## 1

#### Interpretation: LEO ends before outer space begins according to science and the Karman line is not an objective way to measure the beginning of outer space.

Sabine **Stanley, 20** - ("Low Earth Orbit: Troposphere and Stratosphere," Great Courses Daily, 7-9-2020, 1-16-2022https://www.thegreatcoursesdaily.com/low-earth-orbit-troposphere-and-stratosphere/)//AW

Even though low earth orbit includes all layers of the atmosphere, most of what people know from the atmosphere happens in the first two layers. Troposphere and stratosphere are the closest layers with the major amount of atmospheric mass. Low earth orbit somehow marks the beginning of outer space. The Karman line was a governmental attempt to mark the boundary between Earth and outer space, but they could not agree on an altitude. Thus, it ranges from 80 to 100 kilometers. What everyone agrees on are the layers of the atmosphere and their altitudes. The first layer is the troposphere. Learn more about how plate tectonics sets up life. What Is the Troposphere? The lowest layer of atmosphere is called the troposphere, with an average thickness of 10 kilometers, spread above the Earth’s surface. Everything known as ‘weather’ happens in this layer, namely, winds, thunderstorms, tornadoes, hurricanes, blizzards, and cloud formation. The troposphere is the lowest layer of the atmosphere, where weather happens, and 80% of the atmosphere’s mass is concentrated. (Image: BlueRingMedia/Shutterstock) The convective overturning of air results in all the weather phenomena. Besides, water goes through all its phases in the troposphere: vapor, rain, and snow. The ‘overturning’ is reflected in the name of this thin but dense layer: tropos is Greek for ‘turn’, referring to the overturning of air. Now, why does air overturn here? This is a transcript from the video series A Field Guide to the Planets. Watch it now, on Wondrium. Overturning in the Troposphere The overturning – vertical mixing – happens since the highest temperature of the troposphere is at the bottom. The average temperature on the surface is about 60°F, and it decreases down to an average of −75°F at the top. About 80% of the atmosphere’s mass is concentrated here. The troposphere ends with a boundary called the tropopause, where the next layer begins. Learn more about near-Earth asteroids and the asteroid belt. What is the Stratosphere? The stratosphere is the second-lowest layer of Earth’s atmosphere, starting at 10 kilometers above the surface. Unlike the troposphere, the temperature in the stratosphere increases with altitude. At the top, the temperature is around 32°F – almost 100 degrees higher than the bottom. However, the pressure decreases to one millibar, i.e., 1000 times less than the Earth’s surface pressure. The stratosphere ends at the stratopause. Does the higher temperature mean the stratopause is warm? Is the Stratosphere Warm? The higher temperature in the troposphere is the result of the Sun’s ultraviolet (or UV) radiation, trapped by ozone particles (O3). The famous ozone layer, where UV is absorbed, is located here. The highest concentration of ozone is at the lowest part of the stratosphere, but O3 can also be found up to the middle of the layer. Most of the radiated UV is absorbed by O3, breaking it into O2 and atomic oxygen (O). Next, O and O2 combine again and recreate O3. However, the absorbed energy does not create a warm environment, since the molecules are so far away from each other that collisions rarely happen. Hence, airplanes flying around this altitude need to create pressure inside the cabin and regulate the temperature. Learn more about Venus, the veiled greenhouse planet. Airplanes in the Stratosphere The cruising altitude for most commercial flights is around 39,000 feet or 12 kilometers above the surface. This means that airplanes fly in the lowest part of the stratosphere, above the weather and the turbulence it causes. The boundary of the two layers can be seen from the plane, as clouds do not enter the stratosphere. The air is too thin here, so airplane cabins are pressurized. Stratosphere is where most commercial planes fly, as the pressure is ideal for flying. (Image: Kost9/Shutterstock) Besides the commercial planes, NASA’s SOFIA also flies in the lower stratosphere. SOFIA: Stratospheric Observatory for Infrared Astronomy SOFIA is a Boeing 747 with a 100-inch telescope attached. It flies at 12 kilometers, above 99% of Earth’s atmosphere, and studies the solar system in the infrared part of the light spectrum. Transient phenomena, such as eclipses and occultations, are also studied best with SOFIA. Pluto and Saturn’s moon, Titan, was also studied by SOFIA from the stratosphere. Higher in the stratosphere, the air pressure is too low for typical airplanes to fly. Military jets and other planes that do fly at higher altitudes use their engine power to conduct the flight. However, scientific balloons are launched to collect data. The best location to do so is McMurdo Station in Antarctica, as the South Pole vortex keeps the balloons contained in a small area and does not let them fly away into the distance. It can be concluded that the first two layers of the atmosphere in the low Earth orbit are the ones humans make the most use of. Common Questions about Low Earth Orbit Q: Is low Earth orbit considered space? Low Earth orbit is the ‘circle’ around Earth’s atmosphere up to 2000 kilometers above the surface. The satellites and other human-made space objects also orbit in the low earth orbit. **The end of the orbit is the beginning of space**, where solar winds start, and the Earth’s atmosphere is too thin to be considered gas. Q: What does low Earth orbit mean? Low earth orbit extends up to 2000 kilometers above the surface. All the atmosphere layers reside in this area, with almost 80% of the mass concentrated in the lowest layer, the troposphere. The weather, winds and tornados, plane flights, and satellite orbits all occur in this 2000-kilometer-high zone before space characteristics dominate the environment.

#### Violation: (only for debris) space debris only happens in the LEO.

Kelly **Whitt, 21** - ("Kessler syndrome in real life? ISS astronauts shelter from debris," EarthSky, 11-15-2021, 1-16-2022https://earthsky.org/human-world/kessler-syndrome-colliding-satellites/)//AW

Kessler syndrome: A scenario in which the density of objects in low-Earth orbit is high enough that collisions between objects cause a cascade, with each collision generating space debris that increases the likelihood of further collisions.

