### 1AC—Framework

#### The meta-ethic is substantive moral naturalism. Prefer—

#### Pleasure and pain are the starting point for moral reasoning—they’re our most baseline desires and the only things that explain the intrinsic value of objects or actions.

Moen 16, Ole Martin (PhD, Research Fellow in Philosophy at University of Oslo). "An Argument for Hedonism." Journal of Value Inquiry 50.2 (2016): 267. SM

Let us start by observing, empirically, that a widely shared judgment about intrinsic value and disvalue is that pleasure is intrinsically valuable and pain is intrinsically disvaluable. On virtually any proposed list of intrinsic values and disvalues (we will look at some of them below), pleasure is included among the intrinsic values and pain among the intrinsic disvalues. This inclusion makes intuitive sense, moreover, for there is something undeniably good about the way pleasure feels and something undeniably bad about the way pain feels, and neither the goodness of pleasure nor the badness of pain seems to be exhausted by the further effects that these experiences might have. “Pleasure” and “pain” are here understood inclusively, as encompassing anything hedonically positive and anything hedonically negative. 2 The special value statuses of pleasure and pain are manifested in how we treat these experiences in our everyday reasoning about values. If you tell me that you are heading for the convenience store, I might ask: “What for?” This is a reasonable question, for when you go to the convenience store you usually do so, not merely for the sake of going to the convenience store, but for the sake of achieving something further that you deem to be valuable. You might answer, for example: “To buy soda.” This answer makes sense, for soda is a nice thing and you can get it at the convenience store. I might further inquire, however: “What is buying the soda good for?” This further question can also be a reasonable one, for it need not be obvious why you want the soda. You might answer: “Well, I want it for the pleasure of drinking it.” If I then proceed by asking “But what is the pleasure of drinking the soda good for?” the discussion is likely to reach an awkward end. The reason is that the pleasure is not good for anything further; it is simply that for which going to the convenience store and buying the soda is good. 3 As Aristotle observes: “We never ask [a man] what his end is in being pleased, because we assume that pleasure is choice worthy in itself.”4 Presumably, a similar story can be told in the case of pains, for if someone says “This is painful!” we never respond by asking: “And why is that a problem?” We take for granted that if something is painful, we have a sufficient explanation of why it is bad. If we are onto something in our everyday relations that ground Pettit’s theory.

#### Evil pleasures produce overall disutility.

Moen 16 Ole Martin, PhD, Research Fellow in Philosophy at the University of Oslo. "An Argument for Hedonism." Journal of Value Inquiry 50(2). 2016. https://www.academia.edu/26656561/\_An\_Argument\_for\_Hedonism\_by\_Ole\_Martin\_Moen. PeteZ

This version of P1 is the most radical and most interesting one, and I believe it can be defended. To see how, it should first be pointed out that even if every pleasure is intrinsically valuable and every pain is intrinsically disvaluable, it does not follow that every pleasure is overall valuable and that every pain is overalldisvaluable. Though every pleasure is valuable when seen in isolation from the context in which it occurs, a given pleasure might have further effects that make its occurrence overall disvaluable, and similarly, though every pain is disvaluable when seen in isolation, a given pain might be situated in a context that makes its occurrence overall valuable.

To take the simplest case first, someone who holds that pleasure is intrinsically valuable and pain is intrinsically disvaluable might well concede that it is good that we feel pain when our skin is burned—not because feeling this pain is good in and by itself, but because this helps us avoid skin damage. This, however, does not challenge the fact that when seen in isolation from the beneficial effect, the pain that we feel when burned is bad. Goldstein suggests that it is precisely because of its badness that pain is able to play its protective role. 17

I think a strong case can be made that this explanatory model generalizes to other forms of good pains and bad pleasures. Take the case of entertaining a sexual fantasy while in a funeral. Someone who believes in the intrinsic value of pleasure would have to hold that when seen in isolation from the context in which it occurs, this pleasure is good. Importantly, however, she may also hold that it is bad in many other ways. It is bad, for example, in virtue of manifesting a serious lack in ability to value people and to deal with their deaths. It might also be bad in virtue of undermining the social function of funerals. Or take the sadistic torturer. Although someone who claims that pleasure is intrinsically good would have to maintain that when seen in isolation, this pleasure is good, she could also point out that the overall value of the occurrence of this pleasure is very bad. Most obviously, it is bad for the victim, since the pleasure motivates the torturer to continue torturing. Also, it manifests a psychological tendency of which those who believe in the intrinsic disvalue of pain have excellent reasons to be afraid. A similar explanation goes for the SS officers. If pleasure is intrinsically valuable, these officers’ pleasure is also valuable (for them) when seen in isolation from the context in which it occurs. This, however, is not a problematic thing to concede, since it is precisely thecontext that is supposed to make it bad, and by appealing to this context, someone who believes in the intrinsic value of pleasure has ample resources to cash out the badness of war criminals escaping justice. For something to be really bad, it does not have to be to be intrinsically bad. It is sufficient that it is overall really bad

Wanting intrinsic badness as well as overall badness is overkill, and upon reflection, it seems very implausible that the things that are otherwise intrinsically valuable lose their intrinsic value just in the contexts where they happen to be made overall disvaluable. It would be too lucky a coincidence, so the best explanation of our intuitions in such cases seems to be that in making the judgment that something is reallybad, we conflate various forms of badness. Becoming aware of this, it is better to conclude that even in cases of great overall disvalue, pleasure retains its intrinsic value, and even in cases of great overall value, pain retains its intrinsic disvalue.

#### That outweighs their justifications on probability—simpler beliefs are more likely to be true and external standards collapse to pleasure and pain.

#### Consequentialism is true—[A] All actions are forward-looking, so intentions are constituted by foreseen consequences. [B] No act omission distinction---choosing to omit is an act itself – people psychologically decide not to act.

#### Thus, the standard is *Maximizing Pleasure Minimizing Pain*. Calc indicts don’t link—my framework is a general principle to be applied intuitively, not a rigid calculator. Prefer—

#### [1] Death outweighs—agents cannot act if they fear for their bodily security—my framework constrains every NC.

#### [2] Brain studies disprove personal identity.

Parfit ’84Derek Parfit, Reasons and Persons (Oxford: Clarendon, 1984). – GV SK

Some recent medical cases provide striking evidence in favour of the Reductionist View. Human beings have a lower brain and two upper hemispheres, which are connected by a bundle of fibres. In treating a few people with severe epilepsy, surgeons have cut these fibres. The aim was to reduce the severity of epileptic fits, by confining their causes to a single hemisphere. This aim was achieved. But the operations had another unintended consequence. The effect, in the words of one surgeon, was the creation of ‘two separate spheres of consciousness.’ This effect was revealed by various psychological tests. These made use of two facts. We control our right arms with our left hemispheres, and vice versa. And what is in the right halves of our visual fields we see with our left hemispheres, and vice versa. When someone’s hemispheres have been disconnected, psychologists can thus present to this person two different written questions in the two halves of [their] visual field, and can receive two different answers written

#### The brain seeks pleasure to initiate action – optogenetics proves.

**Schaffer 17** (MIT technology review, Amanda Schaffer is a freelance journalist who writes about science and medicine for Slate, the New York Times, and other publications. Neuroscientist Kay Tye tackles the physical basis of emotions and behavior. [“How the Brain Seeks Pleasure and Avoids Pain” MIT research lab <https://www.technologyreview.com/2017/06/27/150948/how-the-brain-seeks-pleasure-and-avoids-pain/> 6/27/17] // Mberhe

