unprecedentedly invested and dependent upon on-orbit capabilities, both military and commercial. Since these equities can only be

expected to grow in sunk cost, it is fair to presume that they will eventually be challenged by potential opponents.⁵⁸

Notice how this description of space control discusses space in terms of a set of capital assets that should be protected from external threats. While scholars have for a long time debated whether one, if not the, primary objective of U.S. military endeavors is to protect the interests of business, when it comes to questions of space control it is one of only two things in space to protect. There are no human populations in space—with the exception of the two or three occupants on the International Space Station—that could be killed by conflict in space, so the thing that is being secured through the project of space control is technology—either commercial satellites or military assets.

In Volume One of *Capital*, Marx chided classical political economists for their inability to explain how workers became separated from the means of production. Whereas political economists such as Adam Smith argued that a previous accumulation of capital was necessary for a division of labor, Marx argued that this doctrine was an absurd doctrine. Division of labor existed in pre-capitalist societies where workers were not alienated from their labor. Instead, Marx argued that the actual historical process of primitive accumulation of capital was carried out through brute force.

The discovery of gold and silver in America, the extirpation, enslavement and entombment in mines of the indigenous population of that continent, the beginnings of the conquest and plunder of India, and the conversion of Africa into a preserve for the commercial hunting of blackskins, are all things which characterize the dawn of the era of capitalist production. These idyllic proceedings are the chief moments of primitive accumulation.⁵⁹

While not a perfect analogy, because of the lack of labour occurring in orbital space, the doctrine of space control is part and parcel of an ongoing process of such primitive accumulation. One of the purposes of the 1967 Outer Space Treaty was to keep outer space a commons where all states, regardless of technical ability or economic or military power, could participate in the potential benefits space has to offer. In the years since this treaty was signed, the primary economic use of space has been for commercial communications satellites. This industry has expanded dramatically in the last two decades. Total revenues for commercial space-related industries in 1980 were 2.1 billion dollars; by 2003 this figure had expanded to \$91 billion and it was expected to increase at least as rapidly into the foreseeable future.⁶⁰ On the economic front, space control is about determining who has access to this new economy. Positions in orbit for satellites are a new form of “real estate,” and by controlling access to outer space the U.S. would be forcibly appropriating the orbits around Earth, thereby placing the U.S. in a position to determine which governments and corporations could use space. In effect, orbital slots around earth would be turned into private property.

This process of primitive accumulation is of importance to our concerns in two ways. First, the doctrine of space control represents the extension of U.S. sovereignty into outer space. In addition to being a clear violation of international law, it reinforces the constitutive effect identified in the previous section on missile defense, namely to re-inscribe the “hard shell” borders of the U.S., which are now extended to include the “territory” of outer space. This simultaneously constitutes the exclusive sovereignty of the U.S., while displacing the sovereignty of other states.

Second, space control bears significantly on the production of political subjectivities. The original Star Trek series would begin with the voice of Captain Kirk describing space as the “final frontier”. While presenting the exploration of space as a largely peaceful enterprise, the TV show was also drawing upon its viewers’ “memories” of the “western frontier” of 19th century U.S. expansion. At least since the writings of Frederick Turner, there has been the notion that the frontier represents the well-spring of U.S. ingenuity, freedom, and creativity. According to Turner, because as they expanded westward settlers in the U.S. had to continually adapt to a new environment, they became increasingly “American”. The theme of the frontier as essential for American identity has had a significant discursive role in U.S. imperialist expansion.⁶¹ Although Turner concluded that the American frontier had closed by the late 1890s, he argued that the U.S. could extend its frontier into new countries, such as Latin America. Theodore Roosevelt, influenced by the Turner thesis, concluded that in order to maintain the exceptional American identity new frontiers had to be opened overseas. The notion of frontiers, then, has been integral to the U.S. imperialist project since its outset. The doctrine of space control, seen in this light, is simply an extension of the imperial logic. By expanding into and taking control of the “final frontier” the U.S. is continuing to renew an exceptional—an exclusive—identity by adapting itself to the harsh realities of a new environment.

So, the doctrine of space control can be read as extending U.S. sovereignty into orbit. While a clear violation of international law, this de facto expansion of U.S. sovereignty will have two effects. First, it enables a process of primitive accumulation, whereby orbital spaces around earth are removed from the commons initially established by the Outer Space Treaty, and places them under the control of the U.S. for use and perhaps even ownership by businesses sympathetic to U.S. interests. The U.S. becomes even more than it is now the state for global capitalism, the global capitalist state. Second, this doctrine of space control is part of the ongoing re-production of American subjects as “Americans”. Embedded within space control is the notion that space is a new frontier. Following the Turner thesis and Roosevelt’s doctrine of imperialist expansion, there has long been a drive for Americans to seek out new frontiers as a way of renewing the American identity and promoting American values of individuality, innovation, and exceptionalism.