#### Vote neg – two impacts:

#### They massively expand topic limits by allowing an aff that takes place anywhere in Earth’s atmosphere. That means that affs about weather balloons, missiles, school rocket projects, or airspace owned by governments could all be potential affs. Don’t let them say that they only expand it by a few thousand kilometers- our atmosphere is where most testing and air activities happen. There are more launches within our atmosphere than outside of it, so they more than double the topic prep burden.

#### Topic literature- our evidence is from a scientific source meant to clarify specifically whether or not the LEO is space from a scientific basis. Prefer it to semantic. It’s better for education because it forces the debaters to look at the substance behind the topic .

#### Drop the debater to preserve fairness and education – use competing interps – reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation. No RVIs – they don’t get to win for following the rules.

### 2

#### Interpretation—the aff may not defend a subset of appropriation.

#### Appropriation is a generic indefinite singular. Cohen 01

Ariel Cohen (Ben-Gurion University of the Negev), “On the Generic Use of Indefinite Singulars,” Journal of Semantics 18:3, 2001 <https://core.ac.uk/download/pdf/188590876.pdf>

\*IS generic = Indefinite Singulars

French, then, expresses the two types of reading differently. In English, on¶ the other hand, generic BPs are ambiguous between inductivist and normative¶ readings. But even in English there is one type of generic that can express only¶ one of these readings, and this is the IS generic. While BPs are ambiguous¶ between the inductivist and the rules and regulations readings, ISs are not. In¶ the supermarket scenario discussed above, only (44.b) is true:¶ (44) a. A banana sells for $.49/lb.¶ b. A banana sells for $1.00/lb.¶ The normative force of the generic IS has been noted before. Burton-Roberts¶ (1977) considers the following minimal pair:¶ (45) a. Gentlemen open doors for ladies.¶ b. A gentleman opens doors for ladies.¶ He notes that (45.b), but not (45.a), expresses what he calls “moral necessity.”7¶ Burton-Roberts observes that if Emile does not as a rule open doors for ladies, his mother could utter [(45.b)] and thereby successfully imply that Emile was not, or was¶ not being, a gentleman. Notice that, if she were to utter. . . [(45.a)] she¶ might achieve the same effect (that of getting Emile to open doors for¶ ladies) but would do so by different means. . . For [(45.a)] merely makes a¶ generalisation about gentlemen (p. 188).¶ Sentence (45.b), then, unlike (45.a), does not have a reading where it makes¶ a generalization about gentlemen; it is, rather, a statement about some social¶ norm. It is true just in case this norm is in effect, i.e. it is a member of a set of¶ socially accepted rules and regulations.¶ An IS that, in the null context, cannot be read generically, may receive a¶ generic reading in a context that makes it clear that a rule or a regulation is¶ referred to. For example, Greenberg (1998) notes that, out of the blue, (46.a)¶ and (46.b) do not have a generic reading:¶ (46) a. A Norwegian student whose name ends with ‘s’ or ‘j’ wears green¶ thick socks.¶ b. A tall, left-handed, brown haired neurologist in Hadassa hospital¶ earns more than $50,000 a year.¶ However, Greenberg points out that in the context of (47.a) and (47.b),¶ respectively, the generic readings of the IS subject are quite natural:¶ (47) a. You know, there are very interesting traditions in Norway, concerning the connection between name, profession, and clothing. For¶ example, a Norwegian student. . .¶ b. The new Hadassa manager has some very funny paying criteria. For¶ example, a left-handed. . .¶ Even IS sentences that were claimed above to lack a generic reading, such¶ as (3.b) and (4.b), may, in the appropriate context, receive such a reading:¶ (48) a. Sire, please don’t send her to the axe. Remember, a king is generous!¶ b. How dare you build me such a room? Don’t you know a room is¶ square?

#### Their plan violates. Rules readings are always generalized – specific instances are not consistent. Cohen 01

Ariel Cohen (Ben-Gurion University of the Negev), “On the Generic Use of Indefinite Singulars,” Journal of Semantics 18:3, 2001 https://core.ac.uk/download/pdf/188590876.pdf

In general, as, again, already noted by Aristotle, rules and definitions are not relativized to particular individuals; it is rarely the case that a specific individual¶ forms part of the description of a general rule.¶ Even DPs of the form a certain X or a particular X, which usually receive¶ a wide scope interpretation, cannot, in general, receive such an interpretation in the context of a rule or a definition. This holds of definitions in general, not¶ only of definitions with an IS subject. The following examples from the Cobuild¶ dictionary illustrate this point:¶ (74) a. A fanatic is a person who is very enthusiastic about a particular¶ activity, sport, or way of life.¶ b. Something that is record-breaking is better than the previous¶ record for a particular performance or achievement.¶ c. When a computer outputs something it sorts and produces information as the result of a particular program or operation.¶ d. If something sheers in a particular direction, it suddenly changes¶ direction, for example to avoid hitting something.

#### That outweighs—only our evidence speaks to how indefinite singulars are interpreted in the context of normative statements like the resolution. This means throw out aff counter-interpretations that are purely descriptive

#### Vote neg:

#### 1] Precision –any deviation justifies the aff arbitrarily jettisoning words in the resolution at their whim which decks negative ground and preparation because the aff is no longer bounded by the resolution.

#### 2] Limits—specifying a type of appropriation offers huge explosion in the topic since space is, quite literally, infinite.

#### Drop the debater to preserve fairness and education – use competing interps –reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation

#### Hypothetical neg abuse doesn’t justify aff abuse, and theory checks cheaty CPs

#### No RVIs—it’s their burden to be topical.

### 3

#### Counterplan: The appropriation of outer space by private entities via Large Satellite Constellations in Lower Earth Orbit is unjust unless states charge private entities orbital use fees for each satellite put into low-Earth Orbit.