As a child, Kay Tye was immersed in a life of science. “I grew up in my mom’s lab,” she says. At the age of five or six, she earned 25 cents a box for “restocking” bulk-ordered pipette tips into boxes for sterilization as her mother, an acclaimed biochemist at Cornell University, probed the genetics of yeast. (Tye’s father is a theoretical physicist known for his work on cosmic inflation and superstring theory.) Today, Tye runs her own neuroscience lab at MIT. Under large black lights reminiscent of a fashion shoot, she and her team at the Picower Institute for Learning and Memory can observe how mice behave when particular brain circuits are turned on or off. Nearby, they can record the mice’s neural activity as the animals move toward a particular stimulus, like sugar water, or away, if they’re crossing a floor that delivers mild electric shocks. Elsewhere, they create brain slices to test in vitro, since these samples retain their physiological activity, even outside the body, for up to eight hours. Tye has been at the forefront of efforts to pinpoint the sources of anxiety and other emotions in the brain by analyzing how groups of neurons work together in circuits to process information. In particular, her work has contributed to a profound shift in researchers’ understanding of the amygdala, a brain area that has been thought of as central to fear responses: she has found that signaling in the amygdala can in fact reduce anxiety as well as increase it. To gain such insights, she has also made crucial advances in a technique, called optogenetics, that allows researchers to activate or suppress particular neural circuits in lab animals using light. Optogenetics was developed by Stanford neuroscientist and psychiatrist Karl ­Deisseroth, and it represented a breakthrough in efforts to determine the role of specific parts of the brain. While Tye was working in his laboratory as a postdoc, she demonstrated, for the first time, that it was possible to pinpoint and control specific groups of neurons that were sending signals to specific target neurons. This fine-grained approach is important because drugs that treat conditions like anxiety currently do not target specific circuits, let alone individual neurons; rather, they operate throughout the brain, which often leads to undesirable side effects. Tye’s research may eventually help open the door to drugs that affect only specific neural circuits, reducing anxiety with fewer side effects. Such work has earned formal accolades, including a Presidential Early Career Award for Scientists and Engineers from President Obama, a Freedman Prize for neuroscience, and a TR35 award, recognizing outstanding researchers under the age of 35. Tye has also won high praise from others in her field who admire the creative breadth of her ambition. “She’s not afraid to ask the most fundamental questions, the ones most other scientists shy away from,” says Sheena Josselyn of the University of Toronto and the Hospital for Sick Children Research Institute. The questions she takes on involve emotions and phenomena that loom large in human experience, such as reward-seeking, loneliness, and compulsive overeating. Her goal is to understand their neural basis—to bridge the gap between brain, as understood by neuroscientists, and the mind, as conceived more expansively by psychiatrists, psychologists, and other students of human behavior. Would-be novelist Though it might seem as if Tye was born to be a scientist, she says her choice of career was anything but inevitable. In high school, she was ambivalent about science and gravitated instead toward writing; she wrote plays, short stories, and poetry. “In my mind, I was going to be a novelist,” she recalls. Still, while applying to college, she included MIT on her list, partly to humor her parents, Bik-Kwoon Tye and Henry Tye, both of whom had earned PhDs there in 1974. And when she received an acceptance letter, her father found it hard to disguise his feelings as his eyes welled with tears. “I’d never in my life seen my dad cry,” she says. She decided that she ought to give scientific learning a more dedicated try. She also convinced herself (with parental encouragement) that focusing on the natural world would give her more to write about down the road. As a freshman at MIT, Tye joined the lab of Suzanne Corkin, who was working with H.M., one of the most famous patients in the history of neuroscience. H.M., whose name was revealed to be Henry Molaison upon his death in 2008, suffered from profound amnesia after a lobotomy to treat seizures; studying his condition allowed researchers to probe the neural underpinnings of memory. One of Tye’s roles in the group was to make H.M. a peanut butter and jelly sandwich for lunch. He would eat it and then, moments later, with crumbs still on his face, ask, “Did we have lunch yet?” “It made me appreciate that these basic functions, like memory, that are so key to who we are have biological substrates in the brain,” she says. Neuroscience can be intimidating and filled with jargon, she adds. But the experience with H.M., along with an inspiring introductory psychology class taught by Steven Pinker, “made it seem worth it to slog through the all-nighters” to understand the biological mechanisms behind psychological constructs. Still, after graduation, Tye wanted to make sure she was “looking around,” thinking about who she was and who she wanted to be. So she spent a year backpacking in Australia, where she worked on a farm, lived in a yoga ashram, taught yoga, camped out on the beach, and worked on a novel. She found that writing was “hard and lonely.” She enjoyed teaching yoga but didn’t see it as a satisfying career path. “I came out of that year surprisingly ready to go to grad school,” she says. Diving back into the academic world, she initially struggled to find a lab that would accept her and almost dropped out after her first year. But she found a mentor in Patricia Janak, who became her advisor, and earned a PhD in neuroscience at the University of California, San Francisco, in 2008. A surprise in the amygdala In 2009, Tye joined Deisseroth’s lab at Stanford. Deisseroth had already developed optogenetics, which gave researchers a much more precise way to identify the contributions of individual neurons within a circuit. Along with others in the lab, Tye used optogenetics to probe the connection between two parts of the amygdala, an almond-shaped region that is crucial to anxiety and fear. She first identified neurons in one area (known as the basolateral amygdala) that formed connections to neurons in another amygdalar area (known as the central nucleus) by sending out projections of nerve fibers. When she stimulated those basolateral amygdala neurons, she was able to reduce anxiety in mice. That is, she could cause the animals to spend more time in open spaces and less time cowering to the side. This was surprising, because when researchers stimulated the amygdala as a whole, the mice’s behavior grew more anxious. At first, everyone asked, “Are you sure you’re using the tool right? What’s going on?” she recalls. But after meticulous validation, in 2011, Tye and the group published their results in Nature, showing that some circuitry within the amygdala helps to calm animals down. This paper also represented a breakthrough in optogenetic technique. For the first time, researchers were able to zero in on and manipulate a specific part of a brain circuit: particular groups of neurons communicating with known target neurons. The technique, known as optogenetic projection-specific manipulation, is now considered one of the key tools of neuroscience. In 2012, Tye came to MIT as an assistant professor of brain and cognitive sciences at the Picower, continuing her work on anxiety. While setting up her lab, she targeted neurons within the amygdala that seemed to have the opposite effect on mouse anxiety, causing it to increase. These brain cells are also located in the basolateral amygdala, but they send projections to a nearby region known as the ventral hippocampus. When Tye stimulated this circuit using optogenetics, the mice avoided open spaces, apparently suffering from anxiety. (When she inhibited the connections from forming, the animals hung out in the open again, their anxiety seemingly alleviated.) Tye proposed that neighboring neurons in the amygdala can have opposite effects on animals’ behavior, depending on the targets to which they send signals. Threats and rewards At the time, most researchers studying the amygdala still tended to focus mainly on its role in fear. Yet Tye suspected that activity in this part of the brain might encode a stimulus as either rewarding or threatening, good or bad, helping individuals decide how to respond. “There are many stimuli we encounter in our daily lives that are ambiguous,” says Conor ­Liston of the Brain and Mind Research Institute at Weill Cornell. “A social interaction, for example, can be either threatening or rewarding, and we need brain circuits devoted to differentiating which is which.” By looking at the relative strength of the currents passing through two glutamate receptors known to indicate synaptic strength, Tye discovered that different neural connections in mice were reinforced depending on whether a particular stimulus was linked to a reward or a threat. When mice learned to associate a sound with a treat of sugar, she found stronger synaptic input to the neurons in the basolateral amygdala that were sending information to the nucleus accumbens, which is part of the brain’s reward circuitry. On the other hand, when mice learned to associate the sound with mild electric shocks to their feet, input signals grew stronger in circuits leading from the basolateral amygdala to the centromedial amygdala, which is involved in pain and fear. In addition, she demonstrated a trade-off: when one of these circuits grew more active, the other grew less so. In other words, she had found how the brain encodes information that allows mice to differentiate between stimuli that are rewarding and those that are potentially harmful. The results were published in Nature in 2015. In recent work, Tye also probed the circuitry involved in making split-second decisions when both threatening and rewarding cues are present at the same time. She and her team focused this time on connections between the amygdala and the prefrontal cortex, an area responsible for higher-order thinking. (Specifically, they examined interactions between the basolateral amygdala and the prelimbic medial prefrontal cortex.) Using optogenetics and other techniques, they showed that this circuitry was active when the animals were simultaneously exposed to a potential sugar treat and a potential electric shock and had to make a decision about how to behave. Her results, which appeared in April in Nature Neuroscience, help illuminate how animals figure out what to do in the face of complex and sometimes contradictory cues.

#### If nothing unifies agency from one second to the next, then only states of consciousness can matter—that’s util.

#### [3] Actor-Spec – States are institutions and not agents with intentions so non-consequentialist impacts are incoherent—outweighs since different agents have different ethical obligations. Also takes out calc indict since governments use util all the time.

