# R3 – Emory – 1AC

### 1AC – OV

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**1 - Permissibility and presumption affirm**

**a. Statements are true before false since if I told you my name, you’d believe me.**

**b. Epistemics – we wouldn’t be able to start a strand of reasoning since we’d have to question that reason.**

**c. Illogical – presuming statements false is illogical since you can’t say things like P and ~P are both wrong.**

**d. Presuming obligations is logically safer since it’s better to be supererogatory than fail to meet an obligation.**

**e. Presuming statements false is impossible since we can’t operate in a world where we don’t trust anything.**

**f. To negate means to deny the truth of, which means if there isn’t offense to deny the truth of you should affirm.**

**g. Otherwise we’d have to have a proactive justification to do things like drink water.**

**h. If anything is permissible, then definitionally so is the aff since there is nothing that prevents us from doing it.**

#### i. Negation Theory- Negating requires a complete absence of an existing obligation

Negate [is to]: to deny the existence of

That’s Dictionary.com- “Negate” https://www.dictionary.com/browse/negate.

### 1AC – Theory

#### Interpretation - the neg must fairly prove the truth of the statement "The appropriation of outer space by private entities in the People’s Republic of China is just"

#### To clarify, other than theory, all negative arguments must prove the truth of the statement.

#### Standards:

#### 1. Research – proving the converse means they have to actively search out reasons the plan is a bad idea—their model ensures that they never have to research different topics or do prep since it gives them an infinite number of objections

#### 2. Strat skew—

#### a. you get variable ground if not bound by the rez—means you have access to more layers since I have a truth burden and you don’t

#### b. you can moot 6 minutes of the 1ac by shifting the debate to a separate layer that the aff doesn’t interact with

#### Paradigm:

#### Fairness – Debate is a competitive activity governed by rules. You can’t evaluate who did better debating if the round is structurally skewed, so fairness is a gateway to substantive debate.

#### DTD – Time spent on theory cant be compensated for, the 1nc was already skewed, and its key to deterring abuse.

#### Prefer Competing interps -

#### 1. reasonability is arbitrary and invites judge intervention.

#### 2. it Causes a race to the bottom where debaters push the limit as to how reasonably abusive, they can be.

#### No RVI’s -

#### 1. Chills some debaters from reading theory against abusive postions.

#### 2. incentivizes theory baiting where you can just bait theory to win.

#### Interpretation: The negative must concede the affirmative framing mechanism.

#### Violation:

#### Standard:

#### 1. Time skew - Winning the negative framework moots 6 minutes of 1AC offense and forces a 1AR restart against a 7 min 1NC – that outweighs on quantifiability and reversibility – I can’t get back time lost and it’s the only way to measure abuse.

#### 2. Topic Ed- Every debate would just be a framework debate which crowds out our ability to have core debates about the topic – that outweighs –

#### a. Time Frame- We only have 2 months to debate the topic

#### b. Inclusion - Phil and K literature is incredibly dense and requires a vast amount of prior knowledge and experience which excludes novices while topic literature is less esoteric

#### c. Constitutivism - The only thing intrinsic to debate is the topic so it should be prioritized

#### d. Portability- topics are carefully chosen to have modern relevance so only debate about them can generate portable skills.

#### 3. Prep skew - We can’t predict every single negative framework before round but they know the aff coming into round which makes pre-tournament prep impossible. Especially true since there are millions of K’s and NC’s that could negate. Prep skew outweighs -

#### a. Sequencing- It’s a perquisite engaging in-round since you need prep to debate

#### b. Engagement- It ruins the quality and depth of discussions that make debate rounds educational.

### 1AC – OV

#### 1 - Reject spec – a) Infinite regress – infinitely many things I can spec or fail to, no spec shell can ever set norms which outweighs because that’s the ultimate purpose of theory, b) Ground – whole res gives you most stable basis for engagement, anything else skirts core neg generics.

#### 2 - Out of round violations are a voting issue –

#### a. norming – justifies infinite abuse since you can pull up a text of me saying the f word and read a k.

#### b. kills value to debate – makes the debate about things outside the round which is not the post of debating in a place where people go to escape.

#### c. unverifiable – even if you win your violation, the norm you justify are things that cannot be warranted.

#### 2 - CW is true but if not we have TT offense – TO CLARIFY WE DON’T GET ACCESS TO THIS IF THEY DON’T READ TT

#### A statement is logical if the conclusion conceivably follows from premises. The rules of logic claim that the only time a statement is invalid is if the antecedent is true, but the consequent is false.

**SEP** [Stanford Encyclopedia of Philosophy.] “An Introduction to Philosophy.” Stanford University. <https://web.stanford.edu/~bobonich/dictionary/dictionary.html> TG Massa

Conditional statement: an “if p, then q” compound statement (ex. If I throw this ball into the air, it will come down); p is called the antecedent, and q is the consequent. A conditional asserts that if its antecedent is true, its consequent is also true; any conditional with a true antecedent and a false consequent must be false.  For any other combination of true and false antecedents and consequents, the conditional statement is true.

#### a. Neg a priori’s affirm – denying the assumptions of a statement proves it valid – the aff is a set of conditionals since the offense being true relies on the framework.

#### b. if the aff is winning, they get the ballot is a tacit ballot conditional which means denying the premise proves the conclusion that I should get the ballot.

### 1AC - FWK

#### Ethics begin a posteriori.

#### 1. Knowledge is based on experience – I wouldn’t know 2+2=4 without experience of objects nor the color red without some experience of color. We can’t obtain evidence of goodness without experience.

#### 2. Indifference – Even if there are apriori moral truths, I can choose to ignore them. Cognition is binding – if I put my hand on a hot stove, I can’t turn off my natural aversion to it.

#### The meta-ethic is moral substitutability - only it can explain reasons for acting.

Sinnott-Armstrong 92 [Walter, professor of practical ethics. “An Argument for Consequentialism” Dartmouth College Philosophical Perspectives. 1992.]

A moral reason to do an act is consequential if and only if the reason depends only on the consequences of either doing the act or not doing the act. For example, a moral reason not to hit someone is that this will hurt her or him. A moral reason to turn your car to the left might be that, if you do not do so, you will run over and kill someone. A moral reason to feed a starving child is that the child will lose important mental or physical abilities if you do not feed it. All such reasons are consequential reasons. All other moral reasons are non-consequential. Thus, a moral reason to do an act is non-consequential if and only if the reason depends even partly on some property that the act has independently of its consequences. For example, an act can be a lie regardless of what happens as a result of the lie (since some lies are not believed), and some moral theories claim that that property of being a lie provides amoral reason not to tell a lie regardless of the consequences of this lie. Similarly, the fact that an act fulfills a promise is often seen as a moral reason to do the act, even though the act has that property of fulfilling a promise independently ofits consequences. All such moral reasons are non-consequential. In order to avoid so many negations, I will also call them 'deontological'. This distinction would not make sense if we did not restrict the notion of consequences. If I promise to mow the lawn, then one consequence of my mowing might seem to be that my promise is fulfilled. One way to avoid this problem is to specify that the consequences of an act must be distinct from the act itself. My act of fulfilling my promise and my act of mowing are not distinct, because they are done by the same bodily movements.10 Thus, my fulfilling my promise is not a consequence of my mowing. A consequence of an act need not be later in time than the act, since causation can be simultaneous, but the consequence must at least be different from the act. Even with this clarification, it is still hard to classify some moral reasons as consequential or deontological,11 but I will stick to examples that are clear. In accordance with this distinction between kinds of moral reasons, I can now distinguish different kinds of moral theories. I will say that a moral theory is consequentialist if and only if it implies that all basic moral reasons are consequential. A moral theory is then non-consequentialist or deontological if it includes any basic moral reasons which are not consequential. 5. Against Deontology So defined, the class of deontological moral theories is very large and diverse. This makes it hard to say anything in general about it. Nonetheless, I will argue that no deontological moral theory can explain why moral substitutability holds. My argument applies to all deontological theories because it depends only on what is common to them all, namely, the claim that some basic moral reasons are not consequential. Some deontological theories allow very many weighty moral reasons that are consequential, and these theories might be able to explain why moral substitutability holds for some of their moral reasons: the consequential ones. But even these theories cannot explain why moral substitutability holds for all moral reasons, including the non-consequential reasons that make the theory deontological. The failure of deontological moral theories to explain moral substitutability in the very cases that make them deontological is a reason to reject all deontological moral theories. I cannot discuss every deontological moral theory, so I will discuss only a few paradigm examples and show why they cannot explain moral substitutability. After this, I will argue that similar problems are bound to arise for all other deontological theories by their very nature. The simplest deontological theory is the pluralistic intuitionism of Prichard and Ross. Ross writes that, when someone promises to do something, 'This we consider obligatory in its own nature, just because it is a fulfillment of a promise, and not because of its consequences.'12 Such deontologists claim in effect that, if I promise to mow the grass, there is a moral reason for me to mow the grass, and this moral reason is constituted by the fact that mowing the grass fulfills my promise. This reason exists regardless of the consequences of mowing the grass, even though it might be overridden by certain bad consequences. However, if this is why I have a moral reason to mow the grass, then, even if I cannot mow the grass without starting my mower, and starting the mower would enable me to mow the grass, it still would not follow that I have any moral reason to start my mower, since I did not promise to start my mower, and starting my mower does not fulfill my promise. Thus, a moral theory cannot explain moral substitutability if it claims that properties like this provide moral reasons.

#### Non-consequentialist moral theories fail to explain.

Sinnott-Armstrong 92 [Walter, professor of practical ethics. “An Argument for Consequentialism” Dartmouth College Philosophical Perspectives. 1992.]

Of course, there are many other versions of deontology. I cannot discuss them all. Nonetheless, these examples suggest that it is the very nature of deontological reasons that make **deontological theories unable to explain moral substitutability**. This comes out clearly if we start from the other side and ask which properties create the moral reasons that are derived by moral substitutability. **What gives me a moral reason to start the mower is the consequences of starting the mower.** Specifically**, it has the consequence that I am able to mow the grass.** This reason cannot derive from the same property as my moral reason to mow the lawn unless what gives me a moral reason to mow the lawn is *its* consequences. **Thus any non-consequentialist moral theory will have to posit two distinct kinds of moral reasons: one for starting the mower, and another for mowing the grass. Once these kinds of reasons are separated, we need to understand the connection between them. But this connection cannot be explained by the substantive principles of the theory**. That is why all deontological theories must lack the explanatory coherence which is a general test of adequacy for all theories.

#### The standard is maximizing expected wellbeing.

#### Prefer:

#### 1 - Pleasure and pain are intrinsic value and disvalue – everything else regresses – robust neuroscience.

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**Pleasure** is not only one of the three primary reward functions but it also **defines reward.** As homeostasis explains the functions of only a limited number of rewards, the principal reason why particular stimuli, objects, events, situations, and activities are rewarding may be due to pleasure. This applies first of all to sex and to the primary homeostatic rewards of food and liquid and extends to money, taste, beauty, social encounters and nonmaterial, internally set, and intrinsic rewards. Pleasure, as the primary effect of rewards, drives the prime reward functions of learning, approach behavior, and decision making and provides the **basis for hedonic theories** of reward function. We are attracted by most rewards and exert intense efforts to obtain them, just because they are enjoyable [10].

Pleasure is a passive reaction that derives from the experience or prediction of reward and may lead to a long-lasting state of happiness. The word happiness is difficult to define. In fact, just obtaining physical pleasure may not be enough. One key to happiness involves a network of good friends. However, it is not obvious how the higher forms of satisfaction and pleasure are related to an ice cream cone, or to your team winning a sporting event. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure [14].

Pleasure as a hallmark of reward is sufficient for defining a reward, but it may not be necessary. A reward may generate positive learning and approach behavior simply because it contains substances that are essential for body function. When we are hungry, we may eat bad and unpleasant meals. A monkey who receives hundreds of small drops of water every morning in the laboratory is unlikely to feel a rush of pleasure every time it gets the 0.1 ml. Nevertheless, with these precautions in mind, we may define any stimulus, object, event, activity, or situation that has the potential to produce pleasure as a reward. In the context of reward deficiency or for disorders of addiction, homeostasis pursues pharmacological treatments: drugs to treat drug addiction, obesity, and other compulsive behaviors. The theory of allostasis suggests broader approaches - such as re-expanding the range of possible pleasures and providing opportunities to expend effort in their pursuit. [15]. It is noteworthy, the first animal studies eliciting approach behavior by electrical brain stimulation interpreted their findings as a discovery of the brain’s pleasure centers [16] which were later partly associated with midbrain dopamine neurons [17–19] despite the notorious difficulties of identifying emotions in animals.

Evolutionary theories of pleasure: The love connection BO:D

Charles Darwin and other biological scientists that have examined the biological evolution and its basic principles found various mechanisms that steer behavior and biological development. Besides their theory on natural selection, it was particularly the sexual selection process that gained significance in the latter context over the last century, especially when it comes to the question of what makes us “what we are,” i.e., human. However, the capacity to sexually select and evolve is not at all a human accomplishment alone or a sign of our uniqueness; yet, we humans, as it seems, are ingenious in fooling ourselves and others–when we are in love or desperately search for it.