#### Solves the case while also boosting the economy. Vergoth 20:

Karin Vergoth {CIRES-NOAA Science Writer}, 20 - ("Solving the space junk problem," CU Boulder Today, 5-26-2020, https://www.colorado.edu/today/2020/05/26/solving-space-junk-problem)//marlborough-wr/

Space is getting crowded. Aging satellites and space debris crowd low-Earth orbit, and launching new satellites adds to the collision risk. The most effective way to solve the space junk problem, according to a new study, is not to capture debris or deorbit old satellites: it’s an international agreement to charge operators “orbital-use fees” for every satellite put into orbit. Orbital use fees would also increase the long-run value of the space industry, said economist Matthew Burgess, a [CIRES Fellow and co-author of the new paper](https://cires.colorado.edu/news/solving-space-junk-problem). By reducing future satellite and debris collision risk, an annual fee rising to about $235,000 per satellite would quadruple the value of the satellite industry by 2040, he and his colleagues concluded in a paper published today in the [Proceedings of the National Academy of Sciences](https://www.pnas.org/content/early/2020/05/20/1921260117). “Space is a common resource, but companies aren’t accounting for the cost their satellites impose on other operators when they decide whether or not to launch,” said Burgess, who is also an assistant professor in environmental studies and an affiliated faculty member in economics at CU Boulder. “We need a policy that lets satellite operators directly factor in the costs their launches impose on other operators.” Currently, an estimated 20,000 objects—including satellites and space debris—are crowding low-Earth orbit. It’s the latest tragedy of the commons, the researchers said: Each operator launches more and more satellites until their private collision risk equals the value of the orbiting satellite. So far, proposed solutions have been primarily technological or managerial, said Akhil Rao, assistant professor of economics at Middlebury College and the paper’s lead author. Technological fixes include removing space debris from orbit with nets, harpoons, or lasers. Deorbiting a satellite at the end of its life is a managerial fix. Ultimately, engineering or managerial solutions like these won’t solve the debris problem because they don’t change the incentives for operators. For example, removing space debris might motivate operators to launch more satellites—further crowding low-Earth orbit, increasing collision risk, and raising costs. “This is an incentive problem more than an engineering problem. What’s key is getting the incentives right,” Rao said. A better approach to the space debris problem, Rao and his colleagues found, is to implement an orbital-use fee—a tax on orbiting satellites. “That’s not the same as a launch fee,” Rao said, “Launch fees by themselves can’t induce operators to deorbit their satellites when necessary, and it's not the launch but the orbiting satellite that causes the damage.” Orbital-use fees could be straight-up fees or tradeable permits, and they could also be orbit-specific, since satellites in different orbits produce varying collision risks. Most important, the fee for each satellite would be calculated to reflect the cost to the industry of putting another satellite into orbit, including projected current and future costs of additional collision risk and space debris production—costs operators don’t currently factor into their launches. “In our model, what matters is that satellite operators are paying the cost of the collision risk imposed on other operators,” said Daniel Kaffine, professor of economics and RASEI Fellow at CU Boulder and co-author on the paper. And those fees would increase over time, to account for the rising value of cleaner orbits. In the researchers’ model, the optimal fee would rise at a rate of 14 percent per year, reaching roughly $235,000 per satellite-year by 2040. For an orbital-use fee approach to work, the researchers found, all countries launching satellites would need to participate—that's about a dozen that launch satellites on their own launch vehicles and more than 30 that own satellites. In addition, each country would need to charge the same fee per unit of collision risk for each satellite that goes into orbit, although each country could collect revenue separately. Countries use similar approaches already in carbon taxes and fisheries management. In this study, Rao and his colleagues compared orbital-use fees to business as usual (that is, open access to space) and to technological fixes such as removing space debris. They found that orbital use fees forced operators to directly weigh the expected lifetime value of their satellites against the cost to industry of putting another satellite into orbit and creating additional risk. In other scenarios, operators still had incentive to race into space, hoping to extract some value before it got too crowded. With orbital-use fees, the long-run value of the satellite industry would increase from around $600 billion under the business-as-usual scenario to around $3 trillion, researchers found. The increase in value comes from reducing collisions and collision-related costs, such as launching replacement satellites. Orbital-use fees could also help satellite operators get ahead of the space junk problem. “In other sectors, addressing the tragedy of the commons has often been a game of catch-up with substantial social costs. But the relatively young space industry can avoid these costs before they escalate,” Burgess said.

### 4

#### Russia hates StarLink. Smith 21:

Rich Smith, 21 - ("Why Russia Is Terrified of SpaceX," Motley Fool, 2-15-2021, https://www.fool.com/investing/2021/02/15/why-russia-is-terrified-of-spacex-and-starlink/)//marlborough-wr/

SpaceX wants to bring [fast satellite broadband internet](https://www.fool.com/investing/2020/08/23/fast-broadband-from-orbit-new-data-says-spacex-can/) to the world -- and in particular, to internet users in far-flung, rural locations, where download speeds are low and prices are high. One of the first places in America to get SpaceX Starlink service was Alaska, the state with the lowest population density in the country -- just one person per square mile. The company next extended service into Canada (population density: three people per square mile), followed last month by [service in the UK](https://www.fool.com/investing/2021/02/09/spacex-starlink-wins-another-big-customer/) -- a big jump in concentration, with 650 people per square mile. (Even in the UK, there are plenty of isolated locations where internet service is expensive, slow -- or both). SpaceX's globe-spanning satellite constellation should be capable of providing 100 megabit-per-second internet service to anywhere by the end of this year. You can expect that a lot of countries, no matter how urbanized they are (or not), will be lining up to sign up for Starlink service. And the more countries Starlink signs up as customers, the better the prospects for the SpaceX subsidiary's [promised IPO](https://www.fool.com/investing/2020/02/07/spacex-will-likely-ipo-its-starlink-internet-satel.aspx). One country that most definitely does not want Starlink, however, is Russia. Just say "nyet" to fast internet As ArsTechnica.com reported last month, the Russian State Duma (Russia's congress) is currently considering legislation to impose fines upon any individual or company that signs up for Starlink -- or indeed, for any foreign-operated satellite internet system, [OneWeb or Project Kuiper](https://www.fool.com/investing/2019/06/11/could-amazon-beat-spacex-in-satellite-broadband-in.aspx) included. According to ArsTechnica, the Russian Duma may fine individual customers of Starlink up to $405 for use of the satellite internet service, and fine corporate users as much as $13,500. What does Russia have against cheap, fast, reliable internet from space? For one thing, Russian security services object that internet operated by a foreign satellite network would be immune from surveillance under Russia's System of Operational Search Measures legislation ("SORM"). For another, they suspect that Starlink is part of a U.S. government plot to deploy "predatory, clever, powerful, high-technology ... shock and awe ... to advance, above all, [American] military interests." Yes, seriously.