Force application from orbital space

Force application entails using weapons either based in space or passing through space to attack targets within Earth’s atmosphere. For technical reasons, such weapons systems are still many years off, but substantial research is being conducted, and military strategists and policy analysts are already discussing how these weapons might be used.⁶² The major advantage of space-based weapons aimed at Earth-based targets is that they can deliver an attack to any point on the Earth in an extremely short period of time, and it is virtually impossible to defend against them. They become the violent parallel to the surveillance panopticon. In order to investigate what the constitutive effects on sovereignty and political subjectivities would be of force application from outer space, we need to look at two aspects of these weapons: what they can do—their technical aspects—and how they would be useful—their tactical aspects.⁶³

Technically, the two types of weapons systems discussed in the previous section—laser-energy and kinetic-energy—would have different uses. Laser weapons are the quickest and most precise, but they also apply the least amount of force. In theory, such weapons would take only seconds to use and could reach any target on earth instantaneously. They are not very destructive, however, and as such would not be very useful against large-scale and/or heavily shielded targets. Conversely, kinetic-energy weapons have the potential to deliver very destructive amounts of force. They would take a few hours to deploy, however. While they could also be designed to attack any point on earth, they are only useful against fixed targets, because of the time they take to deploy. In addition to laser and kinetic-energy systems, conventional weapons, such as bombs and missiles, might also be placed in space. They would occupy a middle ground. It would take approximately ten minutes to launch these weapons from space, and they could attack any targets that earth-based conventional weapons do.⁶⁴

The tactical advantages of these types of weapons are obvious. Their tremendous range enables space-based weapons to reach targets that other weapons cannot, and because they are based in outer space there are no concerns about violating the airspace of other states in transit. They can also be used on very short notice, in contrast to the days to weeks typically required to deploy earth-based weapons, such as airplanes, ships, or troops. The major drawback of these weapons is their cost. In addition to the very high cost of developing state-of-the-art weaponry, there is also the high cost associated with placing these weapons into orbit.⁶⁵ As such, they would likely have relatively limited use,⁶⁶ particularly if other types of military forces can accomplish the same mission for a lower cost. Why, for instance, would the military use a kinetic-energy weapon orbiting in space against a terrestrial target when a similar result could be produced by an Earth-based system, such as a cruise missile or a bomb? The prime advantage of these weapons is their ability to be used on short notice at targets that are out of the reach of conventional weapons.

In what kind of military operations, then, would space-based weapons be primarily useful? Military policy analysts have speculated on just such questions of the political utility of these weapons.

Alternatively, a space weapon might be the weapon of choice for an otherwise lower-value target if the space weapon were the only choice available in time, *particularly for a time critical political effect*. For example, a locomotive might not be worth a space-delivered smart munition. However, it might be well worth the use of a space-delivered smart munition to target a locomotive pulling a train full of people forced from their homes for transport to the border or to a concentration camp at the beginning of an ethnic cleansing campaign – particularly if aircraft and helicopters cannot reach the train because air defenses have not been suppressed, basing and overflight rights have not been granted, or coalition consensus on the action has not been reached.⁶⁷

This scenario is fascinating for the political logic at work within it—space weapons are required to launch an attack at an otherwise inaccessible target. The three reasons that the target might be inaccessible all have to do with potential gaps in imperial power. Either the defenses of the target country have not been suppressed, or other states have not consented to let the forces fly through their airspace, or other coalition members—presumably in NATO or the UN—have not consented to the action. The first “justification” for the use

of the weapon involves clear erasure of the sovereignty of the targeted state, as it eliminates any pretense of that country's defensibility. The second and third "justifications" diminish, by circumvention, the sovereignty of other states. All three buttress the exclusive capacity of the U.S. to act unilaterally in deciding the exception globally.

In all three cases, the only practical use for this weapon is in an imperial project! The chief advantage of space weapons is their ability on very short notice to attack a target that is out of reach of conventional forces. What places these targets "out of reach" is the sovereignty of other states as exercised through those states' abilities to defend their territory, control their airspace, and/or participate (jointly) in authorized decision of the (global) exception. The constitutive effect of these weapons, then, is to strip states of their sovereignty—they are constituted as subjects lacking authorization of decision, and lacking boundary effectively demarcating inside from outside. What modern sovereignty does (as identified in section I. above) is taken from them. Furthermore, given the potential targets that these weapons could destroy, and how they are used, space-based systems are most useful against small groups and individuals. While the purpose of the use of space-based weapons in the above example was to prevent genocide, the means by which this attack was carried out was essentially assassination—the assassination of those driving the vehicle to carry out the ethnic cleansing. Space-based weapons, then, are most useful at targeting individuals and groups on short notice in order to achieve a political objective.

We have already seen potential glimpses of this type of warfare in recent years. Consider, for example, that the Iraq War began with a so called "decapitation strike" aimed at assassinating Saddam Hussein in the hope of ending the war before it began. Similar tactics have been used by the Israeli Defense Forces to kill specific leaders of the Palestinians. Also, the U.S. has used Unmanned Aerial Vehicles equipped with missiles to target specific members of Al Qaeda and the Taliban in Afghanistan and Pakistan. Placing weapons in space aimed at terrestrial targets would only accelerate the ability to carry out these types of "targeted killings" (a.k.a. assassinations). Space weapons would enable those who control them to kill any person at any point on Earth on extremely short notice.