It is well established that modern biological theory conjectures that **organisms are** the **result of evolutionary competition.** In fact, Richard Dawkins stresses gene survival and propagation as the basic mechanism of life [20]. Only genes that lead to the fittest phenotype will make it. It is noteworthy that the phenotype is selected based on behavior that maximizes gene propagation. To do so, the phenotype must survive and generate offspring, and be better at it than its competitors. Thus, the ultimate, distal function of rewards is to increase evolutionary fitness by ensuring the survival of the organism and reproduction. It is agreed that learning, approach, economic decisions, and positive emotions are the proximal functions through which phenotypes obtain other necessary nutrients for survival, mating, and care for offspring.

Behavioral reward functions have evolved to help individuals to survive and propagate their genes. Apparently, people need to live well and long enough to reproduce. Most would agree that homo-sapiens do so by ingesting the substances that make their bodies function properly. For this reason, foods and drinks are rewards. Additional rewards, including those used for economic exchanges, ensure sufficient palatable food and drink supply. Mating and gene propagation is supported by powerful sexual attraction. Additional properties, like body form, augment the chance to mate and nourish and defend offspring and are therefore also rewards. Care for offspring until they can reproduce themselves helps gene propagation and is rewarding; otherwise, many believe mating is useless. According to David E Comings, as any small edge will ultimately result in evolutionary advantage [21], additional reward mechanisms like novelty seeking and exploration widen the spectrum of available rewards and thus enhance the chance for survival, reproduction, and ultimate gene propagation. These functions may help us to obtain the benefits of distant rewards that are determined by our own interests and not immediately available in the environment. Thus the distal reward function in gene propagation and evolutionary fitness defines the proximal reward functions that we see in everyday behavior. That is why foods, drinks, mates, and offspring are rewarding.

There have been theories linking pleasure as a required component of health benefits salutogenesis, (salugenesis). In essence, under these terms, pleasure is described as a state or feeling of happiness and satisfaction resulting from an experience that one enjoys. Regarding pleasure, it is a double-edged sword, on the one hand, it promotes positive feelings (like mindfulness) and even better cognition, possibly through the release of dopamine [22]. But on the other hand, pleasure simultaneously encourages addiction and other negative behaviors, i.e., motivational toxicity. It is a complex neurobiological phenomenon, relying on reward circuitry or limbic activity. It is important to realize that through the “Brain Reward Cascade” (BRC) endorphin and endogenous morphinergic mechanisms may play a role [23]. While natural rewards are essential for survival and appetitive motivation leading to beneficial biological behaviors like eating, sex, and reproduction, crucial social interactions seem to further facilitate the positive effects exerted by pleasurable experiences. Indeed, experimentation with addictive drugs is capable of directly acting on reward pathways and causing deterioration of these systems promoting hypodopaminergia [24]. Most would agree that pleasurable activities can stimulate personal growth and may help to induce healthy behavioral changes, including stress management [25]. The work of Esch and Stefano [26] concerning the link between compassion and love implicate the brain reward system, and pleasure induction suggests that social contact in general, i.e., love, attachment, and compassion, can be highly effective in stress reduction, survival, and overall health.

Understanding the role of neurotransmission and pleasurable states both positive and negative have been adequately studied over many decades [26–37], but comparative anatomical and neurobiological function between animals and homo sapiens appear to be required and seem to be in an infancy stage.

Finding happiness is different between apes and humans

As stated earlier in this expert opinion one key to happiness involves a network of good friends [38]. However, it is not entirely clear exactly how the higher forms of satisfaction and pleasure are related to a sugar rush, winning a sports event or even sky diving, all of which augment dopamine release at the reward brain site. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure.

Remarkably, there are pathways for ordinary liking and pleasure, which are limited in scope as described above in this commentary. However, there are **many brain regions**, often termed hot and cold spots, that significantly **modulate** (increase or decrease) our **pleasure or** even produce **the opposite** of pleasure— that is disgust and fear [39]. One specific region of the nucleus accumbens is organized like a computer keyboard, with particular stimulus triggers in rows— producing an increase and decrease of pleasure and disgust. Moreover, the cortex has unique roles in the cognitive evaluation of our feelings of pleasure [40]. Importantly, the interplay of these multiple triggers and the higher brain centers in the prefrontal cortex are very intricate and are just being uncovered.

Desire and reward centers

It is surprising that many different sources of pleasure activate the same circuits between the mesocorticolimbic regions (Figure 1). Reward and desire are two aspects pleasure induction and have a very widespread, large circuit. Some part of this circuit distinguishes between desire and dread. The so-called pleasure circuitry called “REWARD” involves a well-known dopamine pathway in the mesolimbic system that can influence both pleasure and motivation.

In simplest terms, the well-established mesolimbic system is a dopamine circuit for reward. It starts in the ventral tegmental area (VTA) of the midbrain and travels to the nucleus accumbens (Figure 2). It is the cornerstone target to all addictions. The VTA is encompassed with neurons using glutamate, GABA, and dopamine. The nucleus accumbens (NAc) is located within the ventral striatum and is divided into two sub-regions—the motor and limbic regions associated with its core and shell, respectively. The NAc has spiny neurons that receive dopamine from the VTA and glutamate (a dopamine driver) from the hippocampus, amygdala and medial prefrontal cortex. Subsequently, the NAc projects GABA signals to an area termed the ventral pallidum (VP). The region is a relay station in the limbic loop of the basal ganglia, critical for motivation, behavior, emotions and the “Feel Good” response. This defined system of the brain is involved in all addictions –substance, and non –substance related. In 1995, our laboratory coined the term “Reward Deficiency Syndrome” (RDS) to describe genetic and epigenetic induced hypodopaminergia in the “Brain Reward Cascade” that contribute to addiction and compulsive behaviors [3,6,41].

Furthermore, ordinary “liking” of something, or pure pleasure, is represented by small regions mainly in the limbic system (old reptilian part of the brain). These may be part of larger neural circuits. In Latin, hedus is the term for “sweet”; and in Greek, hodone is the term for “pleasure.” Thus, the word Hedonic is now referring to various subcomponents of pleasure: some associated with purely sensory and others with more complex emotions involving morals, aesthetics, and social interactions. The capacity to have pleasure is part of being healthy and may even extend life, especially if linked to optimism as a dopaminergic response [42].

Psychiatric illness often includes symptoms of an abnormal inability to experience pleasure, referred to as anhedonia. A negative feeling state is called dysphoria, which can consist of many emotions such as pain, depression, anxiety, fear, and disgust. Previously many scientists used animal research to uncover the complex mechanisms of pleasure, liking, motivation and even emotions like panic and fear, as discussed above [43]. However, as a significant amount of related research about the specific brain regions of pleasure/reward circuitry has been derived from invasive studies of animals, these cannot be directly compared with subjective states experienced by humans.

In an attempt to resolve the controversy regarding the causal contributions of mesolimbic dopamine systems to reward, we have previously evaluated the three-main competing explanatory categories: “liking,” “learning,” and “wanting” [3]. That is, dopamine may mediate (a) liking: the hedonic impact of reward, (b) learning: learned predictions about rewarding effects, or (c) wanting: the pursuit of rewards by attributing incentive salience to reward-related stimuli [44]. We have evaluated these hypotheses, especially as they relate to the RDS, and we find that the incentive salience or “wanting” hypothesis of dopaminergic functioning is supported by a majority of the scientific evidence. Various neuroimaging studies have shown that anticipated behaviors such as sex and gaming, delicious foods and drugs of abuse all affect brain regions associated with reward networks, and may not be unidirectional. Drugs of abuse enhance dopamine signaling which sensitizes mesolimbic brain mechanisms that apparently evolved explicitly to attribute incentive salience to various rewards [45].

Addictive substances are voluntarily self-administered, and they enhance (directly or indirectly) dopaminergic synaptic function in the NAc. This activation of the brain reward networks (producing the ecstatic “high” that users seek). Although these circuits were initially thought to encode a set point of hedonic tone, it is now being considered to be far more complicated in function, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation [46]. The argument about addiction as a disease may be confused with a predisposition to substance and nonsubstance rewards relative to the extreme effect of drugs of abuse on brain neurochemistry. The former sets up an individual to be at high risk through both genetic polymorphisms in reward genes as well as harmful epigenetic insult. Some Psychologists, even with all the data, still infer that addiction is not a disease [47]. Elevated stress levels, together with polymorphisms (genetic variations) of various dopaminergic genes and the genes related to other neurotransmitters (and their genetic variants), and may have an additive effect on vulnerability to various addictions [48]. In this regard, Vanyukov, et al. [48] suggested based on review that whereas the gateway hypothesis does not specify mechanistic connections between “stages,” and does not extend to the risks for addictions the concept of common liability to addictions may be more parsimonious. The latter theory is grounded in genetic theory and supported by data identifying common sources of variation in the risk for specific addictions (e.g., RDS). This commonality has identifiable neurobiological substrate and plausible evolutionary explanations.

Over many years the controversy of dopamine involvement in especially “pleasure” has led to confusion concerning separating motivation from actual pleasure (wanting versus liking) [49]. We take the position that animal studies cannot provide real clinical information as described by self-reports in humans. As mentioned earlier and in the abstract, on November 23rd, 2017, evidence for our concerns was discovered [50]

In essence, although nonhuman primate brains are similar to our own, the disparity between other primates and those of human cognitive abilities tells us that surface similarity is not the whole story. Sousa et al. [50] small case found various differentially expressed genes, to associate with pleasure related systems. Furthermore, the dopaminergic interneurons located in the human neocortex were absent from the neocortex of nonhuman African apes. Such differences in neuronal transcriptional programs may underlie a variety of neurodevelopmental disorders.

In simpler terms, the system controls the production of dopamine, a chemical messenger that plays a significant role in pleasure and rewards. The senior author, Dr. Nenad Sestan from Yale, stated: “Humans have evolved a dopamine system that is different than the one in chimpanzees.” This may explain why the behavior of humans is so unique from that of non-human primates, even though our brains are so surprisingly similar, Sestan said: “It might also shed light on why people are vulnerable to mental disorders such as autism (possibly even addiction).” Remarkably, this research finding emerged from an extensive, multicenter collaboration to compare the brains across several species. These researchers examined 247 specimens of neural tissue from six humans, five chimpanzees, and five macaque monkeys. Moreover, these investigators analyzed which genes were turned on or off in 16 regions of the brain. While the differences among species were subtle, **there was** a **remarkable contrast in** the **neocortices**, specifically in an area of the brain that is much more developed in humans than in chimpanzees. In fact, these researchers found that a gene called tyrosine hydroxylase (TH) for the enzyme, responsible for the production of dopamine, was expressed in the neocortex of humans, but not chimpanzees. As discussed earlier, dopamine is best known for its essential role within the brain’s reward system; the very system that responds to everything from sex, to gambling, to food, and to addictive drugs. However, dopamine also assists in regulating emotional responses, memory, and movement. Notably, abnormal dopamine levels have been linked to disorders including Parkinson’s, schizophrenia and spectrum disorders such as autism and addiction or RDS.

Nora Volkow, the director of NIDA, pointed out that one alluring possibility is that the neurotransmitter dopamine plays a substantial role in humans’ ability to pursue various rewards that are perhaps months or even years away in the future. This same idea has been suggested by Dr. Robert Sapolsky, a professor of biology and neurology at Stanford University. Dr. Sapolsky cited evidence that dopamine levels rise dramatically in humans when we anticipate potential rewards that are uncertain and even far off in our futures, such as retirement or even the possible alterlife. This may explain what often motivates people to work for things that have no apparent short-term benefit [51]. In similar work, Volkow and Bale [52] proposed a model in which dopamine can favor NOW processes through phasic signaling in reward circuits or LATER processes through tonic signaling in control circuits. Specifically, they suggest that through its modulation of the orbitofrontal cortex, which processes salience attribution, dopamine also enables shilting from NOW to LATER, while its modulation of the insula, which processes interoceptive information, influences the probability of selecting NOW versus LATER actions based on an individual’s physiological state. This hypothesis further supports the concept that disruptions along these circuits contribute to diverse pathologies, including obesity and addiction or RDS.