#### We stopped appeasing Russia – they’ll pocket concessions from coop and increase aggression – tensions aren’t the result of understandings but hardened differences

Haddad and Polakova 18 [Benjamin Haddad Director, Future Europe Initiative - Atlantic Council. Alina Polyakova Director, Project on Global Democracy and Emerging Technology Fellow - Foreign Policy, Center on the United States and Europe. Don’t rehabilitate Obama on Russia. March 5, 2018. https://www.brookings.edu/blog/order-from-chaos/2018/03/05/dont-rehabilitate-obama-on-russia/]

Obama’s much-ballyhooed “Reset” with Russia, launched in 2009, was in keeping with optimistic attempts by every post-Cold War American administration to improve relations with Moscow out of the gate. Seizing on the supposed change of leadership in Russia, with Dmitry Medvedev temporarily taking over the presidency from Vladimir Putin, Obama’s team quickly turned a blind eye to Russia’s 2008 war with Georgia, which in retrospect was Putin’s opening move in destabilizing the European order. Like George W. Bush before him, Obama vastly overestimated the extent to which a personal relationship with a Russian leader could affect the bilateral relationship. U.S.-Russia disagreements were not the result of misunderstandings, but rather the product of long-festering grievances. Russia saw itself as a great power that deserved equal standing with the U.S. What Obama saw as gestures of good will—such as the 2009 decision to scrap missile defense plans for Poland and the Czech Republic—Russia interpreted as a U.S. retreat from the European continent. Moscow pocketed the concessions and increasingly inserted itself in European affairs. The Kremlin was both exploiting an easy opportunity and reasserting what it thought was its historic prerogative.

Though Russia’s invasion of Ukraine in 2014 was the final nail in the coffin of the Reset, President Obama remained reluctant to view Moscow as anything more than a local spoiler, and thought the whole mess was best handled by Europeans. France and Germany spearheaded the Minsk ceasefire process in 2014-2015, with U.S. support but without Washington at the table. The Obama administration did coordinate a far-ranging sanctions policy with the European Union—an important diplomatic achievement, to be sure. But to date, the sanctions have only had a middling effect on the Russian economy as a whole (oil and gas prices have hurt much more). And given that sanctions cut both ways—potential value is destroyed on both sides when economic activity is systematically prohibited—most of the sacrifice was (and continues to be) born by European economies, which have longstanding ties to Russia. In contrast, the costs of a robust sanctions policy have been comparatively minor in the United States; Obama spent little political capital to push them through at home. The Obama administration also sought to shore up NATO’s eastern flank through the European Reassurance Initiative (ERI), which stationed rotating troops in Poland and the Baltics while increasing the budget for U.S. support. Nevertheless, the president resisted calls from Congress, foreign policy experts, and his own cabinet to provide lethal weapons to Ukraine that would have raised the costs on Russia and helped Kyiv defend itself against Russian military incursion into the Donbas. As Obama told Jeffrey Goldberg, he viewed any deterrent moves by the United States as fundamentally not credible, because Russia’s interests clearly trumped our own; it was clear to him they would go to war much more readily that the United States ever would, and thus they had escalatory dominance. Doing more simply made no sense to Obama. This timid realpolitik was mixed up with a healthy dose of disdain. Obama dismissed Russia as a “regional power” that was acting out of weakness in Ukraine. “The fact that Russia felt it had to go in militarily and lay bare these violations of international law indicates less influence, not more,” Obama said at the G7 meeting in 2014. This line has not aged well. Obama’s attitudes on Russia reflected his administration’s broadly teleological, progressive outlook on history. Russia’s territorial conquest “belonged in the 19th century.” The advance of globalization, technological innovation, and trade rendered such aggression both self-defeating and anachronistic. The biggest mistake for America would be to overreact to such petty, parochial challenges. The 2015 National Security Strategy favored “strategic patience”. But was it patience… or passivity? As its actions in 2016 proved, Russia is very much a 21st century power that understands how to avail itself of the modern tools available to it, often much better than we do ourselves. The same intellectual tendencies that shaped Obama’s timid approach to Ukraine were reflected in his administration’s restrained response as evidence of Russian electoral interference began to emerge in the summer of 2016. Starting in June, intelligence agencies began reporting that Russian-linked groups hacked into DNC servers, gained access to emails from senior Clinton campaign operatives, and were working in coordination with WikiLeaks and a front site called DCLeaks to strategically release this information throughout the campaign cycle. By August, Obama had received a highly classified file from the CIA detailing Putin’s personal involvement in covert influence operations to discredit the Clinton campaign and disrupt the U.S. presidential elections in favor of her opponent, Donald Trump. That fall through to his departure from the White House, the president and his key advisers struggled to find an appropriate response to the crime of the century. But out of all the possible options, which included a cyber offensive on Russia and ratcheted up sanctions, the policy that was adopted in the final months of Obama’s term was, characteristically, cautious. Obama approved additional narrow sanctions against Russian targets, expelled 35 Russian diplomats, and shut down two Russian government compounds. It’s true that Obama faced a difficult political environment that constrained his ability to take tougher measures. Republican opponents would have surely decried any loud protests as a form of election meddling on Hillary Clinton’s behalf. Donald Trump was already flogging the narrative that the elections were rigged against him. And anyway, Clinton seemed destined to win; she would tend to the Russians in her own time, the thinking went. But just as with the decision to not provide weapons to Ukraine, the Obama administration also fretted about provoking Russia into taking even more drastic steps, such as hacking the voting systems or a cyber attack on critical infrastructure. In the end, the administration’s worries proved to be paralyzing. “I feel like we sort of choked,” one Obama administration official told the Washington Post. Much ink has been spilled over President Trump’s effusive praise for Putin and his brutal regime. “You think our country’s so innocent?” candidate Trump famously replied to an interviewer listing the many human rights abuses of Putin’s Russia, including the harassment and murder of journalists. Obama, on the other hand, never had any ideological or psychological sympathy for Putin or Putinism. By the end of his second term, the two men were barely on speaking terms, the iciness of their encounters in full public view. For most of Obama’s two terms, however, this personal animosity did not translate into tougher policies. Has the Trump administration been tougher on Russia than Obama, as the president claims? Trump’s own boasting feels like a stretch, especially given how he seems to have gone out of his way to both disparage NATO and praise Putin during the course of his first year in office. Still, many of his administration’s good policies have been obscured by the politics of the Mueller investigation and the incessant furor kicked up by the president’s tweets. As Tom Wright has noted, the Trump administration seems to pursue two policy tracks at the same time: the narrow nationalism of the president’s inflammatory rhetoric openly clashing with the seriousness of his administration’s official policy decisions.