Thus, application of force from outer space would have at least three crucially important constitutive effects. First, it would constitute the possessor of these weapons—presumably the U.S.—as the center of a globally extensive, late-modern empire,⁶⁸ a sovereign of the globe. But this global sovereign would exercise its power in a new way. Rather than needing to control the land, sea, and airspace of all of the Earth, it could rely on space weapons—because they enable the precise application of force at any point on earth, on short notice—to control the globe. While these weapons are not particularly useful in fighting large-scale wars, or in the conquest of territory, they make such conventional uses of military power moot, in large part. There is no longer a need to exercise sovereign power through the control of territory, all one has to do is kill—or perhaps even threaten to kill—potential adversaries around the world in order to gain one's wishes. In short, the type of power potentially wielded by such a sovereign would be far more absolute than any encountered throughout history.⁶⁹

Second, these weapons, just as space-based missile defense was seen above to do, would effectively strip states of their ability to exercise sovereignty over their territories. While *de jure* sovereignty may remain intact, their *de facto* sovereignty would be effectively erased. For

decades, realist international relations scholars have promoted the idea that states secure their sovereignty through self-help.⁷⁰ If states lack the capacity to defend themselves from adversaries they are particularly vulnerable to attack and conquest. While other scholars from liberal and constructivist schools of thought have questioned how closely sovereignty is linked to military capability, throughout history states with disproportionate military power have repeatedly violated the sovereignty of weaker states.⁷¹ While space-based weapons in and of themselves would not enable conquest of another state, they could be used very effectively to achieve precise political objectives without a credible possibility of retaliation.

Imagine what impact these weapons would have on U.S. foreign policy with respect to two of its most pressing objectives at this point in time. Consider, for one, how useful such weapons might be with respect to preventing a rival state such as Iran or North Korea from acquiring nuclear weapons. While there has been speculation that the U.S. or Israel may launch air strikes against potential nuclear weapons manufacturing facilities in these countries, the logistics—getting access to airspace from neighboring countries, and the possibility of retaliation against military forces in the area—make such operations difficult to carry out. Using weapons in space to conduct such missions would avoid these logistical difficulties, thereby making them easier (and presumably more likely). The threat of using space weapons on either the manufacturing sites of weapons of mass destruction or on the political leadership of an adversary in most cases probably would be sufficient to alter the behaviour of governments. In short, if the U.S. were to deploy such weapons in space, they would likely be used to much the same effect as the gunboat diplomacy of the 19th century.

A second contemporary policy objective is to fight specific non-state actors. The *9/11 Commission Report* discussed in great detail the logistical obstacles that prevented the Clinton administration from capturing or killing Osama Bin Laden.⁷² The primary obstacle was the difficulty in either launching cruise missiles into Afghanistan through another state's airspace or deploying U.S. Special Forces in an area so remote from U.S. military bases. Again, had the U.S. had space-based weapons at the time, they probably would have been the weapons of choice. When combined with intelligence about the location of a potential target, they could be used to kill that target on very short notice without violating the air space of other states, or needing to have a military base nearby to offer a support role. In effect, any person or group of people anywhere on Earth could be targeted on very short notice, thereby constituting everyone everywhere as objects of the global sovereign. All would be subject to the rule of the U.S. state. The sovereignty of states would no longer be an obstacle to killing enemies, and these assassinations could be carried out rather easily without the threat of retaliation by the state whose sovereignty has been violated.

The example of using space weapons to target non-state actors such as Osama Bin Laden and Al Qaeda points to a third constitutive effect of space weapons. Because these weapons could target anyone, anywhere, at anytime, everyone on the Earth is effectively reduced to "bare life."⁷³ As Agamben demonstrates in *Homo Sacer* (1998), one of the constitutive powers of the sovereign is to determine who is outside the laws and protections of the state. While human rights regimes and the rule of law may exist under a late-modern global empire policed by space weapons,⁷⁴ the global sovereign will have the ability to decide the exception to this rule of law, and this state of exception in many cases may be exercised by the use of space weapons that constituted this sovereign in the first place.

Constituting empire of the future

Each of the three forms of space weaponization has important constitutive effects on modern sovereignty, and, in turn, productive effects on political subjectivities. Exclusive missile defense constitutes a “hard shell” of sovereignty for one state, while erasing the sovereign political subject status of other states. Space control reinforces that exclusive constitution of sovereignty and its potentiality for fostering unilateral decision. It also constitutes the ‘space-controlling’ state, the U.S., as sovereign for a particular global social order, a global capitalism, and as a state populated by an exceptional people, “Americans.” Space weaponization in the form of capacities for direct force application obliterate the meaning of territorial boundaries for defense and for distinguishing an inside from an outside with respect to the scope of policing and law enforcement—that is authorized locus for deciding the exception. States, other than the exceptional “American” state, are reduced to empty shells of sovereignty, sustained, if at all, by convenient fiction—for example, as useful administrative apparatuses for the governing of locals. And their “citizens” are produced as “bare life” subject to the willingness of the global sovereign to let them live. Together, these three sets of effects constitute what we believe can appropriately be identified as late-modern empire, the political subjects of which are a global sovereign, an exceptional “nation” linked to that sovereign, a global social order normalized in terms of capitalist social relations, and “bare life” for individuals and groups globally to participate in that social order. If our argument is even half correct, the claim with which this paper began—that modes of political killing have important effects—would be an understatement!