#### [4] Use modesty—we are limited by logical errors and sensory limitations so there’s always a risk we are wrong.

#### [5] Presume util—If you’re unsure about deontological obligations then default to util since there’s always good in making the world a better place.

#### [6] Existential risk comes first under any framework

**Ord 20** Toby Ord [Australian philosopher. He founded Giving What We Can, an international society whose members pledge to donate at least 10% of their income to effective charities], “The Precipice” Hachette Books, 2020 // Lex CH [Recut by Lex AKo]

But **an existential catastrophe is not** just **a catastrophe that destroys a particularly large number of lives. It destroys our potential**. My mentor, Derek Parfit, asked us to imagine a devastating nuclear war killing 99 percent of the world’s people.19 **A war that would leave behind a dark age lasting centuries, before the survivors could eventually rebuild civilization to its former heights; humbled, scarred—but undefeated. Now compare this with a war killing a full 100 percent of the world’s people. This second war would be worse, of course, but how much worse? Either war would be the worst catastrophe in history. Either would kill billions.** **The second war would involve tens of millions of additional deaths, and so would be worse for this reason**. But there is another, far more significant difference between the two wars. **Both wars kill billions of humans; but the second war kills humanity**. **Both wars destroy our present; but the second war destroys our future. It is this qualitative difference in what is lost with that last percent that makes existential catastrophes unique, and that makes reducing the risk of existential catastrophe uniquely important. 20 In expectation, almost all humans who will ever live have yet to be born.** Absent catastrophe, **most generations are future generations.** As the writer Jonathan Schell put it: The procession of generations that extends onwards from our present leads far, far beyond the line of our sight, and, compared with these stretches of human time, which exceed the whole history of the earth up to now, our brief civilized moment is almost infinitesimal. Yet we threaten, in the name of our transient aims and fallible convictions, to foreclose it all. **If our species does destroy itself, it will be a death in the cradle—a case of infant mortality**. 21 And because, in expectation, **almost all of humanity’s life lies in the future, almost everything of value lies in the future as well**: almost all the flourishing; almost all the beauty; our greatest achievements; our most just societies; our most profound discoveries. 22 We can continue our progress on prosperity, health, justice, freedom and moral thought. **We can create a world of wellbeing and flourishing that challenges our capacity to imagine. And if we protect that world from catastrophe, it could last millions of centuries**. This is our potential—what we could achieve if we pass the Precipice and **continue striving for a better world**. **It is this view of the future—the immense value of humanity’s potential —that most persuades me to focus my energies on reducing existential risk. When I think of the millions of future generations yet to come, the importance of protecting humanity’s future is clear to me**. **To risk destroying this future**, for the sake of some advantage limited only to the present, **seems** to me profoundly parochial and **dangerously short-sighted**. Such neglect privileges a tiny sliver of our

### 1AC—Astrology

#### Advantage one is Astrology.

#### Incoming mega-constellations of satellites ensure unmanageable space debris, triggering the Kessler Syndrome.

Boley & Byers 21 [Aaron C., Department of Physics and Astronomy @ The University of British Columbia\*, and Michael, Department of Political Science @ The University of British Columbia; Published: 20 May 2021; Scientific Reports; “Satellite mega-constellations create risks in Low Earth Orbit, the atmosphere and on Earth,” <https://www.nature.com/articles/s41598-021-89909-7>] brett

Companies are placing satellites into orbit at an unprecedented frequency to build ‘mega-constellations’ of communications satellites in Low Earth Orbit (LEO). In two years, the number of active and defunct satellites in LEO has increased by over 50%, to about 5000 (as of 30 March 2021). SpaceX alone is on track to add 11,000 more as it builds its Starlink mega-constellation and has already filed for permission for another 30,000 satellites with the Federal Communications Commission (FCC)1. Others have similar plans, including OneWeb, Amazon, Telesat, and GW, which is a Chinese state-owned company2. The current governance system for LEO, while slowly changing, is ill-equipped to handle large satellite systems. Here, we outline how applying the consumer electronic model to satellites could lead to multiple tragedies of the commons. Some of these are well known, such as impediments to astronomy and an increased risk of space debris, while others have received insufficient attention, including changes to the chemistry of Earth’s upper atmosphere and increased dangers on Earth’s surface from re-entered debris. The heavy use of certain orbital regions might also result in a de facto exclusion of other actors from them, violating the 1967 Outer Space Treaty. All of these challenges could be addressed in a coordinated manner through multilateral law-making, whether in the United Nations, the Inter-Agency Debris Committee (IADC), or an ad hoc process, rather than in an uncoordinated manner through different national laws. Regardless of the law-making forum, mega-constellations require a shift in perspectives and policies: from looking at single satellites, to evaluating systems of thousands of satellites, and doing so within an understanding of the limitations of Earth’s environment, including its orbits.

Thousands of satellites and 1500 rocket bodies provide considerable mass in LEO, which can break into debris upon collisions, explosions, or degradation in the harsh space environment. Fragmentations increase the cross-section of orbiting material, and with it, the collision probability per time. Eventually, collisions could dominate on-orbit evolution, a situation called the Kessler Syndrome3. There are already over 12,000 trackable debris pieces in LEO, with these being typically 10 cm in diameter or larger. Including sizes down to 1 cm, there are about a million inferred debris pieces, all of which threaten satellites, spacecraft and astronauts due to their orbits crisscrossing at high relative speeds. Simulations of the long-term evolution of debris suggest that LEO is already in the protracted initial stages of the Kessler Syndrome, but that this could be managed through active debris removal4. The addition of satellite mega-constellations and the general proliferation of low-cost satellites in LEO stresses the environment further5,6,7,8.

Results

The overall setting

The rapid development of the space environment through mega-constellations, predominately by the ongoing construction of Starlink, is shown by the cumulative payload distribution function (Fig. 1). From an environmental perspective, the slope change in the distribution function defines NewSpace, an era of dominance by commercial actors. Before 2015, changes in the total on-orbit objects came principally from fragmentations, with effects of the 2007 Chinese anti-satellite test and the 2009 Kosmos-2251/Iridium-33 collisions being evident on the graph.

Figure 1

[Figure 1 omitted]

Cumulative on-orbit distribution functions (all orbits). Deorbited objects are not included. The 2007 and 2009 spikes are a Chinese anti-satellite test and the Iridium 33-Kosmos 2251 collision, respectively. The recent, rapid rise of the orange curve represents NewSpace (see "Methods").

Full size image

Although the volume of space is large, individual satellites and satellite systems have specific functions, with associated altitudes and inclinations (Fig. 2). This increases congestion and requires active management for station keeping and collision avoidance9, with automatic collision-avoidance technology still under development. Improved space situational awareness is required, with data from operators as well as ground- and space-based sensors being widely and freely shared10. Improved communications between satellite operators are also necessary: in 2019, the European Space Agency moved an Earth observation satellite to avoid colliding with a Starlink satellite, after failing to reach SpaceX by e-mail. Internationally adopted ‘right of way’ rules are needed10 to prevent games of ‘chicken’, as companies seek to preserve thruster fuel and avoid service interruptions. SpaceX and NASA recently announced11 a cooperative agreement to help reduce the risk of collisions, but this is only one operator and one agency.

Figure 2

[Figure 2 omitted]

Orbital distribution and density information for objects in Low Earth Orbit (LEO). (Left) Distribution of payloads (active and defunct satellites), binned to the nearest 1 km in altitude and 1° in orbital inclination. The centre of each circle represents the position on the diagram, and the size of the circle is proportional to the number of satellites within the given parameter space. (Right) Number density of different space resident objects (SROs) based on 1 km radial bins, averaged over the entire sky. Because SRO objects are on elliptical orbits, the contribution of a given object to an orbital shell is weighted by the time that object spends in the shell. Despite significant parameter space, satellites are clustered in their orbits due to mission requirements. The emerging Starlink cluster at 550 km and 55° inclination is already evident in both plots (Left and Right).

Full size image

When completed, Starlink will include about as many satellites as there are trackable debris pieces today, while its total mass will equal all the mass currently in LEO—over 3000 tonnes. The satellites will be placed in narrow orbital shells, creating unprecedented congestion, with 1258 already in orbit (as of 30 March 2021). OneWeb has already placed an initial 146 satellites, and Amazon, Telesat, GW and other companies, operating under different national regulatory regimes, are soon likely to follow.