These tensions are real, but all too often they become the story. Glossed over is the fact that President Trump has appointed a string of competent and widely respected figures to manage Russia policy—from National Security Council Senior Director Fiona Hill to Assistant Secretary of State for European affairs Wess Mitchell to the Special Envoy for Ukraine Kurt Volker. The Trump administration is, in fact, pursuing concrete policies pushing back on Russian aggression that the Obama administration had fervently opposed. The National Security Strategy of 2017, bringing a much-needed dose of realism to a conversation too often dominated by abstractions like the “liberal world order”, singles out both China and Russia as key geopolitical rivals. During Trump’s first year, the administration approved the provision of lethal weapons to Ukraine, shut down Russia’s consulate in San Francisco as well as two additional diplomatic annexes, and rather than rolling back sanctions, Trump signed into law additional sanctions on Russia, expanded LNG sales to a Europe dependent in Russian gas imports, and increased the Pentagon’s European Reassurance Initiative budget by 40 percent. (A president who berated U.S. investments for European defense has actually dramatically increased American military presence on Europe’s threatened borders.) While many of these policies may have been implemented despite rather than because of the president—on the expansion of sanctions in particular, Trump faced a veto-proof majority in Congress—credit should be given where credit is due.

The Trump administration’s sober policy decisions should not excuse the president’s praise for Vladimir Putin, nor his reckless undermining of America’s stated commitment to enforcing Article 5 during his first speech in front of NATO. But the fact remains that the U.S. is taking concrete steps to strengthen Europe against Russian aggression. And let’s not be coy about it: if the president’s strident complaining about unequal burden-sharing in NATO finally snaps European allies out of their complacency and helps spur military investment on the continent, this won’t be good news for Russia either. Indeed, he will have succeeded in moving the needle on an issue that has frustrated every one of his predecessors since 1989. Has Trump’s bluster, especially on Article 5, been cost-free? Hardly. Nevertheless, talking to diplomats around town suggests that after initial months of uneasiness, most Europeans have learned to deal with the Trump administration in a dispassionate and pragmatic manner that stands in stark relief with much of the hysteria that passes for commentary in the U.S.

Each administration should be judged on what it has achieved. At the end of the Obama’s two terms, Putin had elevated Russia to a credible revisionist power on the international stage. Russia annexed Crimea and occupied much of Eastern Ukraine; by successfully propping up the degenerate Assad regime, the Kremlin gained a veto on any possible political solution to Syria, and got a meaningful foothold in the broader region for the first time since Sadat threw Soviet advisors out; and its populist allies and fellow-travelers were on the rise in Europe, fueling both anti-Americanism and illiberalism; and most damning of all, it managed to meddle, almost unopposed, in U.S. politics—all on Obama’s watch.

There is plenty left to criticize in how the Trump administration has done things in its first year. The Trump administration’s apparent unwillingness to take steps to deter hostile foreign powers from meddling in American politics is inexcusably irresponsible. And in the Middle East, the Trump administration seems hell-bent on following Obama’s myopic policy of retreat and narrow preoccupation with fighting ISIS to the exclusion of all else. But despite the president’s campaign promises, his administration has been the first in the post-Cold War era to not try for a “Reset” with Moscow. If Vladimir Putin wanted to sow chaos and confusion in Washington, he has succeeded beyond his wildest dreams. If he wanted a pliant ally in America, he has abjectly failed.

#### Appeasing Russia shreds the NPT and causes nuke prolif – extinction

Umland 17 [Andreas Umland is a German political scientist, historian and Russian interpreter, specializing in contemporary Russian and Ukrainian history. He is a Member of the Institute for Central and East European Studies at the Catholic University, and a senior research fellow at the Institute for Euro-Atlantic Cooperation in Kyiv. The Price of Appeasing Russian Adventurism. January 16, 2017. https://carnegieeurope.eu/strategiceurope/67692]

A major foreign policy challenge for the incoming U.S. administration will be how to deal with Russia’s new international assertiveness and foreign military adventures. Some signs in recent weeks, especially regarding the ongoing confrontation between Russia and Ukraine, point to a friendlier U.S. approach toward Moscow. Such a shift would have very serious consequences for the rest of the world.