IV. Coping with Empire of the Future

If the logic of space weaponization is to constitute a new, historically unprecedented form of empire, there are significant theoretical and practical implications. By way of conclusion, we take up some of the most important of those implications briefly in this section.

Re-theorizing empire

Broadly speaking, recent theorizing on imperialism has posited two competing pictures of empire. On the one hand, scholars have put forward a global hegemonic view of empire in which a great power – presumably the United States – through a combination of hard and soft power dominates the international system to such an extent that it becomes the de facto sovereign of a global order.⁷⁵ On the other hand, theorists such as Hardt and Negri have posited a de-centered version of Empire in which a network of loosely integrated institutions govern the various facets of the lives of subjects to such an extent that all political subjects on the planet are governed under a single, dispersed regime that they have labeled Empire. Our paper rejects both these images of Empire, and uses the site of space weaponization to posit a third version of Empire that is neither the de-centered late modern vision of Hardt and Negri, nor the centralized hegemonic vision of both advocates and opponents of American Imperialism.

Imagining resistance

Given these grim prospects for a de-territorialized global rule of late-modern empire, are there any possibilities for resistance? Historically, every advance in the weaponry of imperial powers has always been met with an advance in counter hegemonic weaponry. Most recently, insurgents in Afghanistan and Iraq have been able to counter the technological superiority of the U.S. forces with very simple yet effective Improvised Explosive Devices. As such, it is reasonable to conclude that space weaponry could be countered through a variety of asymmetrical tactics such as disabling space weapons while in orbit through energy, kinetic or even nuclear anti-satellite attacks, attacking the locations where space weapons are produced or launched, attack the research and development centers (such as universities) that are integral to the production of these systems, organizing strikes for the workers involved in harvesting the raw materials for these systems, and refusing to pay taxes to the political apparatuses that control these systems. While it is difficult to imagine what precise form resistance to these systems might take, it is not unreasonable to conclude that even in a context of space-based empire, some form of political and military resistance will be possible.

That being said, just because resistance to space-based empire is a possibility, it by no means follows that such space-based empires are either inevitable or desirable. That is why we believe that resistance to placing weapons in space must begin now. Such resistance could take several forms. In the last 15 years social constructivists have made a convincing case that taboos against the use of chemical weapons, nuclear weapons and land mines have shamed states into abstaining from using these weapons.⁷⁶ IR scholars should build on this research to focus on creating a taboo against the use and hopefully even the development of space weapons. Second, there is a need to educate the public about the dangerous consequences of placing weapons in space. As of this moment, most information about weapons in space is produced by defense agencies and related think tanks with a vested interest in them. As such, most research largely ignores the dangers of these weapons. An increased awareness of those dangers, not only to those potentially targeted by such weapons but also citizens of countries such as the U.S. that may deploy them, may create public pressure to cut funding to the development programs. If action is not taken now, we believe that the possibilities for resistance to these weapons will decrease dramatically once they are placed in orbit. The state of global domination constituted by such a weapons regime would mean that those who dared to speak out against such a regime might themselves become potential targets of such weapons.

¹ Commission to Assess United States National Security Space Management and Organization, *Report of the Commission to Assess United States National Security Space Management and Organization* (2001) at <http://www.defenselink.mil/pubs/space20010111.html>. p. 9.

² Commission, Report, p.9.

³ Public Law 106-65, *National Defense Authorization Act for Fiscal Year 2000*, Section 1622.

⁴ Quoted in the *Report of the Commission*, p. 1.

⁵ The most recent Pentagon budget request to Congress publicly earmarks more than half a billion dollars for experimental space-weapons testing programs, and, according to one reporter, “specialists believe the classified portion of the...budget, blacked out for national security reasons, almost certainly includes other space-related programs.” Bryan Bender, “Pentagon Eyeing Weapons in Space: Budget Seeks Millions to Test New Technologies,” *Boston Globe*, March 14, 2006.

⁶ For an example of a technological determinist argument with respect to space weaponization see David Baker, *The Shape of Wars to Come* (Cambridge, MA: Patrick Stephens, 1981). He argues that an inevitable consequence of the development of technologies for space exploration is the weaponization of space. For a critique of technological determinism within debates over space weaponization see Sanford Lakoff and Herbert F. York, *A Shield in Space? Technology, Politics, and the Strategic Defense Initiative* (Berkeley, CA: University of California Press, 1989). They argue that Strategic Defense Initiative (SDI) is a classic example of misplaced faith in technological salvation. Also, see Ernest J. Yanarella, *The Missile Defense Controversy: Strategy, Technology, and Politics, 1955-1972* (Lexington, Kentucky: University of Kentucky Press, 1977). Yanarella contends that a “technological imperative” informed early discussions around missile defense.