Enhanced collision risk

Mega-constellations are composed of mass-produced satellites with few backup systems. This consumer electronic model allows for short upgrade cycles and rapid expansions of capabilities, but also considerable discarded equipment. SpaceX will actively de-orbit its satellites at the end of their 5–6-year operational lives. However, this process takes 6 months, so roughly 10% will be de-orbiting at any time. If other companies do likewise, thousands of de-orbiting satellites will be slowly passing through the same congested space, posing collision risks. Failures will increase these numbers, although the long-term failure rate is difficult to project. Figure 3 is similar to the righthand portion of Fig. 2 but includes the Starlink and OneWeb mega-constellations as filed (and amended) with the FCC (see “Methods”). The large density spikes show that some shells will have satellite number densities in excess of n=10−6 km−3.

Figure 3

[Figure 3 omitted]

Satellite density distribution in LEO with the Starlink and OneWeb mega-constellations as filed (and amended) with the FCC. Provided that the orbits are nearly circular, the number densities in those shells will exceed 10–6 km−3. Because the collisional cross-section in those shells is also high, they represent regions that have a high collision risk whenever debris is too small to be tracked or collision avoidance manoeuvres are impossible for other reasons.

Full size image

Deorbiting satellites will be tracked and operational satellites can manoeuvre to avoid close conjunctions. However, this depends on ongoing communication and cooperation between operators, which at present is ad hoc and voluntary. A recent letter12 to the FCC from SpaceX suggests that some companies might be less-than-fully transparent about events13 in LEO.

Despite the congestion and traffic management challenges, FCC filings by SpaceX suggest that collision avoidance manoeuvres can in fact maintain collision-free operations in orbital shells and that the probability of a collision between a non-responsive satellite and tracked debris is negligible. However, the filings do not account for untracked debris6, including untracked debris decaying through the shells used by Starlink. Using simple estimates (see “Methods”), the probability that a single piece of untracked debris will hit any satellite in the Starlink 550 km shell is about 0.003 after one year. Thus, if at any time there are 230 pieces of untracked debris decaying through the 550 km orbital shell, there is a 50% chance that there will be one or more collisions between satellites in the shell and the debris. As discussed further in “Methods”, such a situation is plausible. Depending on the balance between the de-orbit and the collision rates, if subsequent fragmentation events lead to similar amounts of debris within that orbital shell, a runaway cascade of collisions could occur.

Fragmentation events are not confined to their local orbits, either. The India 2019 ASAT test was conducted at an altitude below 300 km in an effort to minimize long-lived debris. Nevertheless, debris was placed on orbits with apogees in excess of 1000 km. As of 30 March 2021, three tracked debris pieces remain in orbit14. Such long-lived debris has high eccentricities, and thus can cross multiple orbital shells twice per orbit. A major fragmentation event from a single satellite could affect all operators in LEO.

Even if debris collisions were avoidable, meteoroids are always a threat. The cumulative meteoroid flux15 for masses m > 10–2 g is about 1.2 × 10–4 meteoroids m−2 year−1 (see “Methods”). Such masses could cause non-negligible damage to satellites16. Assuming a Starlink constellation of 12,000 satellites (i.e. the initial phase), there is about a 50% chance of 15 or more meteoroid impacts per year at m > 10–2 g. Satellites will have shielding, but events that might be rare to a single satellite could become common across the constellation.

One partial response to these congestion and collision concerns is for operators to construct mega-constellations out of a smaller number of satellites. But this does not, individually or collectively, eliminate the need for an all-of-LEO approach to evaluating the effects of the construction and maintenance of any one constellation.

#### Compounding Space Debris and Mega-Constellations wreck astrological practices. Edut & Edut 20

(Ophira and Tali are professional astrologers who reach millions worldwide. Through their website and as the official astrologers for ELLE magazine, they bring the stars down to earth with their lifestyle and coaching-based approach to horoscopes. They’ve created astrology sections for multiple media properties. As bestselling authors, they’ve written a collection of [books](https://astrostyle.com/shop/books/) and their own brand imprint annual horoscope guides), September 8, 2020, "Save the Zodiac! Will Satellites Block the Constellations?," Astrostyle, <https://astrostyle.com/mega-constellations/>, 12-28-2021//Aanya \*Note: This article is published on their website, which cites the authors as ‘AstroTwins’, their pseudonym, but I’ve substituted their legal names for clarity. \*\*The date cited is the most accurately recorded one for this article I could find in an embedded link.

Forget the (misinformed) uproar over the supposed 13th zodiac sign. And never mind all the “leaked” government UFO intel that’s been swirling for the past year. These rumors are but a warmup for the ultimate constellation “rock blocking” that SpaceX scion Elon Musk and his frenemies have planned: Mega-Constellations! What’s a Mega-Constellation, you ask? It’s an enormous train of satellites, sent up by the thousands, that will essentially allow Internet access to obscure places, like the middle of the ocean, but in doing so will obscure stars and their constellations. In May 2019, SpaceX launched their first 60 Starlink satellites, many of which are so bright they can be seen with the naked eye. Because these crafts are built with large solar panels, they reflect light back to earth. As Forbes reports: “During the dead of night the satellites are unlikely to be visible, as they will be in darkness with no sunlight to reflect. But it’s in the hours after sunset and before sunrise that people are most worried, when the thousands of satellites will be reflecting light from orbit and, it appears, clearly visible to anyone looking up.” Add in all the space debris and the lost view of our zodiac and, well, things aren’t exactly looking stellar. Currently SpaceX has over 400 satellites in orbit. But the monster plan for a 12,000-satellite Mega-Constellation is what has astronomers (and your trusty astrologers) concerned. Before August 2020, there were 2,666 satellites, but once the space lords launch their rockets with payloads of satellites, we will approach 20,000 satellites in Earth orbit. At the exact historical moment when astrology has risen like a cultural phoenix to help humanity, tech lords like Jeff Bezos (Capricorn) and Elon Musk (Cancer) could launch thousands of satellites that will forever obscure the ancient wheel in the sky. Firms in the U.K. and China also have plans to send massive craft clusters into orbit. The outcome could be way worse than a self-interested neighbor erecting a building that blocks your sunny views. These plans could irrevocably alter the night sky and potentially obscure the vista of all your favorite zodiac signs. Think of it as “cosmic colonizing”—a land grab for the most coveted piece of the sky. (Location, location, location…) The timing is aligned with astrological transits, as accumulator Saturn and expansive Jupiter prepare to spin through Aquarius, the sign of outer space, starting just before the 2020 winter solstice. Their Great Conjunction (rare meetup) on December 20 portends major news for developments in outer space technology. In the worst-case scenario, you can forget about finding your favorite astrology constellation in the eternal stars above, much less spotting luminaries like Zuben el Genubi or Fomalhaut. Even sparkly Sirius may be no match for what’s hoisted into the heavenly vault in the near future. Is a space conservation movement needed to counter mega-constellations? Or, dare we suggest, a new wave of protests? Will polarized astrologers and astronomers finally unite in the name of comets and star clusters? Paging NASA! Houston, we have a (shared) problem. Perhaps the aliens CAN come in peace and save the galaxy. In an effort to find common, low-orbit ground between astronomy and astrology, it’s important to understand that the creation of the zodiac is an example of technology, as crucial as the space lords new satellites, that helped mankind communicate ideas of navigation, history and myth for many millennia of human endeavor. That’s a view that won’t be as easy to change.