#### 2 - Extinction comes first under any framework.

Pummer 15 [Theron, Junior Research Fellow in Philosophy at St. Anne's College, University of Oxford. “Moral Agreement on Saving the World” Practical Ethics, University of Oxford. May 18, 2015] AT

There appears to be lot of disagreement in moral philosophy. Whether these many apparent disagreements are deep and irresolvable, I believe there is at least one thing it is reasonable to agree on right now, whatever general moral view we adopt: that it is very important to reduce the risk that all intelligent beings on this planet are eliminated by an enormous catastrophe, such as a nuclear war. How we might in fact try to reduce such existential risks is discussed elsewhere. My claim here is only that we – whether we’re consequentialists, deontologists, or virtue ethicists – should all agree that we should try to save the world. According to consequentialism, we should maximize the good, where this is taken to be the goodness, from an impartial perspective, of outcomes. Clearly one thing that makes an outcome good is that the people in it are doing well. There is little disagreement here. If the happiness or well-being of possible future people is just as important as that of people who already exist, and if they would have good lives, it is not hard to see how reducing existential risk is easily the most important thing in the whole world. This is for the familiar reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. There are so many possible future people that reducing existential risk is arguably the most important thing in the world, even if the well-being of these possible people were given only 0.001% as much weight as that of existing people. Even on a wholly person-affecting view – according to which there’s nothing (apart from effects on existing people) to be said in favor of creating happy people – the case for reducing existential risk is very strong. As noted in this seminal paper, this case is strengthened by the fact that there’s a good chance that many existing people will, with the aid of life-extension technology, live very long and very high quality lives. You might think what I have just argued applies to consequentialists only. There is a tendency to assume that, if an argument appeals to consequentialist considerations (the goodness of outcomes), it is irrelevant to non-consequentialists. But that is a huge mistake. Non-consequentialism is the view that there’s more that determines rightness than the goodness of consequences or outcomes; it is not the view that the latter don’t matter. Even John Rawls wrote, “All ethical doctrines worth our attention take consequences into account in judging rightness. One which did not would simply be irrational, crazy.” Minimally plausible versions of deontology and virtue ethics must be concerned in part with promoting the good, from an impartial point of view. They’d thus imply very strong reasons to reduce existential risk, at least when this doesn’t significantly involve doing harm to others or damaging one’s character. What’s even more surprising, perhaps, is that even if our own good (or that of those near and dear to us) has much greater weight than goodness from the impartial “point of view of the universe,” indeed even if the latter is entirely morally irrelevant, we may nonetheless have very strong reasons to reduce existential risk. Even egoism, the view that each agent should maximize her own good, might imply strong reasons to reduce existential risk. It will depend, among other things, on what one’s own good consists in. If well-being consisted in pleasure only, it is somewhat harder to argue that egoism would imply strong reasons to reduce existential risk – perhaps we could argue that one would maximize her expected hedonic well-being by funding life extension technology or by having herself cryogenically frozen at the time of her bodily death as well as giving money to reduce existential risk (so that there is a world for her to live in!). I am not sure, however, how strong the reasons to do this would be. But views which imply that, if I don’t care about other people, I have no or very little reason to help them are not even minimally plausible views (in addition to hedonistic egoism, I here have in mind views that imply that one has no reason to perform an act unless one actually desires to do that act). To be minimally plausible, egoism will need to be paired with a more sophisticated account of well-being. To see this, it is enough to consider, as Plato did, the possibility of a ring of invisibility – suppose that, while wearing it, Ayn could derive some pleasure by helping the poor, but instead could derive just a bit more by severely harming them. Hedonistic egoism would absurdly imply she should do the latter. To avoid this implication, egoists would need to build something like the meaningfulness of a life into well-being, in some robust way, where this would to a significant extent be a function of other-regarding concerns (see chapter 12 of this classic intro to ethics). But once these elements are included, we can (roughly, as above) argue that this sort of egoism will imply strong reasons to reduce existential risk. Add to all of this Samuel Scheffler’s recent intriguing arguments (quick podcast version available here) that most of what makes our lives go well would be undermined if there were no future generations of intelligent persons. On his view, my life would contain vastly less well-being if (say) a year after my death the world came to an end. So obviously if Scheffler were right I’d have very strong reason to reduce existential risk. We should also take into account moral uncertainty. What is it reasonable for one to do, when one is uncertain not (only) about the empirical facts, but also about the moral facts? I’ve just argued that there’s agreement among minimally plausible ethical views that we have strong reason to reduce existential risk – not only consequentialists, but also deontologists, virtue ethicists, and sophisticated egoists should agree. But even those (hedonistic egoists) who disagree should have a significant level of confidence that they are mistaken, and that one of the above views is correct. Even if they were 90% sure that their view is the correct one (and 10% sure that one of these other ones is correct), they would have pretty strong reason, from the standpoint of moral uncertainty, to reduce existential risk. Perhaps most disturbingly still, even if we are only 1% sure that the well-being of possible future people matters, it is at least arguable that, from the standpoint of moral uncertainty, reducing existential risk is the most important thing in the world. Again, this is largely for the reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. (For more on this and other related issues, see this excellent dissertation). Of course, it is uncertain whether these untold trillions would, in general, have good lives. It’s possible they’ll be miserable. It is enough for my claim that there is moral agreement in the relevant sense if, at least given certain empirical claims about what future lives would most likely be like, all minimally plausible moral views would converge on the conclusion that we should try to save the world. While there are some non-crazy views that place significantly greater moral weight on avoiding suffering than on promoting happiness, for reasons others have offered (and for independent reasons I won’t get into here unless requested to), they nonetheless seem to be fairly implausible views. And even if things did not go well for our ancestors, I am optimistic that they will overall go fantastically well for our descendants, if we allow them to. I suspect that most of us alive today – at least those of us not suffering from extreme illness or poverty – have lives that are well worth living, and that things will continue to improve. Derek Parfit, whose work has emphasized future generations as well as agreement in ethics, described our situation clearly and accurately: “We live during the hinge of history. Given the scientific and technological discoveries of the last two centuries, the world has never changed as fast. We shall soon have even greater powers to transform, not only our surroundings, but ourselves and our successors. If we act wisely in the next few centuries, humanity will survive its most dangerous and decisive period. Our descendants could, if necessary, go elsewhere, spreading through this galaxy…. Our descendants might, I believe, make the further future very good. But that good future may also depend in part on us. If our selfish recklessness ends human history, we would be acting very wrongly.” (From chapter 36 of On What Matters)

#### A - agents can’t act if they fear for their bodily security which constrains every ethical theory.

#### B - it destroys the subject itself – kills any ability to achieve value in ethics since life is a prerequisite which means it’s a side constraint since we can’t reach the end goal of ethics without life.

#### 3 - Actor spec—governments must use util because they don’t have intentions and are constantly dealing with tradeoffs—outweighs since different agents have different obligations—takes out calc indicts since they are empirically denied.

#### 4 - Only consequentialism explains degrees of wrongness—if I break a promise to meet up for lunch, that is not as bad as breaking a promise to take a dying person to the hospital. Only the consequences of breaking the promise explain why the second one is much worse than the first. Intuitions outweigh—they’re the foundational basis for any argument and theories that contradict our intuitions are most likely false even if we can’t deductively determine why.

#### 5 - Theoretically prefer util – its DTA.

#### a. Ground – every impact functions under util whereas other ethics flow to one side exclusively.

#### b. Topic lit – most articles are written through the lens of util because they’re crafted for policymakers and the general public who take consequences to be important, not philosophy majors. Key to fairness and education.

### 1AC - Advantage

#### Plan - The appropriation of outer space by private entities in the People’s Republic of China is unjust.

#### The

Lexico. Oxford Dictionary. The. <https://www.lexico.com/en/definition/the>

Used to refer to a person, place, or thing that is unique.

#### Appropriation of outer space

TIMOTHY JUSTIN TRAPP 13, JD Candidate @ UIUC Law, ’13, TAKING UP SPACE BY ANY OTHER MEANS: COMING TO TERMS WITH THE NONAPPROPRIATION ARTICLE OF THE OUTER SPACE TREATY UNIVERSITY OF ILLINOIS LAW REVIEW [Vol. 2013 No. 4]

The issues presented in relation to the nonappropriation article of the Outer Space Treaty should be clear.214 The ITU has, quite blatantly, created something akin to “property interests in outer space.”215 It allows nations to exclude others from their orbital slots, even when the nation is not currently using that slot.216 This is directly in line with at least one definition of outer-space appropriation.217 [\*\*Start Footnote 217\*\*Id. at 236 (“Appropriation of outer space, therefore, is ‘the exercise of exclusive control or exclusive use’ with a sense of permanence, which limits other nations’ access to it.”) (quoting Milton L. Smith, The Role of the ITU in the Development of Space Law, 17 ANNALS AIR & SPACE L. 157, 165 (1992)). \*\*End Footnote 217\*\*]The ITU even allows nations with unused slots to devise them to other entities, creating a market for the property rights set up by this regulation.218 In some aspects, this seems to effect exactly what those signatory nations of the Bogotá Declaration were trying to accomplish, albeit through different means.219

#### By

Lexico. Oxford Dictionary. By. https://www.lexico.com/en/definition/by

Identifying the agent performing an action.

#### Outer space

Lexico. Oxford Dictionary. Outer Space. https://www.lexico.com/en/definition/outer\_space

The physical universe beyond the earth's atmosphere.

#### Advantage 1 – Dominance

#### The US has overlooked private sector capabilities in China – opens the floodgates for Chinese space development.

**Fernandez 21**, Ray. “China Opens Space and Unleashes The Power Of Its Private Sector.” ScreenRant, 27 Nov. 2021, https://screenrant.com/chinese-companies-boost-space-development/. //JQ

In a new move to boost space development, China has opened up space to private companies. China's space program is heavily linked with the military and wrapped up in secrecy. However, recent Chinese space accomplishments, rovers on the Moon and Mars, new satellites and [new space stations](https://screenrant.com/china-space-station-mission-astronauts/) were primarily developed by government efforts.

The U.S. brought in the private sector as a strategy to boost its space program and develop expensive and ambitious new projects. Now China is doing the same. The last time China used national private companies to increase development was when it declared Artificial Intelligence a national priority. Fast forward a few years, [Chinese AI dominates globally](https://screenrant.com/microsoft-exchange-hack-china-motive/).

[At the 7th China (International) Commercial Aerospace Forum](https://ccaf.casicloud.com/en/index.html), national private companies presented many new and ambitious projects, including spaceplanes, space resources, a [massive constellation of satellites](https://screenrant.com/starlink-global-worldwide-internet-availability-august-elon-musk/) and more. One of the companies at the event was the space giant China Aerospace Science and Industry Corp. (CASIC). The Ministry of Science and Technology, China National Space Administration, and other government arms sponsored and supervised the event.

Hundreds Of New Companies Driving Space Ambitions

[CASIC said that the Xingyun constellation](https://spacenews.com/chinese-space-firms-present-big-ambitions-at-commercial-space-forum/) — made up of 80 satellites is moving full speed ahead. The corporation announced that the intelligent space satellite production factory was operating. They are now launching rockets from their own rocket park in the city of Wuhan. Today the rocket park and smart sat factory produce 20 solid-fuel launches and 100 satellites per year but plans to increase capacities are on their way. CASIC is also working on the Tengyun [spaceplane](https://screenrant.com/military-spacecraft-shuttle-top-secret-mission/), recently flight-testing an advanced turbine-based combined cycle engine in the Gobi desert.

CASIC is not the only private company developing space planes in China. The China Aerospace Science and Technology Corp. and iSpace also presented their plans for space planes and space crafts. iSpace has designed two missions to the Moon, which they assure will be the first commercial missions to the natural satellite. China is getting some inspiration from U.S. companies. Local companies in China are looking into space tourism with suborbital and orbital flights. And Deep Blue Aerospace is developing a reusable launcher that looks very much like the [Heavy Falcon of SpaceX](https://screenrant.com/gears-war-hammer-dawn-spacex-falcon-launch/).

The event's main themes were IoT space networks, multi-purpose satellite constellations, space resources (mining) and taking the Chinese space sector to a new level with private participation. While the U.S. has its eye on Chinese military space vehicles, it may have overlooked and underestimated the impact that the Chinese private sector will have. Hundreds of new companies have responded to the government's call to "[start a new journey](https://screenrant.com/china-spacecraft-miles-long-project-longer-iss/) for commercial aerospace" in China. It is only a matter of time until their full power and capabilities are unleashed into space.

#### Surging commercial space industry in China ready to overcome US lead – manufacturing and international collaboration locks in national power.

**Patel 21**, Neel. (I’m the space reporter for MIT Technology Review, and I also write The Airlock newsletter, your number one source for everything happening off this planet. Before joining, I worked as a freelance science and technology journalist, contributing stories to Popular Science, The Daily Beast, Slate, Wired, the Verge, and elsewhere. Prior to that, I was an associate editor for Inverse, where I grew and led the website’s space coverage.) “China's Surging Private Space Industry Is out to Challenge the US.” MIT Technology Review, MIT Technology Review, 28 Jan. 2021, https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance/. //JQ

The rivalry between the US and China, whose space program has surged over the last two decades, is what most people mean when they refer to the 21st-century's space race. China is set to build a new space station later this year and will likely attempt to send its taikonauts to the moon before the decade ends. But these big-picture projects represent just one aspect of the country’s space ambitions. Increasingly, the focus is now on the commercial space industry as well. The nation's growing private space business is less focused on bringing prestige and glory to the nation and more concerned with reducing the cost of spaceflight, increasing its international influence—and making money.

“The state is really great at large, ambitious projects like going to the moon or developing a large reconnaissance satellite,” says Lincoln Hines, a Cornell University researcher who focuses on Chinese foreign policy. “But it’s not responsive to meeting market needs”—one big way to encourage rapid technological growth and innovation. “I think the government thinks its commercial space sector can be complementary to the state,” he says.