⁷ We follow E. H. Carr in referring to the generic form, political societies, rather than the conventional practice in most scholarship today, which is to refer to states. (Edward Hallett Carr, *The Twenty Years' Crisis, 1919-1939: An Introduction to the Study of International Relations* (London: Macmillan, 1946).

⁸ For relatively recent contributions, which provide useful summary overviews of this literature on offensive-defensive balance, see, for example, Stephen Biddle, “Rebuilding the Foundations of Offense-Defense Theory,” *Journal of Politics*, 63(3) (2001), pp. 741-774; Keir A. Lieber, “Grasping the Technological Peace: The Offense-Defense Balance and International Security,” *International Security*, 25(1) (2000), pp. 71-104; Stephen Van Evera, *Causes of War: Power and the Roots of Conflict* (Ithaca, NY: Cornell University Press, 1999).

⁹ Robert Gilpin, *War and Change in World Politics* (Princeton, NJ: Princeton University Press, 1981).

¹⁰ For observations about terrorist modes of political violence as causally consequential for political relations, see, among others, Charles Tilly, “Terror as Strategy and Relational Process,” *International Journal of Comparative Sociology*, 46(1) (2005), pp. 11-32; Charles Tilly, “Violence, Terror, and Politics as Usual,” *Boston Review*, 27(3-4) (2002), pp. 21-4; Michael Byers, “Terror and the Future of International Law,” in Ken Booth and Tim Dunne (eds.) *Worlds in Collision: Terror and the Future of Global Order*, (New York, NY: Palgrave Macmillan, 2002), pp.. Leonie Huddy, Stanley Feldman, Charles Taber, and Gallya Lahav, “Threat, Anxiety, and Support of Antiterrorism Policies,” *American Journal of Political Science*, 49(3) (2005), pp. 593-608.

¹¹ Geoffrey Best, *War and Law since 1945* (Oxford, UK: Clarendon Press, 1997); Helen M. Kinsella, “Discourses of Difference: Civilians, Combatants, and Compliance with the Laws of War,” *Review of International Studies*, 31(5), (2006), pp. 163-185.

¹² Theorists of international relations generally do not link discussions of the role of offensive-defensive military balances and/or technologically-induced changes in the structure of the international system to analyses of terrorism and/or the laws of war—they are seemingly unrelated phenomena. But our point is that they are only *seemingly* unrelated, because they share the common premise that technologies of destruction and economies/cartographies of violence—what we call modes of political killing—are deeply consequential in shaping the character of relations within and among political societies. We place ‘civilians’ in quotes to acknowledge that it is not an unproblematic category, but instead is constituted in part through the modes of political killing that are judged to be legitimate or not in relation to it. With respect to the latter point, see Helen M. Kinsella, “Securing the Civilian: Sex and Gender in the Laws of War,” in Michael Barnett and Raymond Duvall (eds.) *Power in Global Governance* (Cambridge, UK: Cambridge University Press, 2005), pp. 249-72; Kinsella, “Discourses of Difference”; Helen M. Kinsella, “Gendering Grotius: Sex and Sex Difference in the Laws of War,” *Political Theory*, 34(2) (2006), pp. 161-191.

¹³ Charles Tilly, "The Time of States," *Social Research*, 61(2) (1994), pp. 269-95. Charles Tilly, *Coercion, Capital, and European States, A.D. 990-1992* (Reprint Edition) (Oxford, UK: Blackwell, 1992). Charles Tilly, "War Making and State Making as Organized Crime," in Peter Evans, Dietrich Rueschemeyer, and Theda Skocpol, (eds.) *Bringing the State Back In* (Cambridge, UK: Cambridge University Press, 1985), pp. 169-91.

¹⁴ Brian M. Downing, *The Military Revolution and Political Change: Origins of Democracy and Autocracy in Early Modern Europe* (Princeton, NJ: Princeton University Press, 1992). William McNeill, *The Pursuit of Power: Technology, Armed Force, and Society since A.D. 1000*. (Chicago, IL: University of Chicago Press, 1982). Richard Bean, "War and the Birth of the Nation State," *Journal of Economic History*, 23(1) (1973), pp. 202-221. But see Hendryk Spruyt, *The Sovereign State and Its Competitors* (Princeton, NJ: Princeton University Press, 1994), for a counter-argument.

¹⁵ Thomas Ertman summarizes the point clearly and succinctly:

...it is now generally accepted that the territorial state triumphed over other possible political forms (empire, city-state, lordship) because of the superior fighting ability which it derived from access to both urban capital and coercive authority over peasant taxpayers and army recruits...[W]ar, sometimes in combination with other factors, was the principal force behind attempts by rulers both to alter political systems and to expand and rationalize state apparatuses in the interest of military competitiveness.

Thomas Ertman, *Birth of the Leviathan: Building States and Regimes in Medieval and Early Modern Europe* (Cambridge, UK: Cambridge University Press, 1997), p. 4.