#### Recorded planetary alignments control the global stock market—astrology is the most reliable predictive analytic. Pesavento & Smoleny 15

Larry Pesavento, president of Trading Tutor and a 45-year veteran trader. He managed Drexel Burnham Lambert's commodity department from 1976 to 1981. Following this, he became a floor trader at the Chicago Mercantile Exchange, trading S&P futures, T-Bills, gold, and foreign currencies until 1984, then he traded for Commodity Corporation of Princeton, New Jersey, until 1986. He has trained more than 1000 students, in the US and abroad, over the past 25 years and authored a vast library of books on trading, and Shane Smoleny, president of Wolf Trader Futures, was a physics and biomedical science professor for 12 years and has been trading financial markets and commodities for over 20 years. He is a registered CPO and CTA. “A Trader’s Guide to Financial Astrology: Forecasting Market Cycles Using Planetary and Lunar Movements”, January 2015, John Wiley & Sons, Inc.//Aanya

However, the groundwork will be laid for further editions and revisions of this book. For those of one who are new to astrology, one can begin by thinking of the universe as a giant clock. A normal clock has just an hour hand, a minute hand, and a second hand. But an astrological clock has literally hundreds of hands spinning at different rates. When the hands of the clock line up at certain positions, then the time is right and the energies are aligned for specific actions. The alignment of planetary energy tends to provide a push or a force in one direction or another. Some of these energies are positive and some of these actions are negative. These energies affect the psyche of individuals and eventually human behavior. It is important to note that astrology does not have every answer. It is one set of tools one can use to understand the universe and our place within it. The truth is that we don’t know how or why astrology works. We just know that it does and we can measure its effects on financial markets. That is difficult for some people to accept. Throughout the years, people have pursued links between external events and the market outcomes. In financial astrology, there are literally millions of permutations to pursue to find links between planets and market behavior. In the past and the present, there have been many studies that attempted to correlate planetary movements with market behavior. However, without a working knowledge of astrology it is very difficult to know how to set up the experiments. In other words, one is not even qualified to set up an experiment without knowing the traditional meaning of the planets, the signs, the houses, and the angles that they make with one another. By understanding the meanings of planets, angles, and signs, one can begin to set up a hypothesis to build experiments. At the very least, the so-called negative aspects should correlate with falling markets, and positive aspects should correlate with rising markets. Of course, there are always surprise correlations between planetary behavior and market behavior when experiments are run over time. Statistical tests can be run around events to determine positive correlation, negative correlation, positive noncorrelation, or negative noncorrelation. These correlations and noncorrelations can then be pieced together and applied to artificial intelligence applications such as neural networks to predict market behavior. Proving astrology is actually much easier through financial markets because the statistical relationship to price data is clear and unbiased. In contrast, personal astrology is more difficult to pinpoint. In personal astrology, the meanings of the planets can take on many different interpretations. This depends on the context and the attitude of the individual involved. In many ways, financial astrology is a much better starting point to verify the meaning of planets and transits in regard to their effect on financial markets. So how can astrology affect financial markets? The energy combinations of the planets affect humans, which in turn affects the mass social mood on the planets. If a large enough mass of people participate and interact to form a marketplace, then the planetary behavior can be used as a proxy to predict financial market behavior. Financial astrology does not guarantee that events will unfold. But it gives one a road map for likely outcomes. The goal is to obtain a statistical advantage obtained through a large sample size to increase our probability of success. For example, if we can get a 55 to 70 percent success rate in a neutral market with a high sample size, then we can gain an advantage over a market with 50 percent odds. In financial astrology, outcomes and meanings of planets are often clear-cut even before any analysis is run. This is because people have been observing the planetary interactions and the links to human behavior for thousands of years. This energy of planets can be divided into positive and negative outcomes. This observation of key angles is how financial astrologers created accurate financial astrology forecasts and models before computers existed. Many of these models are still used today.

Brief Historical Background

In the late 1920s and early 1930s, financial astrology was made popular by astrologer Evangeline Adams. Adams was known as America’s first big astrology superstar. She made astrology popular with her newsletter making stock market predictions. During the 1920s, Adams consulted many big financial names of the time, including banking giant J. P. Morgan. He was a big believer in financial astrology. The New York library of J. P. Morgan is full of information on astrology, and there is even a zodiac painted on the ceiling. A famous quote of Morgan’s is Morgan famously said, “Millionaires don’t use astrology, billionaires do!” In 1947, Donald Bradley proposed the first financial astrology forecasting tool, known as the Bradley Barometer siderograph. This siderograph uses key astrological aspects and declination to forecast market turning points. It is not linked to market prices directly. The Bradley Barometer was created using key astrological aspects that were observed throughout the centuries. These aspects were grouped into positive and negative classifications. These classifications were then used to forecast markets. Negative aspects correlated with falling markets, while positive aspects correlated with rising markets. The important thing to note here is that this barometer was created before the arrival of computers to confirm the graph. This barometer is still used today in financial astrology. Today, with computers, these outcomes can then be plotted, tested, and correlated statistically.

Theory of Financial Astrology

Financial astrology begins with observing market behavior when two planets interact. However, financial astrology is not limited to that alone. One can also analyze the effects of multiple planets interacting. In physics, Newton’s second law states that the sum of the forces equals the net force. In other words, on the outside an observer does not necessarily see all of the forces at work. What the observer sees is the net result of all the forces added up. The net force is what appears to the observer after everything is thrown together. In astrology, there may be different energies working together or against each other. The final result will be whatever wins the tug-of-war. What the observer sees at any given time in the markets is often the net result of all of the transits added up. However, single transits between two planets can be powerful, too. There are times when a singular transit is so powerful that it might dominate everything else around it. This is especially true when large planets are involved in the picture. Therefore, it can be said that all transits are not weighted the same. Some have more powerful effects on the markets than others. Some transits last for a long period of time and others last for a short period of time. So a transit for an outer, slow-moving transit such as Saturn will be much stronger and last much longer than a fast-moving transit from a faster-moving object such as the Moon. In addition to the effects of transits on markets, there is also the topic of planetary cycles within the field of financial astrology. A financial astrology cycle can be broken down into two basic methods: (1) a correlation to the position of a planet in its orbit to the behavior of the financial markets, and (2) a correlation to the longitudinal angle between two planets to the behavior of the financial markets. Cycles are interesting because one can get a very large sample size and quickly increase the correlation of the markets to past events. By using these cycles it is possible to increase the predictability of outcomes in the future using cycles. A popular cycle that is often studied is the lunar cycle. This is often done out of convenience because everyone knows when the New Moon is and when the Full Moon is. Each of these is listed on a basic calendar for the layman to read month by month. However, this basic cycle is only a small piece of the pie. In reality, there are thousands of lunar cycles to study regarding financial markets. In addition, there are thousands more combinations and cycles involving other planets and energy points. By the end of this book, one will begin to have a clear understanding of how the planets affect markets. Moreover, one will be able to use these transits and cycles to help one make big picture market timing decisions. Ultimately, the goal is to be able to put the odds in one’s favor to increase profit potential through the power of financial astrology.

Summary

Astrology studies the relationships between movements and interactions of the planets and human behavior. The universe can be thought of as a giant clock. By understanding the timing of the planets, one can correlate them to market events. This book will introduce the concept of financial astrology, which studies the outcome of market event as planets interact.

#### Independently, continued investment capital makes astrology an economic cornerstone during the pandemic. Kaplan and Stenberg 20

Juliana Kaplan, a labor and inequality reporter, previously Associate Editor for Contributors, and Mark Stenberg, a reporter with a master's in journalism from Northwestern, 12-26-2020, "Meet the astrology entrepreneurs who turned an awful 2020 into a boom for the $2.2 billion industry," Business Insider, https://www.businessinsider.com/astrology-industry-boomed-during-pandemic-online-entrepreneurs-2020-12, 12-29-2021//Aanya