A new rapprochement between Washington and Moscow may go far beyond the attempt by the administration of outgoing U.S. President Barack Obama to reset Russian-U.S. relations after the Russian-Georgian War in 2008. Supposedly, a dovish American approach toward the Kremlin would put U.S. concerns before those of countries and peoples currently in conflict with Russia.

To be sure, a number of probable members of the new administration, like Rex Tillerson, Mike Pompeo, and James Mattis, have voiced hawkish views on Russian imperialism. Yet apparently, U.S. President-elect Donald Trump and some of those advising him specifically on Russia, like Michael Flynn, Paul Manafort, and Carter Page, hope that U.S. tolerance of Russian freedom of movement in the former Soviet space—in particular, in Ukraine—would make the Kremlin more cooperative in other fields, such as the fight against Islamist terrorism, and in other regions, such as Syria or the Arctic.

However, one wonders whether Trump and other so-called Putinversteher in the incoming administration fully understand the stakes. The risks do not only concern the fundamental national interests of such pro-American countries as Ukraine, Estonia, Georgia, or Poland. The U.S. administration’s tolerance of Russia’s violation of Ukrainian territorial integrity would have larger implications for the future of humanity.

In view of the security assurances that the United States gave Ukraine under the 1994 Budapest Memorandum, a move by Washington to appease Moscow would be another crack in the splintering international nuclear nonproliferation regime. Acquiescence to Russia’s territorial gains in Ukraine would further undermine the already-shattered 1968 Nuclear Non-Proliferation Treaty (NPT), one of the world’s most important multilateral agreements.

Under the Budapest Memorandum, three official nuclear-weapons states under the NPT—Russia, the UK, and the United States—assured the inviolability of Ukraine’s borders. In two simultaneous but separate declarations, the other two official nuclear-weapons states, China and France, also expressed their respect for Ukraine’s political sovereignty. This was the core of a shrewd deal between the five guarantor states of the NPT and Ukraine (as well as Belarus and Kazakhstan), which had inherited parts of the Soviet nuclear arsenal. In exchange for Kyiv’s readiness to give up its weapons of mass destruction and join the NPT, the world’s five major nuclear powers explicitly acknowledged their obligation to observe and protect Ukraine’s territorial integrity.

But since 2014, if not before, Moscow has manifestly violated the Budapest Memorandum. As the agreement forms an important annex to the NPT, its violation through continuing Russian occupation of Ukraine’s territory undermines the logic of the international mechanism to prevent the spread of atomic weapons. That not only harshly punishes a country that voluntarily agreed to give up its nuclear weapons in exchange for security assurances. It also demonstrates how an official nuclear-weapons state can use its nuclear deterrence potential to implement and secure territorial expansion with military means.

Worse, two other official nuclear powers, Beijing and Paris, have implicitly assisted Russia in its subversion of the nonproliferation regime. Despite having expressed its respect for Ukraine’s territorial integrity, China did not support a 2014 UN General Assembly resolution against Russia’s annexation of Crimea. And several prominent French center-right parliamentarians have visited Crimea since its annexation by Russia, even though the French government that in 1994 declared its respect for Ukraine’s sovereignty was also a center-right administration (albeit under Socialist president François Mitterrand).

U.S. appeasement of Russia regarding its annexation of Crimea and interference in Ukraine’s eastern Donbas region would compound the effects of these earlier aberrations. The United States would be disregarding its earlier statements about Ukraine’s accession to the NPT and voluntary nuclear disarmament. The UK would be the only guarantor state of the NPT left that behaves more or less in line with the logic of the world’s nonproliferation regime with regard to Ukraine.

### Space Debris

**Probability – 0.1% chance of a collision.**

Alexander William **Salter**, **Economics Professor at Texas Tech**, **’16**, “SPACE DEBRIS: A LAW AND ECONOMICS ANALYSIS OF THE ORBITAL COMMONS” 19 STAN. TECH. L. REV. 221 \*numbers replaced with English words

The probability of a collision is currently **low**. Bradley and Wein estimate that the **maximum probability** in LEO of a collision over the lifetime of a spacecraft remains **below one in one thousand**, conditional on continued compliance with NASA’s deorbiting guidelines.3 However, the possibility of a future “snowballing” effect, whereby debris collides with other objects, further congesting orbit space, remains a significant concern.4 Levin and Carroll estimate the average immediate destruction of wealth created by a collision to be approximately $30 million, with an additional $200 million in damages to all currently existing space assets from the debris created by the initial collision.5 The expected value of destroyed wealth because of collisions, currently small because of the low probability of a collision, can quickly become significant if future collisions result in runaway debris growth.

**Time frame – Kessler effect 200 years away.**

Peter **Stubbe**, PhD in law @ Johann Wolfgang Goethe University Frankfurt, **’17**, State Accountability for Space Debris: A Legal Study of Responsibility for Polluting the Space Environment and Liability for Damage Caused by Space Debris, Koninklijke Brill Publishing, ISBN 978-90-04-31407-8, p. 27-31

The prediction of possible scenarios of the future evolution of the debris p o p ulation involves many uncertainties. Long-term forecasting means the prediction of the evolution of the future debris environment in time periods of decades or even centuries. Predictions are based on models84 that work with certain assumptions, and altering these parameters significantly influences the outcomes of the predictions. Assumptions on the future space traffic and on the initial object environment are particularly critical to the results of modeling efforts.85 A well-known pattern for the evolution of the debris population is the so-called Kessler effect’, which assumes that there is a certain collision probability among space objects because many satellites operate in similar orbital regions. These collisions create fragments, and thus additional objects in the respective orbits, which in turn enhances the risk of further collisions. Consequently, the number of objects and collisions increases exponentially and eventually results in the formation of a self-sustaining debris belt around the Earth. While it has long been assumed that such a process of collisional cascading is likely to occur only in a very long-term perspective (meaning a time 1 n of several hundred years),87 a consensus has evolved in recent years that an uncontrolled growth of the debris population in certain altitudes could become reality much sooner.88 In fact, a recent cooperative study undertaken by various space agencies in the scope of i a d c shows that the current l e o debris population is unstable, even if current mitigation measures are applied. The study concludes:

Even with a 90% implementation of the commonly-adopted mitigation measures [...] the l e o debris population is expected to increase by an average of **30% in the next 200 years.** The population growth is primarily driven by catastrophic collisions between 700 and 1000 km altitudes and such collisions are likely to occur every 5 to 9 years.89

**Space debris is hype---there are thousands of satellites and only 15 debris collisions ever**

Mark **Albrecht 16**, Chairman of the board of USSpace LLC & fmr. head of the National Space Council, “Congested space is a serious problem solved by hard work, not hysteria, 5/9/16, https://spacenews.com/op-ed-congested-space-is-a-serious-problem-solved-by-hard-work-not-hysteria/

There are over a half million pieces of human-made material in orbit around our planet. Some are the size of school buses, some the size of BB gun pellets. They all had a function at some point, but now most are simply space debris littered from 100 to 22,000 miles above the Earth. Yet, all behave perfectly according to the laws of physics. Many in the space community have called the collision hazard caused by space debris a crisis.

Popular culture has embraced the risks of collisions in space in films like Gravity. Some participants have dramatized the issue by producing graphics of Earth and its satellites, which make our planet look like a fuzzy marble, almost obscured by a dense cloud of white pellets meant to conceptualize space congestion.

Unfortunately, for the sake of a good visual, satellites are depicted as if they were hundreds of miles wide, like the state of Pennsylvania (for the record, there are no space objects the size of Pennsylvania in orbit). Unfortunately, this is the rule, not the exception, and almost all of these articles, movies, graphics, and simulations are **exaggerated and misleading**. Space debris and collision risk is real, but it **certainly** is **not a crisis.**

So what are the facts?

On the positive side, space is **empty** and it is **vast**. At the altitude of the International Space Station, **one half a degree** of Earth longitude is almost **40 miles long**. That same one half a degree at geostationary orbit, some 22,000 miles up is over 230 miles long. Generally, we don’t intentionally put satellites closer together than one-half degree. That means at geostationary orbit, they are no closer than 11 times as far as the eye can see on flat ground or on the sea: That’s the horizon over the horizon 10 times over. In addition, other than minute forces like solar winds and sparse bits of atmosphere that still exist 500 miles up, **nothing gets in the way of orbiting objects** and **they behave quite predictably**. The location of the smallest spacecraft can be predicated within a 1,000 feet, 24 hours in advance.

Since we first started placing objects into space there have been 11 known low Earth orbit collisions, and three known collisions at geostationary orbit. Think of it: 135 space shuttle flights, all of the Apollo, Gemini and Mercury flights, **hundreds** of telecommunications satellites, **1,300 functioning satellites** on orbit today, **half a million** total objects in space larger than a marble, and **fewer than 15 known collisions**. **Why** do people **worry?**

### Militarization

#### Space commercialization is a strong constraint on conflict – solves space war

Wendy N. Whitman **Cobb 20**, is currently an associate professor of strategy and security studies at the US Air Force's School of Advanced Air and Space Studies, 7-21-2020, "Privatizing Peace: How Commerce Can Reduce Conflict in Space," Routledge & CRC Press, <https://www.routledge.com/Privatizing-Peace-How-Commerce-Can-Reduce-Conflict-in-Space/Cobb/p/book/9780367337834> // AAli

By the end of the twentieth century, scholars zeroed in on the democratic peace theory which attempts to explain why democracies do not go to war with other democracies and why, in some analyses, they seem to be more prone to peace in general than non-democracies. Similar to the golden arches, what is it about democracy that seems to induce such peacefulness? Academics have proposed everything from the nature of mediating institutions to the restraint of public opinion, to trade relations. While these variations will be explored further in Chapter 3, of interest here are the versions that focus explicitly on trade, commercial ties, and capitalism. Along these lines, Erik Gartzke argues, "peace ensues when states lack differences worthy of costly conflict."31 If the costs of conflict are too high, then states should be more unlikely to engage in it. To this end, economic globalization can provide the means through which costs are raised. “The integration of world markets not only facilitates commerce, but also creates new interests inimical to war. Financial interdependence ensures that damage inflicted on one economy travels through the global system, afflicting even aggressors."32 Focusing his analysis primarily on the influence of capitalism, Gartzke's findings suggest that states with markets more closely tied to the global economy are far less likely to experience a militarized dispute.

In thinking about the space environment today, there are obvious principles of capitalism at work. However, China, a major spacefaring state that has been making capitalist reforms, arguably remains far from a true capitalist country. This is especially true in their space industry which is heavily subsidized by the state and almost wholly integrated with China's military.34 Many other states continue to subsidize space activities heavily as well. A better approach through which to examine conflict in space is presented by an offshoot of the capitalist peace which is termed the commercial peace. The commercial peace thesis emphasizes the role of trade and the connections made through it to explain a lack of conflict. Han Dorussen and Hugh Ward write:

Trade is important not only because it creates an economic interest in peace but also because trade generates 'connections' between people that promote communication and understanding.... Based on these ideas, the flow of goods between countries creates a network of ties and communication links. If two countries are more embedded in this network, their relations should be more

peaceful 35

Given the interconnectedness of the global economy to space-based assets, a version of the commercial peace thesis can be used to argue that the chance of conflict in space is less than is commonly understood or recognized precisely because of the extent to which the global economy has become dependent on space-based assets.