¹⁶ In Wendt's terms, "...the struggle of individuals and groups for recognition of their subjectivity...is channeled toward a world state by the logic of anarchy, which generates a tendency for military technology and war to become increasingly destructive." Alexander Wendt, "Why a World State is Inevitable," *European Journal of International Relations*, 9(4) (2003), pp. 491-542, at p. 491.

¹⁷ Robert Jackson, *The Global Covenant: Human Conduct in a World of States* (Oxford, UK: Oxford University Press, 2000). Robert Jackson, *Quasi-States: Sovereignty, International Relations and the Third World* (Cambridge, UK: Cambridge University Press, 1990). But see in critical response Naeem Inayatullah, "Beyond the Sovereignty Dilemma: Quasi-states as Social Construct," in Thomas J. Biersteker and Cynthia Weber, (eds.) *State Sovereignty as Social Construct*. (Cambridge, UK: Cambridge University Press, 1996), pp. 50-80.

¹⁸ Stephen Krasner, *Sovereignty: Organized Hypocrisy* (Princeton, NJ: Princeton University Press, 1999). For a similar argument from the perspective of international law, see Gerry Simpson, *Great Powers and Outlaw States: Unequal Sovereigns in the international legal order* (Cambridge, UK, Cambridge University Press, 2003).

¹⁹ Daniel Deudney, "Nuclear Weapons and the Waning of the Real-State," *Daedalus*, 124(2) (1995), pp. 209-31. Daniel Deudney, "Regrounding Realism," *Security Studies*, 10(1) (2000), pp. 1-45.

²⁰ John Herz, "Rise and Demise of the Territorial State," *World Politics*, 9(4) (1957), pp. 473-93. John Herz, *International Politics in the Atomic Age* (New York, NY: Columbia University Press, 1959). Hans J. Morgenthau, "The Four Paradoxes of Nuclear Strategy," *American Political Science Review*, 58(1) (1964), pp. 23-35. See also Peter Stürk, "John H. Herz: Realism and the Fragility of the International Order," *Review of International Studies*, 31(2) (2005), pp. 285-306.

²¹ Herz, "Rise and Demise," p. 474.

²² Herz, "Rise and Demise," p. 489.

²³ Herz, "Rise and Demise," p. 474.

²⁴ Herz, "Rise and Demise," p. 473. In Morgenthau's words "Any attempt, however ingenious and forward-looking, at assimilating nuclear power to the purposes and instrumentalities of the nation-state is negated by the enormity of nuclear destructiveness. We have been trying to normalize, conventionalize, and 'nationalize' nuclear power. By doing so, we have tackled the wrong horn of the nuclear dilemma." Morgenthau, "Four Paradoxes," p. 35.

²⁵ Deudney, "Nuclear Weapons," p. 214.

²⁶ [Need citations on constitutive analysis.]

²⁷ Wendt, "World State". We do not agree with Wendt that the structural logic he has identified is as powerfully reproductive, and hence has such inevitable constitutive implications, as he maintains.

²⁸ For discussion of the strategic implications of a space arms race see, Fred S. Hoffman "The SDI in U.S. Nuclear Strategy" in Steven E. Miller and Stephen Van Evera eds. *The Star Wars Controversy: An International Security Reader* (Princeton, NJ: Princeton University Press, 1986), pp.3-14. Curtis Peebles, *Battle for Space* (New York, Beaufort Books Inc., 1983). For an argument that a space arms race could put an end to the threat of nuclear war see David Baker, *The Shape of Wars to Come* (Cambridge, MA.: Patrick Stephens, 1981). For an

argument that weaponization on space may minimize the impact that war has on humanity by shifting future battlefields to space see Robert Salkeld, *War and Space* (Englewood Cliffs, N.J.:Prentice Hall, 1970).

²⁹ For an analysis of how space based assets such as these were deployed during the first Gulf War see Benjamin S Lambeth. "Air Power, Space Power, and Geography" *Journal of Strategic Studies*, 22 (2/3), pp. 63-81.

³⁰ NASA, "Cosmic Car Crash," (2005) at

<http://spaceplace.jpl.nasa.gov/en/kids/deepimpact/deepimpact.shtml>.

³¹ U.S. Department of Defense, *Quadrennial Defense Review Report* (2001) at

<http://www.defenselink.mil/pubs/qdr2001.pdf>.

³² Michael E. O'Hanlon, *Neither Star Wars nor Sanctuary: Constraining the Military Uses of Space*. (Washington, D.C.: Brookings Institution Press, 2004), p. 8.

³³ SpaceSecurity.org, "2005 Briefing Notes: Space Systems Negation" and "Space Security Fact Sheet"

(Waterloo, ON: SpaceSecurity.org., 2005) at www.spacesecurity.org, p. 6.

³⁴ Eric Adams, "Is This What War Will Come To?" *Popular Science*, 68 (2004), p. 66.

³⁵ Donald L. Lamberson, Edward Duff, Don Washburn, and Courtney Holmberg, "Whither High-Energy Lasers?" *Air & Space Power Journal*, 18 (1) (2004), pp. 18-9.

³⁶ Robert Wall, "Faster Test, Deployment Eyed for Space-Based Laser," *Aviation Week & Space Technology*, 154 (16) (2001), pp. 54-5.