In a year economically and cosmically like no other, astrology seems to be one of the industries that's seen substantial gains. Amidst the uncertainty of a global pandemic, a crumbling economy, and some murder hornets, people are seeking clarity. Astrologers are feeling the results Sykes has seen a growth in demand for her services, where she answers questions that clients pose. Her Patreon, where she charges $9.98 a month, has taken off — she has 3,820 subscribers — and she has over 100,000 followers on her social media channels. She's planning on offering six-hour chart reading sessions for $998 soon. Veteran astrologer Samuel Reynolds, who's been practicing for over 30 years (his sun is in Scorpio, his moon is in Leo, and his rising is Pisces), said that he usually has five to six students in his virtual beginner's astrology class. This time around, he had 30 students — and had to hire a teaching assistant for the first time. Reynolds said that he's usually booked about two weeks out. But as of mid-December, he's booked through March. Ross Clark (Leo sun, Capricorn moon, Scorpio rising), the CEO of buzzy astrology app Sanctuary, told Business Insider that the app has seen "real growth" with its paid offerings in 2020. And it's not just new users: there's also "a real deepening of engagement on the retention side." ross color And astrologer, author, and educator Kirah Tabourn (a Scorpio sun, Aries moon) actually made astrology her full-time job at the start of March. She just hit 20,000 followers on Instagram — up from around 5,000 in June. She said she's done about 400 readings this year alone. The major increases may just be limited to astrologers who offer more individualized services (like personal readings). Legendary astrologer Susan Miller (who won't divulge her sun and moon, since she thinks it takes focus from readers) told Insider that business has remained steady this year. She attributes that to the fact that she's already "big," and her audience of millions continues to stick around. "It's steady. And thank God for that. I have people to pay," she said. But she did launch an app over the summer; she said it's too early to know exactly how well it's been doing, but it "looks like it's doing great." Other astrologers are also launching new products: Celebrity astrologer Chani Nicholas announced today she's launching her own app (she also keeps her sun and moon private). Tabourn, the astrologer who went full-time in March, launched her own paid membership community. Astrology on the rise Astrology as a business didn't just come out of nowhere in 2020. It was already an industry on the rise, accelerated this year by the confusion and life-altering conditions of the pandemic. As Insider's Barbara Smith previously reported, revenue for astrology apps grew to nearly $40 million in 2019 — a 64% increase, according to data from SensorTower. Per IBISWorld, "mystical services" grew by 1.4% from 2016 to 2019. The industry as a whole is worth $2.2 billion. From March 15 to 21, the term "coronavirus astrology" spiked on Google Trends; "Astrology" itself has remained high throughout the year, and grown in popularity throughout the past month. Nicholas, who has been practicing astrology for 20 years and has been a full-time astrologer for the past seven years, said that she's seen "steady growth" over the course of her business. One big boom came in 2016, following "collective crisis." That sentiment was echoed in a 2019 New Yorker piece, "Astrology in the Age of Uncertainty," although 2019's uncertainty may feel somewhat quaint these days. Nicholas said that, throughout the year, she's seen increased interest in workshops and general astrological information. "I think just naturally, because of the conditions that we're in, it led to people being perhaps a little bit more open or curious as to what other people were saying about why we're in the moment that we're in," she said.

#### Economic decline worsens climate change and causes Arctic and Space War.

McLennan 21 – Strategic Partners Marsh McLennan SK Group Zurich Insurance Group, Academic Advisers National University of Singapore Oxford Martin School, University of Oxford Wharton Risk Management and Decision Processes Center, University of Pennsylvania, “The Global Risks Report 2021 16th Edition” “http://www3.weforum.org/docs/WEF\_The\_Global\_Risks\_Report\_2021.pdf //Re-cut by Elmer

Forced to choose sides, governments may face **economic** or diplomatic **consequences**, as proxy disputes play out in control over economic or geographic resources. The deepening of geopolitical fault lines and the lack of viable middle power alternatives make it harder for countries to cultivate connective tissue with a diverse set of partner countries based on mutual values and maximizing efficiencies. Instead, networks will become thick in some directions and non-existent in others. The COVID-19 crisis has amplified this dynamic, as digital interactions represent a “huge loss in efficiency for diplomacy” compared with face-to-face discussions.23 With some **alliances weakening**, diplomatic relationships will become more unstable at points where superpower tectonic plates meet or withdraw. At the same time, without superpower referees or middle power enforcement, global **norms** may **no longer govern** state **behaviour**. Some governments will thus see the solidification of rival blocs as an opportunity to engage in regional posturing, which will have destabilizing effects.24 Across societies, domestic discord and **economic crises will** **increase** the risk of **autocracy**, **with corresponding** **censorship, surveillance**, restriction of movement and abrogation of rights.25 Economic crises will also amplify the **challenges for middle power**s as they navigate geopolitical competition. **ASEAN countries, for example, had offered a potential new manufacturing base as the United States and China decouple, but the pandemic has left these countries strapped for cash to invest in the necessary infrastructure and productive capacity.26** Economic fallout is pushing many countries to debt distress (see Chapter 1, Global Risks 2021). While G20 countries are supporting debt restructure for poorer nations,27 larger economies too may be at **risk of default** in the longer term;28 this would **leave them further stranded**—**and unable to exercise leadership—on the global stage**. Multilateral meltdown **Middle power weaknesses** will be **reinforced** in weakened institutions, which may translate to **more uncertainty and lagging progress on shared global challenges such as climate change**, **health, poverty reduction and technology governance**. In the absence of strong regulating institutions, **the Arctic and space represent new realms for** potential **conflict** as the superpowers and middle powers alike compete to extract resources and secure strategic advantage.29 If the global superpowers continue to accumulate economic, military and technological power in a zero-sum playing field, some middle powers could increasingly fall behind. Without cooperation nor access to important innovations, middle powers will struggle to define solutions to the world’s problems. In the long term, GRPS **respondents forecasted “w**eapons of **m**ass **d**estruction” **and “state collapse**” as the two top critical threats: in the absence of strong institutions or clear rules, clashes— such as those in **Nagorno-Karabakh or the Galwan Valley**—**may more frequently flare into** full-fledged **interstate conflicts**,30 which is particularly worrisome where unresolved tensions among nuclear powers are concerned. These conflicts may lead to state collapse, with weakened middle powers less willing or less able to step in to find a peaceful solution.

#### Warming causes extinction

Klein 14[(Naomi Klein, award-winning journalist, syndicated columnist, former Miliband Fellow at the London School of Economics, member of the board of directors of 350.org), *This Changes Everything: Capitalism vs. the Climate*, pp. 12-14]

In a 2012 report, the World Bank laid out the gamble implied by that target. “As global warming approaches and exceeds 2-degrees Celsius, there is a risk of triggering nonlinear tipping elements. Examples include the disintegration of the West Antarctic ice sheet leading to more rapid sea-level rise, or large-scale Amazon dieback drastically affecting ecosystems, rivers, agriculture, energy production, and livelihoods. This would further add to 21st-century global warming and impact entire continents.” In other words, once we allow temperatures to climb past a certain point, where the mercury stops is not in our control.¶ But the bigger problem—and the reason Copenhagen caused such great despair—is that because governments did not agree to binding targets, they are free to pretty much ignore their commitments. Which is precisely what is happening. Indeed, emissions are rising so rapidly that unless something radical changes within our economic structure, 2 degrees now looks like a utopian dream. And it’s not just environmentalists who are raising the alarm. The World Bank also warned when it released its report that “we’re on track to a 4-C warmer world [by century’s end] marked by extreme heat waves, declining global food stocks, loss of ecosystems and biodiversity, and life-threatening sea level rise.” And the report cautioned that, “there is also no certainty that adaptation to a 4-C world is possible.” Kevin Anderson, former director (now deputy director) of the Tyndall Centre for Climate Change, which has quickly established itself as one of the U.K’s premier climate research institutions, is even blunter; he says 4 degrees Celsius warming—7.2 degrees Fahrenheit—is “incompatible with an organized, equitable, and civilized global community.”¶ We don’t know exactly what a 4 degree Celsius world would look like, but even the best-case scenario is likely to be calamitous. Four degrees of warming could raise global sea levels by 1 or possibly even 2 meters by 2100 (and would lock in at least a few additional meters over future centuries). This would drown some island nations such as the Maldives and Tuvalu, and inundate many coastal areas from Ecuador and Brazil to the Netherlands to much of California and the northeastern United States as well as huge swaths of South and Southeast Asia. Major cities likely in jeopardy include Boston, New York, greater Los Angeles, Vancouver, London, Mumbai, Hong Kong, and Shanghai.¶ Meanwhile, brutal heat waves that can kill tens of thousands of people, even in wealthy countries, would become entirely unremarkable summer events on every continent but Antarctica. The heat would also cause staple crops to suffer dramatic yield losses across the globe (it is possible that Indian wheat and U.S. could plummet by as much as 60 percent), this at a time when demand will be surging due to population growth and a growing demand for meat. And since crops will be facing not just heat stress but also extreme events such as wide-ranging droughts, flooding, or pest outbreaks, the losses could easily turn out to be more severe than the models have predicted. When you add ruinous hurricanes, raging wildfires, fisheries collapses, widespread disruptions to water supplies, extinctions, and globe-trotting diseases to the mix, it indeed becomes difficult to imagine that a peaceful, ordered society could be sustained (that is, where such a thing exists in the first place).¶ And keep in mind that these are the optimistic scenarios in which warming is more or less stabilized at 4 degrees Celsius and does not trigger tipping points beyond which runaway warming would occur. Based on the latest modeling, it is becoming safer to assume that 4 degrees could bring about a number of extremely dangerous feedback loops—an Arctic that is regularly ice-free in September, for instance, or, according to one recent study, global vegetation that is too saturated to act as a reliable “sink”, leading to more carbon being emitted rather than stored. Once this happens, any hope of predicting impacts pretty much goes out the window. And this process may be starting sooner than anyone predicted. In May 2014, NASA and the University of California, Irvine scientists revealed that glacier melt in a section of West Antarctica roughly the size of France now “appears unstoppable.” This likely spells down for the entire West Antarctic ice sheet, which according to lead study author Eric Rignot “comes with a sea level rise between three and five metres. Such an event will displace millions of people worldwide.” The disintegration, however, could unfold over centuries and there is still time for emission reductions to slow down the process and prevent the worst. ¶ Much more frightening than any of this is the fact that plenty of mainstream analysts think that on our current emissions trajectory, we are headed for even more than 4 degrees of warming. In 2011, the usually staid International Energy Agency (IEA) issued a report predicting that we are actually on track for 6 degrees Celsius—10.8 degrees Fahrenheit—of warming. And as the IEA’s chief economist put it: “Everybody, even the school children, knows that this will have catastrophic implications for all of us.” (The evidence indicates that 6 degrees of warming is likely to set in motion several major tipping points—not only slower ones such as the aforementioned breakdown of the West Antarctic ice sheet, but possibly more abrupt ones, like massive releases of methane from Arctic permafrost.) The accounting giant PricewaterhouseCoopers as also published a report warning businesses that we are headed for “4-C , or even 6-C” of warming.¶ These various projections are the equivalent of every alarm in your house going off simultaneously. And then every alarm on your street going off as well, one by one by one. They mean, quite simply, that climate change has become an existential crisis for the human species. The only historical precedent for a crisis of this depth and scale was the Cold War fear that we were headed toward nuclear holocaust, which would have made much of the planet uninhabitable. But that was (and remains) a threat; a slim possibility, should geopolitics spiral out of control. The vast majority of nuclear scientists never told us that we were almost certainly going to put our civilization in peril if we kept going about our daily lives as usual, doing exactly what we were already going, which is what climate scientists have been telling us for years. ¶ As the Ohio State University climatologist Lonnie G. Thompson, a world-renowned specialist on glacier melt, explained in 2010, “Climatologists, like other scientists, tend to be a stolid group. We are not given to theatrical rantings about falling skies. Most of us are far more comfortable in our laboratories or gathering data in the field than we are giving interviews to journalists or speaking before Congressional committees. When then are climatologists speaking out about the dangers of global warming? The answer is that virtually all of us are now convinced that global warming poses a clear and present danger to civilization.”