What are the market needs that Hines is referring to? Satellites, and rockets that can launch them into orbit. The space industry is undergoing a renaissance thanks to two big trends spurred by the commercial industry: we can make satellites for less money by making them smaller and using off-the-shelf hardware; and we can also make rockets for less money, by using less costly materials or reusing boosters after they’ve already flown (which SpaceX pioneered with its Falcon 9). These trends mean it is now cheaper to send stuff into space, and the services and data that satellites can offer have come down in price accordingly.

China has seen an opportunity. A [2017 report by Bank of America Merrill Lynch](https://www.cnbc.com/2017/10/31/the-space-industry-will-be-worth-nearly-3-trillion-in-30-years-bank-of-america-predicts.html) estimates that the space industry could be worth up to $2.7 trillion by 2030. Setting foot on the moon and establishing a lunar colony might be a statement of national power, but securing a share of such a highly lucrative business is perhaps even more important to the country’s future.

“In the future, there will be tens of thousands of satellites waiting to launch, which is a major opportunity for Galactic Energy” says Wu Yue, a company spokesperson.

The problem is, China has to make up decades’ worth of ground lost to the West.

How did China get here—and why?

Until recently, China’s space activity has been overwhelmingly dominated by two state-owned enterprises: the China Aerospace Science & Industry Corporation Limited (CASIC) and the China Aerospace Science and Technology Corporation (CASC). A few private space firms have been allowed to operate in the country for a while: for example, there’s the China Great Wall Industry Corporation Limited (in reality a subsidiary of CASC), which has provided commercial launches since it was established in 1980. But for the most part, China’s commercial space industry has been nonexistent. Satellites were expensive to build and launch, and they were too heavy and large for anything but the biggest rockets to actually deliver to orbit. The costs involved were too much for anything but national budgets to handle.

That all changed this past decade as the costs of making satellites and launching rockets plunged. In 2014, a year after Xi Jinping took over as the new leader of China, the Chinese government decided to treat civil space development as a key area of innovation, as it had already begun doing with AI and solar power. It issued a policy directive called [Document 60](http://www.cpppc.org/en/zy/994006.jhtml) that year to enable large private investment in companies interested in participating in the space industry.

“Xi’s goal was that if China has to become a critical player in technology, including in civil space and aerospace, it was critical to develop a space ecosystem that includes the private sector,” says Namrata Goswami, a geopolitics expert based in Montgomery, Alabama, who’s been studying China’s space program for many years. “He was taking a cue from the American private sector to encourage innovation from a talent pool that extended beyond state-funded organizations.”

As a result, there are now 78 commercial space companies operating in China, according to a[2019 report by the Institute for Defense Analyses](https://www.ida.org/-/media/feature/publications/e/ev/evaluation-of-chinas-commercial-space-sector/d-10873.ashx). More than half have been founded since 2014, and the vast majority focus on satellite manufacturing and launch services.

For example, Galactic Energy, founded in February 2018, is building its Ceres rocket to offer rapid launch service for single payloads, while its Pallas rocket is being built to deploy entire constellations. Rival company i-Space, formed in 2016, became the first commercial Chinese company to make it to space with its Hyperbola-1 in July 2019. It wants to pursue reusable first-stage boosters that can land vertically, like those from SpaceX. So does LinkSpace (founded in 2014), although it also hopes to use rockets to deliver packages from one terrestrial location to another.

Spacety, founded in 2016, wants to turn around customer orders to build and launch its small satellites in just six months. In December it launched a miniaturized version of a satellite that uses 2D radar images to build 3D reconstructions of terrestrial landscapes. Weeks later, it [released the first images taken by the satellite](https://spacenews.com/spacety-releases-first-sar-images/), Hisea-1, featuring three-meter resolution. Spacety wants to launch a constellation of these satellites to offer high-quality imaging at low cost.

To a large extent, China is following the same blueprint drawn up by the US: using government contracts and subsidies to give these companies a foot up. US firms like SpaceX benefited greatly from NASA contracts that paid out millions to build and test rockets and space vehicles for delivering cargo to the International Space Station. With that experience under its belt, SpaceX was able to attract more customers with greater confidence.

Venture capital is another tried-and-true route. The IDA report estimates that VC funding for Chinese space companies was up to $516 million in 2018—far shy of the $2.2 billion American companies raised, but nothing to scoff at for an industry that really only began seven years ago. At least 42 companies had no known government funding.

And much of the government support these companies do receive doesn’t have a federal origin, but a provincial one. “[These companies] are drawing high-tech development to these local communities,” says Hines. “And in return, they’re given more autonomy by the local government.” While most have headquarters in Beijing, many keep facilities in Shenzhen, Chongqing, and other areas that might draw talent from local universities.

There’s also one advantage specific to China: manufacturing. “What is the best country to trust for manufacturing needs?” asks James Zheng, the CEO of Spacety’s Luxembourg headquarters. “It’s China. It’s the manufacturing center of the world.” Zheng believes the country is in a better position than any other to take advantage of the space industry’s new need for mass production of satellites and rockets alike.

Making friends

The most critical strategic reason to encourage a private space sector is to create opportunities for international collaboration—particularly to attract customers wary of being seen to mix with the Chinese government. (US agencies and government contractors, for example, are barred from working with any groups the regime funds.) Document 60 and others issued by China’s National Development and Reform Commission were aimed not just at promoting technological innovation, but also at drawing in foreign investment and maximizing a customer base beyond Chinese borders.

“China realizes there are certain things they cannot get on their own,” says Frans von der Dunk, a space policy expert at the University of Nebraska–Lincoln. Chinese companies like LandSpace and MinoSpace have worked to accrue funding through foreign investment, escaping dependence on state subsidies. And by avoiding state funding, a company can also avoid an array of restrictions on what it can and can’t do (such as constraints on talking with the media). Foreign investment also makes it easier to compete on a global scale: you’re taking on clients around the world, launching from other countries, and bringing talent from outside China.

#### China’s private space industry is key to tighten the grip on mining of space resources – reinforces lead on REE extraction and space domination over the US.

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A slew of activities amongst China’s private and state-owned aerospace companies this year are a testament to China’s growing ambitions for economic and [military domination](https://www.defensenews.com/congress/2021/04/14/china-aims-to-weaponize-space-says-intel-community-report/) of space. On October 19, the Academy of Aerospace Solid Propulsion Technology (AASPT) – which belongs to the China Aerospace Science and Technology Corporation (CASC) – test fired “the [most powerful solid rocket motor](https://www.space.com/china-tests-giant-solid-fueled-rocket) with the largest thrust in the world so far.” The 500 tons of thrust is designed to propel the next iteration of China’s heavy-lift rockets, which would meet various demands for space missions like crewed Moon landings, deep space exploration, and off-world resource extraction.

Exploration of space-based natural resources are on the Chinese policy makers’ mind. The question is, what Joe Biden thinks?

In April of this year, China’s Shenzen [Origin Space](https://www.washingtontimes.com/news/2020/oct/1/china-determined-to-dominate-future-mining-with-or/) Technology Co. Ltd. [launched the NEO-1](https://origin.space/#/detail?id=27), the first commercial spacecraft dedicated to the mining of space resources – from asteroids to the lunar surface.

Falling costs of space launches and spacecraft technology alongside existing infrastructure provides a unique opportunity to explore extraterrestrial resource extraction. Current technologies are equipped to analyze and categorize asteroids within our solar system with a limited degree of certainty. One of the accompanying payloads to the NEO-1 was the Yuanwang-1, or “little hubble” satellite, which searches the stars for possible asteroid mining targets.

The NEO-1 launch marks another milestone in private satellite development, adding a new player to space based companies which include Japan’s [Astroscale](https://astroscale.com/space-debris_/" \t "_blank" \o "https://astroscale.com/space-debris_/). Private asteroid identification via the Sentinel Space Telescope was [supported by NASA until 2015](https://b612foundation.org/b612-official-statement-nasa-following-canceled-space-agreement-act/). As private investment in space grows, the end goal is to be capable of harvesting resources to bring to Earth.

According to Shenzen [Origin Space](https://www.washingtontimes.com/news/2020/oct/1/china-determined-to-dominate-future-mining-with-or/) Technology company website:

“Through the development and launch of the spacecraft, Origin Space is able to carry out low-Earth orbit space junk cleanup and prototype technology verification for space resource acquisition, and at the same time demonstrate future asteroid defense related technologies.” In the end, it will come down to progressively lowering the cost of launched unit of weight and booster rocket reliability – before fundamentally new engines may drive the launch costs even further down.

The April launch demonstrates that China is already succeeding while the West is spinning its wheels. The much touted Planetary Resources and Deep Space Industries (DSI) [DSI](https://www.forbes.com/investment-funds/dsi/) [+0.1%](https://www.forbes.com/investment-funds/dsi/)were [supposed to be](https://www.technologyreview.com/2019/06/26/134510/asteroid-mining-bubble-burst-history/) the vanguard of extra-terrestrial resource acquisition with major backers including Google’s [GOOG](https://www.forbes.com/companies/google) [+0.3%](https://www.forbes.com/companies/google)Larry Page. But both have since been acquired, the former by block chain company [ConsenSys](https://consensys.net/" \t "_blank" \o "https://consensys.net/) and the latter by [Bradford Space](https://www.bradford-space.com/), neither of which are prioritizing asteroid mining.

This is too bad, given that that supply chain crunches here on Earth – coupled with the global green energy transition – are spiking demand for strategic minerals that are increasingly hard to come by on our environmentally stressed planet. And here China currently [holds a monopoly](https://www.fpri.org/article/2021/06/americas-critical-strategic-vulnerability-rare-earth-elements/) on rare earth element (REE) extraction and processing to the tune of 90%. REE’s 17 minerals essential for modern computing and manufacturing technologies for everything from solar panels to semi-conductors.

Resource-hungry China also has major involvement in global critical mineral supply chains, which include cobalt, tungsten, and lithium. As [I’ve written before](https://www.forbes.com/sites/arielcohen/2021/06/02/chinas-journey-to-the-center-of-the-earth/?sh=673812a9131f), the Chinese hold of upstream and downstream markets is staggering. Possessing 30% of the global mined ore, 80% of the global processing facilities, and an ever increasing list of high dollar investments around the world, China boasts over $36 billion invested in mining projects in Africa alone.

Beijing’s space program clearly indicates that the Chinese would also like to tighten their grip on space-based resources as well. According to research, it is estimated that a small asteroid roughly 200 meters in length that is rich in platinum could be worth up to $300 million. Merrill Lynch predicts the space industry — including extraterrestrial mining industry – to value [$2.7 trillion](https://www.cnbc.com/2017/10/31/the-space-industry-will-be-worth-nearly-3-trillion-in-30-years-bank-of-america-predicts.html) in the next three decades. REEs are fairly common in the solar system, but to what degree remains unknown. The most sought after are M-type asteroids which are mostly metal and hundreds of cubic meters. While these are not the most common, the 27,115 Near Earth asteroids are bound to contain a few. This – and military applications – are no doubt a driving factor of China’s ever increasing space ambitions.

A new goldrush in space based resource extraction has sparked a new age of miners looking to find their fortunes. In reality, the industry cannot get off the ground without further innovation in deep space observation, on-board power, extraction processes, and logistical support in low earth and high earth orbit.

As Uberization of space looms closer, the prices of space launches are falling rapidly. Privately funded satellites like the NEO-1 or Sentinel are the first of many novel economic ventures deploying technologies essential to the viability of solar system mining projects. Private launches by [SpaceX](https://www.spacex.com/) and [Blue Origin](https://www.blueorigin.com/)will provide low cost satellite deployment for further testing craft and classification telescopes.

Right now, the cost to capture and process asteroids is far greater than traditional mining techniques. This is changing, but like in traditional mining and rare earths refining, China is far ahead of the U.S. in terms of industrial policy and new investments. China is cognizant of the riches in space, while the U.S. fails to support both their public and private space missions. The United States cannot afford to cede this industry – like it has so many others – to its peer competitors. If we do, the joke is on U.S., and it will not be funny.

#### Space competition is inevitable and will determine hegemonic power on Earth–it’s just a question of who wins the race – explains sustainability.