³⁷ Lamberson, et al., "Lasers," p. 21.

³⁸ Wall, "Faster Test".

³⁹ O'Hanlon, *Neither Star Wars*, p. 80.

⁴⁰ O'Hanlon, *Neither Star Wars*, p. 83.

⁴¹ Karl P. Mueller, "Totem and Taboo: Depolarizing the Space Weaponization Debate," *Astropolitics* 1 (1) (2000), pp. 4-28 frames the space weaponization debate largely in terms of how different sides in this debate assess the feasibility of different systems. While these questions are important, we believe that this framing neglects the more fundamental issue of how such systems would alter the constitution of international order.

⁴² Union of Concerned Scientists, *Empty Promise: The Growing Case Against Star Wars*, (Boston, MA: Beacon Press, 1985). This volume challenged SDI on many grounds, questioning not only the feasibility of perfect defense, but also problems in computer software and software, and how existing Soviet technology could easily saturate or circumvent any proposed SDI program. See also, Union of Concerned Scientists, *The Fallacy of Star Wars* ((New York, NY: Vintage Books, 1984); James R. Schlesinger, "Rhetoric and Realities in the Star Wars Debate," in Steven E. Miller and Stephen Van Evera, *The Star Wars Controversy: An International Security Reader* (Princeton, NJ: Princeton University Press, 1986), pp15-24; Sanford and York, *A Shield in Space?*;

⁴³ Joseph Cirincione "Why the Right Lost the Missile Defense Debate," *Foreign Policy*, 106 (Spring) (1997), pp. 38-55.

⁴⁴ Mel Hurtig, *Rushing to Armageddon: The Shocking Truth about Canada, Missile Defense, and Star Wars* (Toronto, ON: McLelland and Stewart, 2004). Loring Wirbel, *Star Wars: U.S. Tools of Space Supremacy* (London, UK: Pluto Press, 2004).

⁴⁵ Jeffrey Lewis, *What if Space Were Weaponized? Possible Consequences for Crisis Scenarios* (Washington, D.C.: Center for Defense Information, 2004). O'Hanlon, *Neither Star Wars*.

⁴⁶ Charles L. Glaser explored how both a "perfect" missile defense system and even one that could only prevent a limited number of strikes might have negative strategic consequences if implemented. See Charles L. Glaser, "Why Good Defenses May Be Bad," Miller and Van Evera, *Star Wars Controversy*, pp. 25-56. For the latter argument, see Charles L. Glaser "Do We Want the Missile Defense We Can Build?" Miller and Van Evera, *Star Wars Controversy*, pp. 98-130.

⁴⁷ See Daniel H. Deudney, "High Impacts: Asteroidal Utilization, Collision Avoidance, and the Outer Space Regime," W. Henry Lambright, ed. *Space Policy in the Twenty-First Century*, (Baltimore, MD: Johns Hopkins University Press, 2003), pp. 147-72. For earlier statements by Deudney, written in the context of the Cold War, on how cooperation in space could foster Superpower cooperation on Earth see Daniel Deudney, "Space: The High Frontier in Perspective," *World Watch Paper* 50 (World Watch Institute, 1982). Daniel Deudney, "Whole Earth Security: A Geopolitics of Peace," *World Watch Paper* 55 (World Watch Institute, 1983). Daniel Deudney, "Forging Missiles into Spaceships," *World Policy Journal* II (2) (1985), pp. 271-303. Bruce M. DeBlois has called for the creation of a multinational adjudication arrangement to prevent the weaponization of space and potentially to serve as a precursor to a Kantian pacific union (although DeBlois is skeptical about the possibility of achieving this outcome). See Bruce M. DeBlois, "The Advent of Space Weapons," *Astropolitics* 1 (1) 2003.

⁴⁸ Karl Marx, *Capital: A Critique of Political Economy*. Translated by B. Fowkes. (New York: Vintage Press, 1977), p. 914.