To understand this argument, consider a scenario in which Russia, in preparation for a new assault on Eastern Europe, attacks a key US military satellite with the purpose of disrupting and disabling military communications in Europe. This action would conceivably enable the Russians to undertake their attack under more favorable conditions and prevent a quicker response from America and its allies. However, if the satellite was attacked via an ASAT that kinetically destroyed the US satellite, the debris cloud created from the attack could have disastrous consequences beyond military communications Much like the movie Gravity, the debris cloud could cause a chain reaction, hitting and ~~disabling~~ dismantling other satellites that would in turn disrupt civilian communications, business transactions, and perhaps even Russian military satellites. The economic effects of lost satellites would not be restricted to one country alone; the global economic consequences in terms of lost property (satellites), lost transactions, and financial havoc would echo throughout the world, including in Russia itself. Finally, the attack on one satellite could even ultimately endanger the ISS and its inhabitants, several of which are Russians. Destruction of the ISS would negate billions of dollars in investment from not just Russia, but other countries that have participated in it including Japan, Italy, and Canada. Therefore, an attack on a US military satellite would not just be an attack on one but an attack on all.

While the previous scenario highlights several reasons why it would not be in Russia's best interest to attack a US satellite, this book argues that the economic argument is both the strongest and the most restraining especially as space becomes more congested, competitive, contested, and commercialized. The emergence of private space companies enhances this argument. "In the commercial sector, companies need reliability and legal enforcement mechanisms if they are going to operate profitably in a shared environment."36 In order to foster the growing area of space commercialization, companies must be assured that the activities they undertake in space will be protected in some way or, at a minimum, allowed to proceed to the extent where they can reap the profit. This could be done through international organizations that would provide some sort of space traffic control, but the likelihood of a major international breakthrough on rules regarding space is unlikely in the near term. Therefore, actors must rely on the protections afforded them by an increasingly globalized economy that is ever more dependent on space-based assets.

#### No space war and terrestrial conflict turns it

Luke Penn-Hall 15, Analyst at The Cipher Brief, M.A. from the Johns Hopkins School for Advanced International Studies, B.A. in International Relations and Religious Studies from Claremont McKenna College, “5 Reasons “Space War” Isn’t As Scary As It Sounds”, The Cipher Brief, 8/18/2015, https://www.thecipherbrief.com/article/5-reasons-%E2%80%9Cspace-war%E2%80%9D-isn%E2%80%99t-scary-it-sounds

The U.S. depends heavily on military and commercial satellites. If a less satellite-dependent opponent launched an anti-satellite (ASAT) attack, it would have far greater impact on the U.S. than the attacker. However, it’s not as simple as that – for the following reasons: 1. An ASAT attack would likely be part of a larger, terrestrial attack. An attack on space assets would be no different than an attack on territory or other assets on earth. This means that no space war would stay limited to space. An ASAT campaign would be part of a larger conventional military conflict that would play out on earth. 2. Every country with ASAT capabilities also needs satellites. While the United States is the most dependent on military satellites, most other countries need satellites to participate in the global economy. All countries that have the technical ability to play in this space – the U.S., Russia, China and India - also have a vested interest in preventing the militarization of space and protecting their own satellites. If any of those countries were to attack U.S. satellites, it would likely hurt them far more than it would hurt the United States. 3. Destruction of satellites could create a damaging chain reaction. Scientists warn that the violent destruction of satellites could result in an effect called an ablation cascade. High-velocity debris from a destroyed satellite could crash into other satellites and create more high-velocity debris. If an ablation cascade were to occur, it could render certain orbital levels completely unusable for centuries. 4. Any country that threatened access to space would threaten the global economy. Even if a full-blown ablation cascade didn’t occur, an ASAT campaign would cause debris, making operating in space more hazardous. The global economy relies on satellites and any disruption of operations would be met with worldwide disapproval and severe economic ramifications. 5. International Prohibits the Use of ASAT Weapons. Several international treaties expressly prohibit signatory nations from attacking other countries’ space assets. It is generally accepted that space should be treated as a global common area, rather than a military domain. While it remains necessary for military planners to create contingency plans for a, space war it is a highly unlikely scenario. All involved parties are incentivized against attacking. However, if a space war did occur, it would be part of a larger conflict on Earth. Those concerned about the potential for war in space should be more concerned about the potential for war, period.

#### MAD checks space escalation – nuclear response and debris

Bowen 18 [Bleddyn Bowen, Lecturer in International Relations at the University of Leicester. The Art of Space Deterrence. February 20, 2018. https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/]

Fourth, the ubiquity of space infrastructure and the fragility of the space environment may create a degree of existential deterrence. As space is so useful to modern economies and military forces, a large-scale disruption of space infrastructure may be so intuitively escalatory to decision-makers that there may be a natural caution against a wholesale assault on a state’s entire space capabilities because the consequences of doing so approach the mentalities of total war, or nuclear responses if a society begins tearing itself apart because of the collapse of optimised energy grids and just-in-time supply chains. In addition, the problem of space debris and the political-legal hurdles to conducting debris clean-up operations mean that even a handful of explosive events in space can render a region of Earth orbit unusable for everyone. This could caution a country like China from excessive kinetic intercept missions because its own military and economy is increasingly reliant on outer space, but perhaps not a country like North Korea which does not rely on space. The usefulness, sensitivity, and fragility of space may have some existential deterrent effect. China’s catastrophic anti-satellite weapons test in 2007 is a valuable lesson for all on the potentially devastating effect of kinetic warfare in orbit.

## NR

1. T – OS

#### LEO ends before outer space begins according to science and the Karman line is not an objective way to measure the beginning of outer space. That’s Stanley ’20. They did not give an alternate definition of outer space, so we agree on this one.

Their CI fails. If the aff can decide the parameters of any debate, then that infinitely expands neg prep burden. Under their CI, literally anything can be an aff so long as there is one fringe author that agrees with them.

Extend the violation. Space debris only occurs in LEO. The Kessler effect only occurs in LEO. If you buy the kessler effect argument, you first have to determine whether or not they are topical and they are not.

### Case

1. Extend the Time frame card.