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**The strategic competition between the U.S. and China is fierce** even **in** **space** outside of the earth. What do the two countries compete for in space? What are their objectives and what strategic calculations did they start from? Will the space race between the two countries lead to competition over space hegemony? This is one of the most interesting issues for U.S.-China observers in recent days. The space race between the U.S. and China is not just a number fight. How many satellites and spaceships have been launched and how many space stations have been established are the questions that mattered in the past. These mattered for the convenience and benefit for mankind. It could also make possible for some of the curiosity about the universe to be solved. However, starting the 21st century, the space race between the U.S. and China has progressed into an intense, high-level strategic battle. **Whoever rules space rules the future** There is one reason why **the** two **countries' space strategy competition will inevitably lead to a hegemony competition**. This is **because they try to conquer the space order**. Conquering the space order is to define and establish the space order. **Those who dominate space will dominate almost all sectors of the future world, including economy, technology, environment, cyberspace, transportation and energy**. That's why the United States is considered as a hegemonic country on Earth today. **The U.S. is recognized as a hegemonic country because it establishes and leads the economic, financial, trade, political, and diplomatic order.** There are two areas in the world today where international order has not been established. One is virtual space, which is the cyber world. The other is the space. Since the international order of these two areas is closely correlated with each other, it is likely that the establishment of the order in these two areas will be pursued simultaneously. This means that cyber order cannot be discussed without discussing satellite issues. The Communist Party of China recognized this early on. At the 19th National Communist Party Congress in 2017, it expressed its justification for establishing space order. President Xi Jinping declared that China's diplomatic stage in the 21st century has expanded beyond the Earth into space and virtual space. It was the moment when China defined the concept of diplomatic space as the "universe" beyond the Earth. He then explained that the establishment of a system that can even manage the order of the universe and the virtual world eventually means the establishment of practical governance. Therefore, he justified that China's diplomatic horizon has no choice but to expand into space. Furthermore, he stressed that he is confident that the ideation of building such governance serves as the foundation for the community of common destiny for mankind which China pursues. In other words, he publicly urged China to have the capabilities and means to become a key country in building governance in these two areas. This led the Trump administration to spare no effort to develop space science and technology and space projects, which are the basis of space order. Since President George W. Bush, the maintenance work for supremacy in space has been carried out. President Obama also introduced a policy to encourage U.S. private companies to participate in space projects to expand the foundation for supremacy in space. It was President Trump who actualized all these. He was the one who legalized private companies' space development projects under the Space Policy Directive-I. He also thoroughly reflected his “America First” principle in the space business. For example, all the substances obtained in space, including minerals, were no longer defined as "common goods." He also promised that space activities by private companies in the United States would be free from restrictions such as the Outer Space Treaty and the 1979 resolution by the United Nations Committee on the Peaceful Uses of Outer Space. **Space and the moon were known as repositories of resources. As it became known that the resources that are scarce or will be depleted on Earth are very abundant outside the Earth in space, the space race has gotten intense. This is why the space race has been promoted on a geoeconomic level**. However, in order to secure these benefits of geoeconomic strategies, geopolitical strategies must be accompanied. In other words, military defenses should be backed up to protect the resource acquisition process. Fearing this, the United Nations Committee on the Peaceful Uses of Outer Space strictly regulates the military use of space. However, the fact that the logic of developing naval power to protect long-range foreign interests on Earth is reflected in the strategic thinking of securing space profits is the decisive factor that has driven the space race today. The repositories of resources and future energy sources There are three strategic benefits that drive the U.S.-China competition for supremacy in space. The first is the infinite resource in space. **There are endless resources buried in more than 10,000 asteroids orbiting the Earth.** **They are known to have an abundance of resources such as carbon, zinc, cobalt, platinum, gold, silver and titanium, in which platinum and titanium, for example, can be sold for $30,000 to $50,000 per kilogram.** Second, the **future energy source lies in space**. **Power supply using solar energy will be possible by establishing a space power plant that concentrates solar energy in the Earth-Moon area and transmitting it to Earth through laser beams. Here, the supplied solar power is known to be 35 to 70% more powerful than the solar energy on Earth. By 2100, 70 terawatts of energy will be needed, and it is expected that 332 terawatts can be supplied through the development of space solar power plants in a geostationary orbit. Third, the desire to dominate space for hegemony has established the space competition relationship between the U.S. and China. Although each started from different strategic interests, in the end, they have one common goal.** First of all, **China** wants to be free from the U.S. GPS system. This is because only through the freedom China can prevent its future weapons system from becoming vulnerable to U.S. control and restrictions. It **is planning to achieve its goal of establishing a so-called "Space Silk Road" by expanding China's "BeiDou" navigation system to the regions within One Belt One Road and the national satellite and communication systems. The U.S. also plans to spend $25 billion to develop GPS3 systems with stronger defense capabilities against Chinese space and cyberattacks, by 2025.** **The competition between the U.S. and China to establish a space station in order to secure the benefits from space strategies is inevitable.** This is because a space station is the foundation for establishing space order. As the space station has the purpose of protecting and defending from enemies**, militarization is inevitable in the process. It is clear that the outcome will lead to a space arms race. This is why the competition over supremacy in space between the U.S. and China has the aspects of the New Cold War outside the Earth.** Space is a blue ocean. It is a world without order. Preemption is therefore important. In order to prepare space order and accompanying laws, norms, and systems, the U.S. and China have been engaged in a fierce battle through space projects. This is because **space is the decisive factor in the operation of energy, resources, environment, communication, and advanced military weapons systems in the future. Space is no longer a dream world.** Of course, it takes a lot of time for these strategic benefits to become a reality. However, the Fourth Industrial Revolution and the development of AI (Artificial Intelligence) technology will speed up the pace. This is because economic problems can be solved if spacecraft recycling is made possible with the participation of private companies and facilities related to space stations and mineral mining equipment are set up with 3D printers.

#### Primacy prevents great-power conflict — multipolar revisionism fragments the global order and causes nuclear war.

Brands & Edel 19 — Hal Brands; PhD, Henry A. Kissinger Distinguished Professor of Global Affairs at the Johns Hopkins School of Advanced International Studies. Charles Edel; PhD, Senior Fellow and Visiting Scholar at the United States Studies Centre at the University of Sydney. (“The Lessons of Tragedy: Statecraft and World Order;” Ch. 6: Darkening Horizon; Published by *Yale University Press*; //GrRv)

The revival of great-power competition entails higher international tensions than the world has known for decades, and the revival of arms races, security dilemmas, and other artifacts of a more dangerous past. It entails sharper conflicts over the international rules of the road on issues ranging from freedom of navigation to the illegitimacy of altering borders by force, and intensifying competitions over states that reside at the intersection of rival powers’ areas of interest. It requires confronting the prospect that rival powers could overturn the favorable regional balances that have underpinned the U.S.-led order for decades, and that they might construct rival spheres of influence from which America and the liberal ideas it has long promoted would be excluded. Finally, it necessitates recognizing that great-power rivalry could lead to great-power war, a prospect that seemed to have followed the Soviet empire onto the ash heap of history.

Both Beijing and Moscow are, after all, optimizing their forces and exercising aggressively in preparation for potential conflicts with the United States and its allies; Russian doctrine explicitly emphasizes the limited use of nuclear weapons to achieve escalation dominance in a war with Washington. In Syria, U.S. and Russian forces even came into deadly contact in early 2018. American airpower decimated a contingent of government-sponsored Russian mercenaries that was attacking a base at which U.S. troops were present, an incident demonstrating the increasing boldness of Russian operations and the corresponding potential for escalation. The world has not yet returned to the epic clashes for global dominance that characterized the twentieth century, but it has returned to the historical norm of great-power struggle, with all the associated dangers.

Those dangers may be even greater than most observers appreciate, because if today’s great-power competitions are still most intense at the regional level, who is to say where these competitions will end? By all appearances, Russia does not simply want to be a “regional power” (as Obama cuttingly described it) that dominates South Ossetia and Crimea.37 It aspires to the deep European and extra-regional impact that previous incarnations of the Russian state enjoyed. Why else would Putin boast about how far his troops can drive into Eastern Europe? Why else would Moscow be deploying military power into the Middle East? Why else would it be continuing to cultivate intelligence and military relationships in regions as remote as Latin America?

Likewise, China is today focused primarily on securing its own geopolitical neighborhood, but its ambitions for tomorrow are clearly much bolder. Beijing probably does not envision itself fully overthrowing the international order, simply because it has profited far too much from the U.S.-anchored global economy. Yet China has nonetheless positioned itself for a global challenge to U.S. influence. Chinese military forces are deploying ever farther from China’s immediate periphery; Beijing has projected power into the Arctic and established bases and logistical points in the Indian Ocean and Horn of Africa. Popular Chinese movies depict Beijing replacing Washington as the dominant actor in sub-Saharan Africa—a fictional representation of a real-life effort long under way. The Belt and Road Initiative bespeaks an aspiration to link China to countries throughout Central Asia, the Middle East, and Europe; BRI, AIIB, and RCEP look like the beginning of an alternative institutional architecture to rival Washington’s. In 2017, Xi Jinping told the Nineteenth National Congress of the Chinese Communist Party that Beijing could now “take center stage in the world” and act as an alternative to U.S. leadership.38

These ambitions may or may not be realistic. But they demonstrate just how significantly the world’s leading authoritarian powers desire to shift the global environment over time. The revisionism we are seeing today may therefore be only the beginning. As China’s power continues to grow, or if it is successful in dominating the Western Pacific, it will surely move on to grander endeavors. If Russia reconsolidates control over the former Soviet space, it may seek to bring parts of the former Warsaw Pact to heel. Historically, this has been a recurring pattern of great-power behavior—interests expand with power, the appetite grows with the eating, risk-taking increases as early gambles are seen to pay off.39 This pattern is precisely why the revival of great-power competition is so concerning—because geopolitical revisionism by unsatisfied major powers has so often presaged intensifying international conflict, confrontation, and even war. The great-power behavior occurring today represents the warning light flashing on the dashboard. It tells us there may be still-greater traumas to come.

The threats today are compelling and urgent, and there may someday come a time when the balance of power has shifted so markedly that the postwar international system cannot be sustained. Yet that moment of failure has not yet arrived, and so the goal of U.S. strategy should be not to hasten it by giving up prematurely, but to push it off as far into the future as possible. Rather than simply acquiescing in the decline of a world it spent generations building, America should aggressively bolster its defenses, with an eye to preserving and perhaps even selectively advancing its remarkable achievements.

#### Precedent of success in key sectors like space reinforces China rise - causes nuclear war and destabilizing expansion.

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Using the occasion of the Shangri-La Dialogue in Singapore this month, Chinese Minister of National Defense and State Councilor Gen. Wei Fenghe, delivered a sharp message to the United States, which may be termed the “Xi Doctrine” on China’s use of force, after Chinese premier Xi Jinping. Wei declaring both China’s resolve to aggress to advance its interests and a rationalization for the use of force. Wei’s de facto threat of war should not be lost in his nuances, deliberate ambiguity, or in translation. His remarks were so bellicose that the world has noticed, as was certainly intended by the leadership of the Chinese Communist Party (CCP). Empirical evidence of China’s aggression is increasingly common, from its attempt to dominate the South China Sea, the neo-imperialist effort to gain control of states through the Belt and Road Initiative, to its technological imperialism to control 5G and artificial intelligence technologies. What is rather less frequent are statements from high-level Chinese officials proclaiming the country’s intent to be aggressive and offering an attempted legitimizing principle justifying that aggression. While much of the content of Wei’s remarks were in keeping with the gossamer pronouncements on China’s peaceful intentions, as well as a paean to Xi Jinping’s leadership, they still conveyed that China is ready and willing to resort to war if the United States stands in its way of global expansion; and they made clear that China must go to war, or even a nuclear war, to occupy Taiwan. Specifically, there are four elements that comprise the Xi Doctrine and are indications of China’s signaling its willingness to use force. The first component is a new and alarming proclamation of the undisguised threats to use force or wage an unlimited war. China is becoming bolder as its military power grows. This is evidenced in Wei’s muscular remarks on the People’s Republic of China’s approach against Taiwan, his explicit statement that China does not renounce the use of force against Taiwan, and his effort to deter the United States and its allies from intervention should an attack occur. Wei forcefully stated: “If anyone dares to separate Taiwan from China, the Chinese military has no choice but must go to war, and must fight for the reunification of the motherland at all costs.” “At all cost” means that China will not hesitate to use nuclear weapons or launching another Pearl Harbor to take over Taiwan. This is a clear warning of an invasion. Second, the Xi Doctrine legitimizes territorial expansion. Through his remarks, Wei sought to convince the rest of the world that China’s seizure of most of the South China Sea is an accomplished fact that cannot be overturned. He made bogus accusations, which included blaming the United States for “raking in profits by stirring up troubles” in the region. He insisted that only ASEAN and China must resolve the issue. He claimed that China’s militarization on South China Sea islands and reefs were an act of self-defense. Should this be allowed to stand, then the Xi Doctrine will set a perilous precedent of successful territorial expansion, which will further entice China and jeopardize the peace of the region. Third, the doctrine targets the United States as a cause of the world’s major problems and envisions a powerful China evicting the United States from the region. Wei obliquely identified the United States as the cause wars, conflicts, and unrest, and sought to convey that the United States will abandon the states of the South China Sea (SCS) when it is confronted by Chinese power, a typical divide and conquer strategy used by the CCP regime. The Xi Doctrine’s fourth element is the mendacity regarding China’s historical use of force and current actions. While the distortions of history were numerous, there were three major lies that should be alarming for the states of the region and the global community. First, Wei said that China had never invaded another country, which is a claim so transparently false it can only be a measure of the contempt he held for the audience. China has a long history of aggression, including against the Tibetans and Vietnamese, and perhaps soon against the Taiwanese. Second, Wei argued that hegemony does not conform to China’s values when, in fact, China proudly was Asia’s hegemon for most of the last two thousand years. Lastly, he claimed that the situation in the SCS is moving toward stability—from China’s perspective this stability is caused by its successful seizure of territory. In fact, the SCS is far less stable as a result of China’s actions. Efforts to counter this grab are denounced by Wei as destabilizing, which is a bit like a thief accusing you of a crime for wanting your property returned. Wei’s belligerent rhetoric is an indication that the CCP regime faces deep external and internal crises. Externally, the Trump administration has shocked the CCP with the three major steps it has taken. First, it has shifted the focus of the U.S. national-security strategy and now identifies China explicitly as its primary rival—abandoning the far more muted policies of previous administrations. Second, Trump has acted on this peer competitive threat by advancing tangible measures, such as arms sales to allies and the ban of Huawei. Third, the administration has made credible commitments to assure partners and allies to counter China’s aggression and bullying. These have unbalanced the CCP regime, and its natural reaction is to bully its way out. Additionally, the CCP regime has perceived that the world today has begun to consider the negative implications of China’s rise, and the United States is determined to prevent what heretofore had been considered China’s unstoppable rise. From the perspective of CCP, conflict is increasingly seen as inevitable and perhaps even imminent. Wei’s bellicosity should be seen in this light, and the PLA is tasked with fighting and winning the war. Internally, Xi’s anti-corruption campaign that selectively targets his political rivalries, and his abandoning the established rules such as term limited of presidency, have introduced deep cleavages into the unity of the regime unity. China’s economic slowdown, made worse by the U.S. trade war, is a fundamental challenge to the regime’s legitimacy. Xi’s repression and suppression of the Chinese people, particularly human-rights defenders, Christians, Kazakhs, Uighurs, and other minorities, have miscarried. Drawing from the pages of unfortunate history, in a classic social-imperialist move, the regime wants to direct these internal tensions outward. At the same time, the nationalistic fervor advanced by the CCP’s propaganda and by the rapid military modernization have made many young militant officers in the PLA overconfident. This is infrequently noticed in the West. They can hardly wait to fight an ultimate war to defeat the arch-enemy. This plainly dangerous mentality echoes the Japanese military’s beliefs before Pearl Harbor. The bellicosity evinced in Wei’s speech is serious and is not bluster intended to deter. The United States cannot meet China’s threat with half-measures, which are likely to further encourage China’s aggressive behavior. The United States must respond to China’s belligerence with greater strength, adamantine determination, and more vigorous diplomatic and military measures. With the Xi Doctrine, China has proclaimed and rationalized its aggression. A Trump Doctrine forged in response has to reveal to all global audiences, most importantly the CCP leadership, the recklessness of the Xi Doctrine and the supreme folly of aggression.