- ⁴⁹ We are deliberately playing here with the original French title Michel Foucault, *Discipline and Punish*, trans. Alan Sheridan (New York, NY: Pantheon Books, 1977), because a key part of, perhaps the, aim of such weapons is to target individuals and groups rather than states, per se.
- ⁵⁰ We use the adjective terrestrial to remind that, while seemingly unbounded, this globally extensive sovereignty is nevertheless limited to its anthropocentric foundations, in being a necessarily human capacity and right to decide the exception. Orbital space is incorporated into the terrestrial, but the extra-terrestrial is not itself brought into the scope of sovereign authority. See, in contrast, Alexander Wendt and Raymond Duvall, "Sovereignty and the UFO," manuscript, Ohio State University and University of Minnesota (2006).
- ⁵¹ Gunter Krebs, "NFIRE" (2006), at http://space.skyrocket.de/doc_sdat/nfire.htm.
- ⁵² Theresa Hitchens, Michael Katz-Hyman, and Victoria Samson, *Space Weapons Spending in the FY 2007 Defense Budget*. (Washington, D.C.: Center for Defense Information and the Henry L. Stimson Center, 2006), p. 3. The focus of technological development makes clear that the currently dominant rationale for placing missile defense systems in space is to try to intercept ICBMs during the boost phase before they can harm their targets.
- ⁵³ Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, NY: Cornell University Press, 1989).
- ⁵⁴ Kenneth Waltz, "Nuclear Myths and Political Realities," *American Political Science Review*, 84(3) (1990), pp. 731-745.
- ⁵⁵ Van Evera, "Preface," p.xvii. President Reagan actually acknowledged this possibility in his famous Star Wars speech, stating, "If paired with offensive systems, [defensive systems] can be viewed as fostering an aggressive policy, and no one wants that." President Ronald Reagan, "The Conclusion of President Reagan's March 23, 1983, speech on defense spending and defensive technology," Miller and Van Evera, *Star Wars Controversy*, p.258. Also see Glaser, "Why Even Good Defenses." and Glaser, "Do we want" for arguments about the offensive nature of missile defense systems.
- ⁵⁶ Recently Everett Dolman has made an astropolitical case for space control. Modeling his arguments on the theories of 19th century geopolitical theorist Sir Halford Mackinder, Dolman argues that there are distinct regions of space, and that control of key regions of space – or denial of control of these regions to others – will enhance the power of states. Dolman believes "that control of certain terrestrial and outer space locations will provide a distinct advantage in efficiency and will lead the controller to a dominant position in commercial and military power." Everett C. Dolman, "Geostrategy in the Space Age: An Astropolitical Analysis," *Journal of Strategic Studies*, 22 (2/3) (1999), p.104. For an expanded explanation of Dolman's astropolitical analysis see Everett C. Dolman, *Astropolitik: Classical Geopolitics in the Space Age*, (London, UK: Frank Cass, 2002). For a critique of the doctrine of space control, see Nader Elhefnawy, "Territorializing Space? Revisiting an Old Idea," *Astropolitik* 1 (2) 2003, pp. 55-63.
- ⁵⁷ Under Article II of the 1967 *Outer Space Treaty*, "Outer Space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means". The doctrine of space control is a clear violation of this article, particularly with respect to its imperative for "denial of the use of space to adversaries". For the history of the development of the Outer Space Treaty (from the perspective of the U.S. government) see Raymond L. Garthoff "Banning the Bomb in Outer Space," *International Security*, 5 (3) (1980-1), pp.25-40.
- ⁵⁸ Benjamin S. Lambeth, *Mastering the Ultimate High Ground: Next Steps in the Military Uses of Space*. (Santa Monica, CA: RAND, 2003), p.99.
- ⁵⁹ Marx, *Capital*, p.915.
- ⁶⁰ SpaceSecurity.org, "2005 Briefing notes".
- ⁶¹ Frederick Jackson Turner, *The frontier in American history*. (New York, NY: Holt, Rinehart and Winston, 1962).
- ⁶² Lambeth, *Mastering*. 2003; Robert Preston, Dana J. Johnson, Sean J. A. Edwards, Michael D. Miller, Calvin Shipbaugh, *Space Weapons Earth Wars* (Santa Monica, CA: RAND, 2002).
- ⁶³ We take this distinction between the technical and tactical aspects of force-application space weapons from Preston, et al. *Space Weapons*.
- ⁶⁴ Preston et al. *Space Weapons*, p. xvii.
- ⁶⁵ Preston et al., *Space Weapons*, p. xx.
- ⁶⁶ Preston et al., *Space Weapons*, p. 57.
- ⁶⁷ Preston et al., *Space Weapons*, p. 56, emphasis added.
- ⁶⁸ We use the term late-modern explicitly to distinguish this from the post-modern Empire discussed by Hardt and Negri (2000). Late-modern empire, although globally extensive, has a sovereign center.
- ⁶⁹ The concept of a sovereign for the globe is developed in substantially greater depth, albeit in more abstractly theoretical terms, in Duvall and Chowdhury (2006).

⁷⁰ Kenneth Waltz, *Theory of International Politics*. (Reading, MA: Addison-Wesley Pub. Co., 1979).

⁷¹ Krasner, *Sovereignty*.

⁷² National Commission on Terrorist Attacks upon the United States (2004), *The 9/11 Commission Report: final report of the National Commission on Terrorist Attacks Upon the United States*, (New York, NY: W.W. Norton, 2004), pp. 108-15.

⁷³ Agamben, *Homo Sacer*.

⁷⁴ In fact, following Hardt and Negri (2000) these legal instruments may even be an essential component of Empire. Whether they are similarly defining of late-modern empire is uncertain.

⁷⁵ For recent analyses of U.S. informal Empire see Andrew Bracevich, *American Empire: Realities and Consequences of US Diplomacy* (Cambridge, MA: Harvard University Press, 2002), Chalmers Johnson, *Sorrows of Empire* (New York, NY: Metropolitan Books, 2004).

⁷⁶ Price, Richard and Nina Tannenwald, "Norms and Deterrence: The Nuclear and Chemical Weapons Taboo," in Peter J. Katzenstein, ed. *The Culture of National Security: Norms and Identity in World Politics*. (New York: Columbia University Press, 1996), pp. 114-52.