#### Nuke war causes extinction

Edwards 17 [(Paul N. Edwards, CISAC’s William J. Perry Fellow in International Security at Stanford’s Freeman Spogli Institute for International Studies. Being interviewed by EarthSky/card is only parts of the interview directly from Paul Edwards.) “How nuclear war would affect Earth’s climate,” EarthSky, September 8, 2017, earthsky.org/human-world/how-nuclear-war-would-affect-earths-climate] TDI

We are not talking enough about the climatic effects of nuclear war. The “nuclear winter” theory of the mid-1980s played a significant role in the arms reductions of that period. But with the collapse of the Soviet Union and the reduction of U.S. and Russian nuclear arsenals, this aspect of nuclear war has faded from view. That’s not good. In the mid-2000s, climate scientists such as Alan Robock (Rutgers) took another look at nuclear winter theory. This time around, they used much-improved and much more detailed climate models than those available 20 years earlier. They also tested the potential effects of smaller nuclear exchanges. The result: an exchange involving just 50 nuclear weapons — the kind of thing we might see in an India-Pakistan war, for example — could loft 5 billion kilograms of smoke, soot and dust high into the stratosphere. That’s enough to cool the entire planet by about 2 degrees Fahrenheit (1.25 degrees Celsius) — about where we were during the Little Ice Age of the 17th century. Growing seasons could be shortened enough to create really significant food shortages. So the climatic effects of even a relatively small nuclear war would be planet-wide. What about a larger-scale conflict? A U.S.-Russia war currently seems unlikely, but if it were to occur, hundreds or even thousands of nuclear weapons might be launched. The climatic consequences would be catastrophic: global average temperatures would drop as much as 12 degrees Fahrenheit (7 degrees Celsius) for up to several years — temperatures last seen during the great ice ages. Meanwhile, smoke and dust circulating in the stratosphere would darken the atmosphere enough to inhibit photosynthesis, causing disastrous crop failures, widespread famine and massive ecological disruption. The effect would be similar to that of the giant meteor believed to be responsible for the extinction of the dinosaurs. This time, we would be the dinosaurs. Many people are concerned about North Korea’s advancing missile capabilities. Is nuclear war likely in your opinion? At this writing, I think we are closer to a nuclear war than we have been since the early 1960s. In the North Korea case, both Kim Jong-un and President Trump are bullies inclined to escalate confrontations. President Trump lacks impulse control, and there are precious few checks on his ability to initiate a nuclear strike. We have to hope that our generals, both inside and outside the White House, can rein him in. North Korea would most certainly “lose” a nuclear war with the United States. But many millions would die, including hundreds of thousands of Americans currently living in South Korea and Japan (probable North Korean targets). Such vast damage would be wrought in Korea, Japan and Pacific island territories (such as Guam) that any “victory” wouldn’t deserve the name. Not only would that region be left with horrible suffering amongst the survivors; it would also immediately face famine and rampant disease. Radioactive fallout from such a war would spread around the world, including to the U.S. It has been more than 70 years since the last time a nuclear bomb was used in warfare. What would be the effects on the environment and on human health today? To my knowledge, most of the changes in nuclear weapons technology since the 1950s have focused on making them smaller and lighter, and making delivery systems more accurate, rather than on changing their effects on the environment or on human health. So-called “battlefield” weapons with lower explosive yields are part of some arsenals now — but it’s quite unlikely that any exchange between two nuclear powers would stay limited to these smaller, less destructive bombs.

#### Specifically, India—Mercury Retrograde creates an opportune stock market—predictable volatility is key to hugely profitable returns. Mahendra et al 20