#### Transition is devastating and an impact magnifier – shift back to unipolarity is key.

Keck 14 Zachary Keck is Managing Editor of The Diplomat, The Diplomat, January 24, 2014, “America’s Relative Decline: Should We Panic?”, http://thediplomat.com/2014/01/americas-relative-decline-should-we-panic/

Regardless of your opinion on U.S. global leadership over the last two decades, however, there is good reason to fear its relative decline compared with China and other emerging nations. To begin with, hegemonic transition periods have historically been the most destabilizing eras in history. This is not only because of the malign intentions of the rising and established power(s). Even if all the parties have benign, peaceful intentions, the rise of new global powers necessitates revisions to the “rules of the road.” This is nearly impossible to do in any organized fashion given the anarchic nature of the international system, where there is no central authority that can govern interactions between states. We are already starting to see the potential dangers of hegemonic transition periods in the Asia-Pacific (and arguably the Middle East). As China grows more economically and militarily powerful, it has unsurprisingly sought to expand its influence in East Asia. This necessarily has to come at the expense of other powers, which so far has primarily meant the U.S., Japan, Vietnam and the Philippines. Naturally, these powers have sought to resist Chinese encroachments on their territory and influence, and the situation grows more tense with each passing day. Should China eventually emerge as a global power, or should nations in other regions enjoy a similar rise as Kenny suggests, this situation will play itself out elsewhere in the years and decades ahead. All of this highlights some of the advantages of a unipolar system. Namely, although the U.S. has asserted military force quite frequently in the post-Cold War era, it has only fought weak powers and thus its wars have been fairly limited in terms of the number of casualties involved. At the same time, America’s preponderance of power has prevented a great power war, and even restrained major regional powers from coming to blows. For instance, the past 25 years haven’t seen any conflicts on par with the Israeli-Arab or Iran-Iraq wars of the Cold War. As the unipolar era comes to a close, the possibility of great power conflict and especially major regional wars rises dramatically. The world will also have to contend with conventionally inferior powers like Japan acquiring nuclear weapons to protect their interests against their newly empowered rivals. But even if the transitions caused by China’s and potentially other nations’ rises are managed successfully, there are still likely to be significant negative effects on international relations. In today’s “globalized” world, it is commonly asserted that many of the defining challenges of our era can only be solved through multilateral cooperation. Examples of this include climate change, health pandemics, organized crime and terrorism, global financial crises, and the proliferation of weapons of mass destruction, among many others. A unipolar system, for all its limitations, is uniquely suited for organizing effective global action on these transnational issues. This is because there is a clear global leader who can take the initiative and, to some degree, compel others to fall in line. In addition, the unipole’s preponderance of power lessens the intensity of competition among the global players involved. Thus, while there are no shortages of complaints about the limitations of global governance today, there is no question that global governance has been many times more effective in the last 25 years than it was during the Cold War.

#### Nuke war causes extinction AND outweighs other existential risks.

PND 16. internally citing Zbigniew Brzezinski, Council of Foreign Relations and former national security adviser to President Carter, Toon and Robock’s 2012 study on nuclear winter in the Bulletin of Atomic Scientists, Gareth Evans’ International Commission on Nuclear Non-proliferation and Disarmament Report, Congressional EMP studies, studies on nuclear winter by Seth Baum of the Global Catastrophic Risk Institute and Martin Hellman of Stanford University, and U.S. and Russian former Defense Secretaries and former heads of nuclear missile forces, brief submitted to the United Nations General Assembly, Open-Ended Working Group on nuclear risks. A/AC.286/NGO/13. 05-03-2016. <http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/OEWG/2016/Documents/NGO13.pdf> //Re-cut by Elmer

Consequences human survival 12. Even if the 'other' side does NOT launch in response the smoke from 'their' burning cities (incinerated by 'us') will still make 'our' country (and the rest of the world) uninhabitable, potentially inducing global famine lasting up to decades. Toon and Robock note in ‘Self Assured Destruction’, in the Bulletin of Atomic Scientists 68/5, 2012, that: 13. “A nuclear war between Russia and the United States, even after the arsenal reductions planned under New START, could produce a nuclear winter. Hence, an attack by either side could be suicidal, resulting in self assured destruction. Even a 'small' nuclear war between India and Pakistan, with each country detonating 50 Hiroshima-size atom bombs--only about 0.03 percent of the global nuclear arsenal's explosive power--as air bursts in urban areas, could produce so much smoke that temperatures would fall below those of the Little Ice Age of the fourteenth to nineteenth centuries, shortening the growing season around the world and threatening the global food supply. Furthermore, there would be massive ozone depletion, allowing more ultraviolet radiation to reach Earth's surface. Recent studies predict that agricultural production in parts of the United States and China would decline by about **20 percent** for four years, and by 10 percent for a decade.” 14. A conflagration involving USA/NATO forces and those of Russian federation would most likely cause the deaths of most/nearly all/all humans (and severely impact/extinguish other species) as well as destroying the delicate interwoven techno-structure on which latter-day 'civilization' has come to depend. Temperatures would drop to below those of the last ice-age for up to 30 years as a result of the lofting of up to 180 million tonnes of very black soot into the stratosphere where it would remain for decades. 15. Though human ingenuity and resilience shouldn't be underestimated, human survival itself is arguably problematic, to put it mildly, under a 2000+ warhead USA/Russian federation scenario. 16. The Joint Statement on Catastrophic Humanitarian Consequences signed October 2013 by 146 governments mentioned 'Human Survival' no less than 5 times. The most recent (December 2014) one gives it a highly prominent place. Gareth Evans’ ICNND (International Commission on Nuclear Non-proliferation and Disarmament) Report made it clear that it saw the threat posed by nuclear weapons use as one that at least threatens what we now call 'civilization' and that potentially threatens human survival with an immediacy that even climate change does not, though we can see the results of climate change here and now and of course the immediate post-nuclear results for Hiroshima and Nagasaki as well.

#### Advantage 2 – Space War

#### Space is the pinnacle of great power competition – China is set to take advantage – investment in state based launching and military capabilities leaves the US in the dust.

**Zivitski 20**, Liane. (Maj. Liane Zivitski Chief, Operations Branch, J32 American Military University Masters - Strategic Intelligence Intelligence Officer for USAF) “China Wants to Dominate Space, and the US Must Take Countermeasures.” Defense News, Defense News, 23 June 2020, https://www.defensenews.com/opinion/commentary/2020/06/23/china-wants-to-dominate-space-and-the-us-must-take-countermeasures/. //JQ

China is determined to replace the U.S. as the dominant power in space. While proclaiming its peaceful intentions, Beijing’s doctrine considers space a military domain, and it is investing heavily in space infrastructure designed to [secure](https://www.c4isrnet.com/battlefield-tech/space/2019/11/15/chinas-space-silk-road-could-pose-a-challenge-to-the-us/) both economic and military advantages. To ensure that it continues to compete from a position of strength, the U.S. must [invest sufficient resources](https://www.c4isrnet.com/battlefield-tech/space/2020/06/17/pentagon-releases-defense-space-strategy-to-counter-russia-and-china/) in preparing its new Space Force to defend America’s national interests and security in space.

Beijing’s [rapidly improving capabilities](https://www.c4isrnet.com/battlefield-tech/space/2020/06/23/china-launches-final-satellite-in-gps-like-beidou-system/) are clear to see. On May 5, China successfully [launched](https://www.popularmechanics.com/space/rockets/a32383927/china-rocket-launch-long-march-5b/) the Long March-5B rocket designed to eventually transport astronauts into space. This was the first successful launch of any Long March rocket this year after failed attempts to launch the [Long March-3B](https://www.space.com/china-long-march-3b-rocket-launch-failure.html) in April and [Long March-7A](https://www.space.com/china-long-march-7a-rocket-launch-failure.html) in March.

Three weeks later, China completed back-to-back launches from two separate launch facilities placing Earth-imaging and technology demonstration satellites into orbit. China plans to launch more than 60 spacecraft in over 40 launches in 2020, and has led global launches over the past two years.

Currently, China is second only to the U.S. in the number of operational satellites in orbit, with 363 as of March 31, 2020.

These capabilities are a cause for concern because of Beijing’s concurrent investment in space weapons. The Pentagon recently warned China has developed and fielded ground- and space-based anti-satellite, directed-energy, and electronic warfare capabilities that place the peaceful use of international space at risk.

Evidence suggests China could be developing up to three different anti-satellite systems. China launched its first successful ground-based direct ascent anti-satellite missile, [the SC-19](https://www.globalsecurity.org/space/world/china/sc-19-asat.htm), in 2007, and spent the last decade improving follow-on versions. In 2018, the People’s Liberation Army formed military units that began initial operational training with anti-satellite missiles. The SC-19 is now assessed operational and capable of targeting low-Earth orbit satellites.

China also fielded sophisticated on-orbit capabilities, such as satellites with [robotic arm technology](https://aerospace.csis.org/wp-content/uploads/2020/03/Harrison_SpaceThreatAssessment20_WEB_FINAL-min.pdf) for inspection and repair, which the U.S. Defense Intelligence Agency [assesses](https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/Space_Threat_V14_020119_sm.pdf) could also function as a weapon.

Because destruction of assets using anti-satellite technology is easily attributable, China is also pursuing a broad range of nondestructive directed-energy and electronic warfare weapons like lasers for blinding commercial and military imaging satellites. It is also working on radio frequency-jamming technologies capable of degrading or denying satellite communications and global navigation satellite systems like GPS.

China’s counter-space efforts have forced the U.S. to take measures to protect itself against what Secretary of Defense Mark Esper accurately labeled the weaponization of space. The 2020 National Defense Authorization Act established the United States Space Force as the sixth independent branch of the military to meet the threat posed to American space-based assets by potential enemies. U.S. Space Command, the Defense Department’s 11th combatant command, recently finalized its campaign plan with a new mission statement emphasizing “defending against and deterring threats.”

However, China is launching capabilities into space at a pace that is becoming increasingly difficult for the U.S. to match amid the current pandemic. Despite the recent success of the SpaceX launch from U.S. soil to the International Space Station, the U.S. has delayed several launches due to COVID-19.

In March, California-based Rocket Lab postponed the launch of three U.S. intelligence payloads from its launch complex [in New Zealand](https://www.c4isrnet.com/battlefield-tech/space/2020/06/18/us-to-continue-launching-spy-satellites-from-new-zealand-in-2021/). In April, the U.S. Space Force delayed a GPS satellite launch to no earlier than June 30 in order to minimize personnel from [COVID-19 exposure](https://www.c4isrnet.com/battlefield-tech/space/2020/04/07/space-force-delays-gps-launch-to-minimize-covid-19-exposure/). And delays caused by the novel coronavirus also ensured the first launch of NASA’s Artemis program will not happen until late 2021.

Meanwhile, China is already [preparing](https://spacenews.com/rocket-arrives-as-china-targets-july-for-tianwen-1-mars-mission-launch/) for its next launch, the Tianwen-1 Mars mission, scheduled for July.

Space is the new high ground in great power competition, and the U.S. must secure and maintain its superiority there. It would be less expensive to rely on multilateral organizations and international norms to prevent aggression in space, Beijing’s track record of deviation from international norms leaves the U.S. no choice but to prepare to defend itself. The fiscal 2021 U.S. Space Force budget request for $15.4 billion is a critical first step to combat emerging threats, especially from China.

#### Misperception means it goes nuclear.

Rovner 17 – Professor of Political Science, SMU (Joshua, “Two kinds of catastrophe: nuclear escalation and protracted war in Asia,” Journal of Strategic Studies, <http://www.tandfonline.com/doi/abs/10.1080/01402390.2017.1293532?journalCode=fjss20>)

This clash of great power interests has led to concerns that a US–China war may be over the horizon. Such a war is not inevitable, of course, and both sides have obvious reasons to avoid any military conflict. But neither has shown much willingness to back down from the political issues at stake, some of which are infused with nationalism. As long as these issues remain unresolved, and as long as the United States remains committed to the allies who are at loggerheads with Beijing, then conflict will remain a possibility. The fact that both sides possess nuclear weapons raises the danger of a nuclear exchange, even over crises that begin over what to be relatively minor disputes.1 In the event of a war, both China and the United States would seek a quick decisive victory. Any war is likely to exact high costs in blood and treasure. Their high level of trade and financial interdependence, and the centrality of the United States and China to the global economy, means that a prolonged war would be an economic calamity. Chinese military doctrine increasingly stresses the importance of winning quickly, and it puts a premium on seizing the initiative and controlling the pace of combat under what it calls “informatized conditions.” The examples of the US wars in Iraq, Kosovo, and Afghanistan convinced Chinese thinkers that high-intensity conventional combat is no longer a question of relative industrial power. Instead, it is a competition for control of communications. In future conflicts, long-range attacks coupled with aggressive information operations will sew confusion and allow China to dictate the crucial opening stages. The 2001 edition of the Science of Military Strategy (SMS) states that China envisions precision strikes in order to “paralyze the enemy in one stroke.” 2 Organizational changes in the years that followed gave the People’s Liberation Army Air Force (PLAAF) more autonomy and responsibility for long-range strike. In addition, the 2013 edition of SMS called for the PLAAF to develop information operations capable of “effective suppression and destruction” of enemy’s information systems alongside an “information protection capability.” 3 Chinese leaders have committed to the PLA’s military space and counter-space capabilities, investing in more missions, more launches, and more satellites. Finally, the PLA has deliberately merged electronic warfare with psychological operations, based on the idea that confusing the enemy by undermining its communications will force it into operational sclerosis and have a profound psychological effect. The goal is to win fast. The PLA must “seize and control the battlefield initiative, paralyze and destroy the enemy’s operational system of systems, and shock the enemy’s will for war.” 4 This approach closely resembles the US model, which relies on prompt attacks on communications and intelligence networks, which will make it safe for follow-on forces to surge into theater and dictate the scope and pace of combat. American officers have become accustomed to short conventional clashes since the first Gulf War, and their basic operational concept remains largely unchanged. Doctrine continues to emphasize the importance of seizing the initiative, confusing the enemy, and establishing control. The standing joint publication on operations provides a neat summary of the US approach: As operations commence, the (joint force commander) needs to exploit friendly advantages and capabilities to shock, demoralize, and disrupt the enemy immediately. The JFC seeks decisive advantage through the use of all available elements of combat power to seize and maintain the initiative, deny the enemy the opportunity to achieve its objectives, and generate in the enemy a sense of inevitable failure and defeat.5 Rapid attacks cause physical destruction and psychological damage, turning dangerous adversaries into helpless, disorganized, and vulnerable targets. Under these conditions, enemies have neither the ability nor the desire to fight on, and the United States can consolidate its initial gains with additional forces who face little or no resistance. In sum, China and the United States are preparing for a kind of highintensity warfare that requires executing rapid and complex operations while simultaneously disrupting the enemy’s command and control. Both sides believe this operational concept can lead to victory at a reasonably low cost, and are tailoring military doctrine to achieve specific political objectives without risking national disaster. What if both sides are wrong? Great powers often exaggerate their capabilities and minimize the importance of contingency and chance in war. Sometimes they launch campaigns with the false belief that war will be brief and painless, only to learn the opposite. Combat against a thinking adversary reveals the limits of existing capabilities in ways that are impossible to know before the fact. Strategic interaction during war plays havoc with prewar expectations, because the combatants do their utmost to undermine the other. Ambiguous information may not allow either side to judge whether it is succeeding, or, indeed, whether its forces are actually carrying out operations as intended. Great power wars rarely go according to plan. Good strategies thus contain a reasonable margin of error, and good strategists learn to think about what might go wrong. Contingency planning is especially important in cases where nuclear weapons may come into play This article discusses the relationship between conventional and nuclear weapons in a hypothetical war between the United States and China. Both countries have spent lavishly on new conventional military capabilities. Beijing is developing “anti-access” systems to make operations dangerous for US forces in the region, and Washington has responded by refining its operational approach. In the nuclear realm, China is undergoing a modernization of its arsenal and has revised its posture, while the United States has invested in increasingly accurate missiles, lethal warheads, and remote sensing technologies that enable rapid precision strikes. These trends may have important and troubling effects on the dynamics of a potential conventional military confrontation. While optimists imagine a quick and decisive victory, the presence of nuclear weapons opens the possibility of unexpected scenarios that neither side can fully control. The following discussion describes two such scenarios. The first section discusses the prospects for nuclear use. The second section discusses the opposite scenario by looking at the prospects for a protracted conventional war. While escalation concerns have attracted a great deal of scrutiny, scholars have paid much less attention to the possibility of a drawn-out fight. The third section evaluates which scenario is more likely in a US–China conflict. The conclusion discusses the political and military trade-offs leaders will face in a future crisis. Efforts to win quickly will increase the risk of nuclear use. Efforts to reduce the risk of escalation, on the other hand, will increase the risk of a prolonged war. Escalation What would cause leaders to cross the nuclear threshold? In some cases, the choice may be a conscious decision to marry conventional and nuclear doctrine and incorporate escalatory moves in prewar plans. This would be the case if they believe they can execute a preemptive first strike and disable or destroy the adversary’s arsenal. Preemptive attacks are particularly appealing against states with incautious or irrational leaders, especially if they possess small and vulnerable forces. Deliberate escalation is also possible if leaders believe that they must signal resolve by indicating their control at all levels of violence. Preparations for conventional war would transparently include plans for nuclear use in the case of certain contingencies. According to this logic, a clear signal of “escalation dominance” is necessary to convince the enemy that the risks are overwhelming and the prospects of victory are slim. If demonstrations of dominance fail, however, then the stronger state can simply execute its plan in order to defeat the enemy. US leaders in the Cold War invested in capabilities to enable attacks on enemy nuclear weapons and associated systems.6 If this was the case in the Cold War, when the United States faced a superpower adversary with a sprawling nuclear weapons complex, then leaders today probably remain interested in counterforce. Open-source analyses of US technology, along with some telling statements from US leaders, reveal an ongoing program for building and deploying weapons to preempt enemy escalation during a conventional conflict.7 They are also concerned with adversary innovations that complicate counterforce strikes.8 But suppose that leaders have no intention of using nuclear weapons. It is one thing to develop impressive technologies, but quite another to use them, and policymakers may blanch at the real prospect of authorizing first use. Even in these cases, there are several theoretical pathways to escalation. The first is psychological. Cognitive biases may cause leaders to misperceive rival intentions, mistaking signals of restraint for signs of danger. Prewar expectations strongly influence how individuals interpret new information, and they will ignore or reframe dissonant information so it fits into their existing beliefs. Misperceptions intensify after the shooting starts, when information is ambiguous and incomplete. Carl von Clausewitz dwelt on the problem in the aftermath of the Napoleonic Wars, noting that intelligence reports were often contradictory and unreliable “in the thick of fighting.” Despite advances in intelligence and communications, the fog of war remains an enduring problem. Organized violence is an iterative process, and each side has incentives to hide its actions and deceive its adversary. Violence also unleashes intense emotions that obscure the material effects of battle. Commanders may not understand whether they are winning or losing, and in lieu of reliable intelligence they are likely to let passion overtake good judgment. “In short,” Clausewitz concluded, “most intelligence is false, and the effect of fear is to multiply lies and inaccuracies.” 9 Wartime leaders are prone to attribution bias, or the belief that their counterparts are inherently evil. Leaders in conflict are likely to assume the worst about their rivals or else they would not have picked a fight in the first place. Attribution bias causes them disregard the notion that their enemies have limited goals and are willing to accept partial victories. They are also prone to reject peace overtures as meaningless gestures at best, or as efforts to lull them into passivity before escalating the conflict.10 Finally, prospect theory tells us that individuals will fight harder to avoid losing a possession than they will to gain something new. If leaders equate settling with losing, then they will be tempted to risk escalation. All of these psychological pressures are exacerbated under stress and tight time constraints.11 Domestic pressures might lead to escalation if one or both governments fear that regime change will be the political penalty for battlefield failure. Escalation is also possible if the issues at stake are wrapped up in nationalism or ideologies that inflate the value of the object. Leaders will be hard pressed to accept defeat in such cases, especially if military outcome is particularly lopsided and humiliating. Leaders who depend on particularly hawkish constituencies to remain in power are especially likely to take new risks even against long odds. Rather than negotiating an end to the war, they might gamble for resurrection by escalating to the nuclear level.12 Such a move would not necessarily be irrational. Instead, resurrection succeeds by shifting the war towards the balance of interests rather than the balance of capabilities. A retreating combatant, battered in the early stages of a conflict, may still affect the enemy’s calculation by taking extraordinary risks. Escalation signals a willingness to fight to the finish and a reminder that it has powerful interests at stake. Such a strategy is admittedly risky, but it may be effective, especially if the escalating state is fighting to defend its own territory against a distant rival. Transforming a conflict into a test of resolve makes sense when a state is failing the test of arms.13 Finally, inadvertent escalation may occur when conventional attacks put the adversary’s nuclear force at risk. Under these conditions, the target state might reasonably worry that the attack is only the first phase of a larger war. There may be no way to offer credible reassurances that it is not. Fearing the destruction or incapacitation of its nuclear deterrent, the target state might face a “use it or lose it” dilemma. Inadvertent escalation is especially likely if key command and control nodes are vulnerable or if conventional and nuclear target sets are indistinguishable. The danger also increases if military organizations indulge organizational preferences for offensive action. This encourages planners to err on the side of attacking all available targets. While it might sense to allow the adversary to retain some capabilities in order to reduce the incentives for escalation, planners may bridle at the thought of consciously allowing the enemy to retain the capacity for attack.14 In recent years, China has invested heavily in capabilities that will complicate US maritime operations and threaten US bases in Japan and Guam. Equipped with a range of anti-access capabilities, China may be able to deter the United States from intervening in the case of a regional war. If it does intervene, China may attempt to damage or destroy US assets or force carrier groups to operate at prohibitively long distances from the mainland.

#### Beijing and Moscow commercial partnership uses dual-use disguise to weaponize space and destroy US nuclear communication and defense.

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Consider the actions of the United States’ two great-power adversaries when it comes to anti-satellite weapons. China and Russia have [sprinted](https://thedispatch.com/p/we-must-work-to-prevent-a-space-pearl) to develop and deploy both ground-based and space-based weapons targeting satellites while simultaneously pushing the United States to sign a treaty banning such weapons.

To protect its vital space-based military capabilities—including communications, intelligence, and missile defense satellites—and effectively deter authoritarian aggression, Washington should avoid being drawn into suspect international treaties on space that China and Russia have no intention of honoring.

The Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects (PPWT), which Beijing and [Moscow](https://undocs.org/en/CD/2181) have submitted at the United Nations, is a perfect example. PPWT signatories [commit](https://undocs.org/pdf?symbol=en/CD/1985) “not to place any weapons in outer space.” It also says parties to the treaty may not “resort to the threat or use of force against outer space objects” or engage in activities “inconsistent” with the purpose of the treaty.

On the surface, that sounds innocuous. Who, after all, wants an arms race in space?

The reality, however, is that China and Russia are already racing to field anti-satellite weapons and have been for quite some time. “The space domain is competitive, congested, and contested,” Gen. James Dickinson, the head of U.S. Space Command, [said](https://www.defense.gov/Explore/News/Article/Article/2483340/commander-lists-5-tasks-to-ensuring-continued-space-superiority/) in January. “Our competitors, most notably China and Russia, have militarized this domain.”

Beijing already has an [operational ground-based anti-satellite missile capability](https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/Space_Threat_V14_020119_sm.pdf#page=3). People’s Liberation Army units are training with the missiles, and the U.S. Defense Department [believes](https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF#page=90) Beijing “probably intends to pursue additional [anti-satellite] weapons capable of destroying satellites up to geosynchronous Earth orbit.” That is where America’s most sensitive nuclear communication and missile defense satellites orbit and keep watch.

Similarly, Moscow [tested](https://www.spacecom.mil/News/Article-Display/Article/2448334/russia-tests-direct-ascent-anti-satellite-missile/) a ground-based anti-satellite weapon in December that could destroy U.S. or allied satellites in orbit. That attack capability augments a ground-based laser weapon that Russian President Vladimir Putin [heralded](https://tass.com/defense/1034344) in 2018. In a moment of candor, Russia’s defense ministry admitted the system was designed to “fight satellites.”

To make matters worse, both countries are also working to deploy space-based—or so-called “[on-orbit](https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/Space_Threat_V14_020119_sm.pdf#page=3)”—capabilities to attack satellites.

Meanwhile, at the United Nations and other international forums, China and Russia are pushing the PPWT and advocating for a “[no first placement](https://2017-2021.state.gov/whither-arms-control-in-outer-space-space-threats-space-hypocrisy-and-the-hope-of-space-norms/index.html)” resolution—saying all governments should commit not to be the first to put weapons in space.

Yet more than two years ago, the U.S. Defense Intelligence Agency [noted](https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/Space_Threat_V14_020119_sm.pdf) that both China and Russia were already putting in space capabilities that could be used as weapons. The PPWT would thus protect their weapons while tying Washington’s hands.

In a thinly veiled attempt to mask their intentions, the two countries claim that their on-orbit capabilities are simply for peaceful purposes—for assessing the condition of broken satellites and conducting repairs as needed. This “dual-use” disguise permits Beijing and Moscow to put into orbit ostensibly peaceful or commercial capabilities that those countries can actually use to disable or destroy U.S. military and intelligence satellites.

China, for example, has tested several so-called [scavenger](https://www.scmp.com/news/china/science/article/3007186/how-chinas-scavenger-satellites-are-being-used-develop-ai) satellites, which use [grappling arms to capture](https://www.uscc.gov/sites/default/files/annual_reports/2015%20Annual%20Report%20to%20Congress.PDF#page=307) other satellites. China has also demonstrated the capability to [maneuver a satellite](https://breakingdefense.com/2018/04/china-satellite-sj-17-friendly-wanderer/) around the geosynchronous belt, allowing its satellites to sidle up to other satellites in space.

Not to be outdone, Russia deployed a pair of “nesting doll” satellites that [shadowed](https://time.com/5779315/russian-spacecraft-spy-satellite-space-force/) a U.S. satellite in space. One Russian satellite birthed another, with Russia’s defense ministry [claiming](https://tass.ru/armiya-i-opk/7285111) its purpose was to assess the “technical condition of domestic satellites.”

But later, the second satellite conducted a weapons test, [firing](https://www.spacecom.mil/MEDIA/NEWS-ARTICLES/Article/2285098/russia-conducts-space-based-anti-satellite-weapons-test/) what appeared to be a [space torpedo](https://spacewatch.global/2020/12/spacewatchgl-opinion-2020-in-review-a-space-security-perspective/). The Kremlin never explained how a fast-moving one-time projectile provided superior inspection benefits compared with the other Russian satellite flying persistently nearby.

#### Dual-use capability destroys early warning, navigation, and communication – causes miscalculation that escalates to nuclear use.

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If current trends hold, then China’s[Strategic Support Force](https://ndupress.ndu.edu/Portals/68/Documents/stratperspective/china/china-perspectives_13.pdf) will be capable by the late 2020s of holding key U.S. space assets at risk. [Chinese military doctrine](https://nationalinterest.org/blog/reboot/nowhere-earth-will-be-safe-us-china-war-172523), statements by senior officials, and past behavior all suggest that China may well believe threatening such assets to be an effective means of deterring U.S. intervention. If so, then the United States would face a type of “Sophie’s Choice”: decline to intervene, potentially leading allies to follow suit and Taiwan to succumb without a fight, thereby enabling Xi to achieve his goal of “peacefully” snuffing out Taiwanese independence; or start a war that would at best be long and bloody and might well even cross the nuclear threshold.

This emerging crisis has been three decades in the making. In 1991, China watched from afar as the United States used space-enabled capabilities to obliterate the Iraqi military from a distance in the first Gulf War. The People’s Liberation Army quickly set to work developing capabilities targeted at a perceived Achilles’ heel of this new [American way of war](https://nationalinterest.org/feature/secrets-and-lies-role-truth-great-power-information-warfare-170579): reliance on vulnerable space systems.

This project came to fruition with a direct ascent[ASAT weapons test](https://fas.org/sgp/crs/row/RS22652.pdf) in 2007, but the test was limited in two key respects. First, it only reached low Earth orbit. Second, it generated thousands of pieces of long-lasting space junk, provoking immense[international ire](https://spacenews.com/u-s-official-china-turned-to-debris-free-asat-tests-following-2007-outcry/). This backlash appears to have taken China by surprise, driving it to seek new, more usable ASAT types with minimal debris production. Now, one such ASAT is nearing operational status: spacecraft capable of rendezvous and proximity operations (RPOs).

Such spacecraft are[inevitable](https://www.airuniversity.af.edu/Portals/10/SSQ/documents/Volume-12_Issue-2/Chow.pdf#page=22) and cannot realistically be limited. The United States, European Union, China, and others are developing them to provide a range of satellite services essential to the[new space economy](https://www.morganstanley.com/ideas/space-economy-themes-2021), such as in situ repairs and refueling of satellites and active removal of space debris. But RPO capabilities are dual-use: if a satellite can grapple space objects for servicing, then it might well be capable of grappling an adversary’s satellite to move it out of its servicing orbit. Perhaps it could degrade or disable it by bending or disconnecting its solar panels and antennas all while producing minimal debris.

This is [a serious threat](https://nationalinterest.org/feature/can-america-lose-china-189020), primarily because no international rules presently exist to limit close approaches in space. Left unaddressed, this lacuna in international law and space policy could enable a prospective attacker to pre-position, during peacetime, as many spacecraft as they wish as close as they wish to as many high-value targets as they wish. The result would be an ever-present possibility of sudden, bolt-from-the-blue attacks on vital space assets—and worse, on many of them at once.

China has conducted at least[half a dozen tests of RPO](https://swfound.org/media/207179/swf_chinese_rpo_fact_sheet_apr2021.pdf#page=3) capabilities in space since 2008, two of which went on for years. Influential space experts have noted that these tests have plausible peaceful purposes and are in many cases similar to those conducted by the United States. This, however, does not make it any less important to establish effective legal, policy, and technical counters to their offensive use. Even if it were certain that these capabilities are intended purely for peaceful applications—and it is not at all clear that that is the case—China (or any other country) could at any time decide to repurpose these capabilities for ASAT use.

There is still time to get out ahead of this threat, but likely not for much longer. China’s RPO capabilities have, thus far, lagged about five years behind those of the United States. There are reasons to believe this gap may close, but even assuming that it holds, we should expect to see China demonstrate an operational dual-use rendezvous spacecraft by around 2025. (The first instance of a U.S. commercial satellite docking with another satellite to change its orbit occurred in[February 2020](https://news.northropgrumman.com/news/releases/northrop-grumman-successfully-completes-historic-first-docking-of-mission-extension-vehicle-with-intelsat-901-satellite).)

At the same time, China is expanding its capacity for rapid spacecraft manufacturing. The[Global Times](https://www.globaltimes.cn/page/202101/1213345.shtml) reported in January that China’s first intelligent mass production line is set to produce 240 small satellites per year. In April,[Andrew Jones](https://spacenews.com/china-is-developing-plans-for-a-13000-satellite-communications-megaconstellation/#:~:text=China%20is%20developing%20plans%20for%20a%2013%2C000%2Dsatellite%20megaconstellation,-by%20Andrew%20Jones&text=HELSINKI%20%E2%80%94%20China%20is%20to%20oversee,the%20country's%20major%20space%20actors.) at SpaceNews reported that China is developing plans to quickly produce and loft a thirteen thousand-satellite national internet megaconstellation. It is not unreasonable to assume that China could manufacture two hundred small rendezvous ASAT spacecraft by 2029, possibly more.

If this happens, and Beijing was to decide in 2029 to launch these two hundred small RPO spacecraft and position them in close proximity to strategically vital assets, then China would be able to simultaneously threaten disablement of the entire constellations of U.S. satellites for missile early warning (about a dozen satellites with spares included); communications in a nuclear-disrupted environment (about a dozen); and positioning, navigation, and timing (about three dozen); along with several dozen key communications, imagery, and meteorology satellites. Losing these assets would severely degrade U.S. deterrence and warfighting capabilities, yet once close pre-positioning has occurred such losses become almost impossible to prevent. For this reason, such pre-positioning could conceivably deter the United States from coming to Taiwan’s aid due to the prospect that intervention would spur China to disable these critical space systems. Without their support, the war would be much bloodier and costlier—a daunting proposition for any president.

Should the United States fail to intervene, the consequences would be disastrous for both Washington and its allies in East Asia, and potentially the credibility of U.S. defense commitments around the globe. Worse yet, however, might be what could happen if China believes that such a threat will succeed but proves to be wrong. History is rife with examples of major wars arising from miscalculations such as this, and there are many pathways by which such a situation could easily escalate out of control to a full-scale conventional conflict or even to nuclear use.

#### Space conflicts go nuclear – the risk is high and there are no breaks on escalation.

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So says a very good New York Times editorial “Preventing a Space War” this week. Sounds right, if X-Wing fighters come to mind when you think space conflict. But in reality conflict in space is both more likely than one would think and less likely to be so photogenic. Space as a locus of conflict The Pentagon has known that space could be a flash point at least since the late 1990s when it began including satellites and space weapons in earnest as part of its wargames. The early games revealed some surprises. For example, attacking an adversary’s ground-based anti-satellite weapons before they were used could be the “trip wire” that starts a war: in the one of the first war games, an attack on an enemy’s ground-based lasers was meant to defuse a potential conflict and protect space assets, but instead was interpreted as an act of war and initiated hostilities. The games also revealed that disrupting space-based communication and information flow or “blinding” could rapidly escalate a war, eventually leading to nuclear weapon exchange. The war games have continued over the years with increased sophistication, but continue to find that conflicts can rapidly escalate and become global when space weapons are involved, and that even minor opponents can create big problems. The report back from the 2012 game, which included NATO partners, said these insights have become “virtually axiomatic.” Participants in the most recent Schriever war games found that when space weapons were introduced in a regional crisis, it escalated quickly and was difficult to stop from spreading. The compressed timelines, the global as well as dual-use nature of space assets, the difficulty of attribution and seeing what is happening, and the inherent vulnerability of satellites all contribute to this problem. Satellite vulnerability & solutions Satellites are valuable but, at least on an individual basis, physically vulnerable. Vulnerable in that they are relatively fragile, as launch mass is at a premium and so protective armor is too expensive, and a large number of low-earth-orbiting satellites are no farther from the earth’s surface than the distance from Boston to Washington, DC.

#### Space militarization turns neg DAs. Collapse of R&D, commercial ops, economy, and deterrence – global war is inevitable.

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Consequences of Armament and Aggression in Space

The consequences of weapons testing and aggression in space could span generations, and current technological advances only increase the urgency for policymakers to pursue a limitations treaty. As it stands, there are three major ramifications of a potential arms race in space:

The destruction of satellites

As both financial and technological barriers to the space services industry have decreased, the number of governmental and private investors with assets in space has inevitably increased. There is now an abundance of satellites in space owned by multiple states and corporations. These satellites are used to not only coordinate military actions, but to perform more mundane tasks, like obtaining weather reports, or managing on-ground communications, and navigation.

Should states begin weapons testing in space, debris could cloud the orbit and make positioning new satellites impossible, disrupting our current way of life. More pressing, however, is that if a country’s satellites are successfully destroyed by an enemy state, military capabilities can be severely hindered or destroyed, leaving the country vulnerable to attack and unable to coordinate its military forces on the ground.

Diminished future use of near space

Whether caused by weapons testing or actual aggression, the subsequent proliferation of debris around the planet would damage our future ability to access space. Not only would debris act as shrapnel to preexisting assets in space, but it would also become much more difficult to launch satellites or rockets, hindering scientific research, space exploration, and commercial operations.

From the past fifty-odd years of activity in space alone, the debris left behind in Earth’s orbital field has already become hazardous to spacecraft — a main reason why the U.S. and the Soviet Union did not continue with ASAT testing during the Cold War. If greater pollution were to occur, space itself could be become unusable, resulting in the collapse of the global economic system, air travel, and various communications.

Power imbalances and proliferation on the ground

Only so many states currently have access to space—which means any militarization be by the few, while other states would be left to fend for themselves. This would establish a clear power imbalance that could breed distrust among nations, resulting in a more insecure world and a veritable power keg primed for war. Additionally, deterrence measures taken by states with access to space would escalate, attempting to build up weapons caches not dissimilar to the nuclear weapons stockpiling activities of the Cold War.

In any arms race, it is inevitable that more advanced weaponry is created. Yet, this does not only pose a risk to assets in space. Should a terrestrial war break out, this weaponry may eventually be deployed on the ground, and space-faring states would be able to capitalize on the power imbalance by using these new developments against states that have not yet broken into the space industry or developed equally-advanced weaponry.