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Introduction The standard financial models of rational behavior and profit maximization are realistic within the definite boundaries, and the standard model is considered incomplete as it does not considers investor behavior (Olsen 1998). Behavioral finance contradicts the basic theory of standard finance based on certain behavioral factors and theories that affect investors’ behavior. These factors include: Overconfidence, Herding behavior, Loss aversion, Representativeness, Anchoring, Cognitive dissonance, Mental accounting. The behavioral factors influence investors decision-making process which in turn affects financial market by means of cumulative effects of investors over or under reaction to certain news or event leading to the price change in the underlined security (De Bondt and Thaler 1994). It is evident that family members, friends, and peer group influence the investment decision of investors (Caparrelli et al. 2004), the retail investors, mutual fund managers and institutional investors exert herding behavior (Grinblatt et al. 2017; Wermers 1999) that forms momentum trade based upon the perception of the group in connection to the followed culture, belief, news or event. It was found that institutional herding impacts stock prices to a greater strength to that of individual herding (Nofsinger and Sias 1999). Culture is explained as “transmission from one generation to the next, via teaching and imitation of knowledge, values, and other factors that influence behavior.” (Boyd and Richerson 1985). The “differences in the societal organization of the two trading societies can be consistently accounted for as reflecting diverse cultural beliefs” (Grief 2002). In a society, mass belief of certain phenomenon among investors can influence investment decision of investors and affect the price trend significantly. In the Indian scenario, values and traditions are taught to one since childhood and it becomes a practice to follow certain Vedic astrological phenomenon like planning important event based upon ‘shubh muhurat’ i.e. auspicious timing or avoiding such believed inauspicious period. This belief is not limited to non-financial activities but also plays a decisive role in framing financial decisions. One such largely believed phenomenon that is said to have financial implication is the retrogratory period of different planets. The retrogratory period of various planets are primarily valued in Vedic astrology as they imprint the unusual impact on human behavior, one such planet is mercury whose retrogratory period incite the element of confusion and miscommunication in human behavior. Thus, implying that during the Mercury retrograde period, the investment decision of investors tends to be irrational, inefficient, and marked with the state of dilemma. Such irrational and inefficient investment decisions lead to a surge in the risk attached to the investment decision. Consequently, it traces the presence of high volatility in market returns. The Indian culture is regarded as the mother of all other cultures (Basham 1982), also, stands firm as the best example of a cultural mix and is regarded as home, where the traditional values of different cultures are believed upon and practiced over generations. Since ancient times, astrology has always been focal, dangling between the mythical tales and fascinating facts that captivated the attention of researchers and scientist of the ancient and modern era. Astronomy and astrology have been two inseparable fields of study where astronomy gave us a glimpse of physical aspect of the universe and astrology explained the relation of existent celestial bodies in the universe to that of the earth and humans. In the present era, astrology is regarded as pseudoscience, but before the seventeenth century, it was studied as science in parallel to astronomy (Gauquelin 1969). In Indian Vedic astrology, the knowledge of astrology is often referred to as ‘Jyoti- sha’ in Sanskrit and is one of the six disciplines of ‘Vedanga’ which is a part of the Hindu system of astrology. Astrology is a medium that can be used to create meaning and helps to cope with daily life events (Mayer 1977), working on the same ground, the expanding roots of financial astrology attempts to fill the gap of astrology and finance by enacting astrological phenomena into the field of finance and economics. Financial astrology sometimes is interchangeably known as astro-economics that involves the study and application of knowledge of astrology to that of economic events, i.e. relating the events substantially significant with the perspective of astrology like the movement of celestial bodies, lunar eclipse, solar eclipse, retrograde movement of planets, etc., with that of occurrence of events in the financial sector or market. The planets which are considered crucial to judge the influence of financial astrology are Jupiter, Saturn, and Mercury in parallel with the ‘Chhaya Grah,’ i.e. ‘Rahu’ and ‘Ketu.’ The distinct events occurring in the outer world like the solar and lunar cycle, eclipse and the movement of different celestial bodies hold significance in Vedic astrology and signify happening of unique event or trait of human life. Further, the retrograde movement of the planet is an optical illusion created, where a planet seems to move backwards in its orbit, which is opposite to its usual or defined path, while the non-retrograde movement is referred as the direct period. Mercury, during its retrograde period, marks the presence of confusion and miscommunication among masses; thus, plays a decisive role to shape the investment behavior of investors, tending them to exhibit irrational behavior. The irrational behavior deepens the gap for research to fabricate an anomaly-based trading strategy that can serve individual and nvestors to reap profits in the short term.

#### Indian Astrology fosters compounded growth through targeted investments. Mahendra et al 2

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Conclusion

The social and economic interactions create varied moldings of value system acting as an escape for individuals to articulate moral reasoning for their irrational behavior through cognitive dissonance (Himes 1950). In addition, the cultural factors may affect the information processing by individuals across countries influencing investment decision (Chui and Titman 2010). The Vedic astrology has deep roots in India and the mass believe that various astrological phenomenon affects their daily life events, and this belief in astrology affects their financial decision-making process. Our study examines the impact of one such astrological phenomena which asserts that the retrogratory movement of mercury creates a situation of confusion and miscommunication among people tending them to make irrational investment decisions, which are consequently affecting Nifty50 and BSE Sensex market returns and volatility. The study evidence conclusive results to demonstrate the positive impact of retrograde mercury period on nifty50 returns creating an anomaly and space for the abnormal profit in the market. The asymmetric leverage with negative coefficients implies that the negative news impacts the market sentiments to a greater extent to that of the positive news. Although, the findings of this study are contrary to the previous studies analyzing impact of Mercury retrograde movement on different stock indices (Murgea 2016; Thach and Diep 2018), despite this, the study highlights the influence of cultural factors in framing behavioral bias and serves to underscore the importance of the cultural belief and practices of investors in financial decision making process and highlights the behavioral bias in their investment decisions.

grip on the semiautonomous region of Hong Kong; menaced Taiwan; and sunk a Vietnamese fishing boat in the South China Sea.

#### Economic collapse ensures Modi puts all his eggs in the nationalist basket - the COVID blame won’t save him again.

Gupta 21 (, S., 2021. It isn't the economy, genius. India proves it by voting for Modi again and again. [online] ThePrint. Available at: <https://theprint.in/national-interest/it-isnt-the-economy-genius-india-proves-it-by-voting-for-modi-again-and-again/633329/> [Accessed 25 October 2021] Shekhar Gupta is an Indian journalist and author. He is the founder and the current editor-in-chief of ThePrint. He is also a columnist for the Business Standard and pens a weekly column which appears every Saturday. He has had long stints at The Indian Express and India Today. Shekhar Gupta has received assorted awards: the 1985 Inlaks award for young journalist of the year,[10] G. K. Reddy Award for Journalism,[11] and the Fakhruddin Ali Ahmed Memorial Award for National Integration.[12] He was awarded Padma Bhushan by the then UPA Government in 2009 for his contribution to journalism.[13] Under his leadership, The Indian Express won the Vienna-based International Press Institute's Award for Outstanding Journalism in the Public Interest thrice: The first time for its coverage of the Gujarat riots of 2002, the second time for uncovering the Bihar flood relief scam in 2009 and the third time for its sustained investigation into the Malegaon and Modasa blasts of 2008 and the alleged role of extremists and organisations.[14].)-rahulpenu

It isn’t the economy, genius. India proves it by voting for Modi again and again Flurry of economic reform suggests Modi realises his muscular nationalism script is getting jaded. Chances are he'll try for economic recovery but stick to what's worked. In his 1992 presidential campaign, Bill Clinton immortalised the line, “It’s the economy, stupid”. Does this work in Narendra Modi’s India? In election after election, across democracies in the world, the line has been repeated. The transnational appeal of the idea was also understandable because James Carville, the famous political “consultant” who coined it for Clinton, also advised dozens of leaders across the world. A kind of globalised, American Prashant Kishor. And, whatever the language or idiom, the logic passed the test of time. Or it did, until lately. For almost a quarter century, a leader who promised or delivered a better economy won, or was re-elected. In 2016, this was the promise that brought Donald Trump to power, as also Modi in 2014. But that seems to have changed worldwide now. Let’s look at India. After Modi’s first two years, the economy has stalled, and then declined. The stall began with demonetisation in 2016-17. Lately, India has had at least 7 out of 8 quarters of growth decline. Negative growth is rightly blamed on the pandemic, but it isn’t as if this patient was in the pink of health before the virus struck. On almost every economic and even social indicator, India has been posting a decline. It shows in our crashing rankings on all key global indices. Now, we know that Modi won power in 2014 on the promise of massive economic growth, jobs and development on the ‘**Gujarat** **Model’**. But barring, say, the first 24 months to some extent, he has **never** **delivered** on that promise. If the concept of “It’s the economy, stupid” worked, he should not have swept the Uttar Pradesh elections of 2017. By that time, demonetisation had already deflated India’s economy; job losses, and trade, rural and farmer distress had set in. It didn’t bother anybody but his hapless opposition and marginalised editorialists like us. By the summer of 2019, our economy had already been in a tailspin. Worse, joblessness was already reaching a high that would be alarming in a democracy. Some of the data was so embarrassing that the Modi government had to either hide it, rewrite it, or change the formula and produce friendlier data, as on GDP numbers. Every economic indicator had gone wrong except one: Inflation. And yet, Modi returned with a larger majority in that election. It is still exactly a month before we will know what the voters decide in these five assembly elections. The numbers obviously won’t be what Amit Shah is counting after each phase in West Bengal. But whatever these are, one thing they won’t reflect is the state of India’s economy. It will be the first year of **negative** — double-digit negative — **growth** in our independent history. And while this **may** be **blamed** **on** the **pandemic**, it destroyed so many lives, jobs and savings because it came on top of three lousy years. **In** **normal** **politics**, this **would** **have** **made** these **elections** a **walkover** **for** the **opposition**. They will be anything but that. Which will make us question that 1992 Clintonism. So, what is it that works for Modi, if not the economy? Or, how does he keep winning in spite of the economy? The fact is, it isn’t an India-specific phenomenon. Donald Trump, whatever else was wrong with him, lost in spite of the economy being in a pretty good place. It helped him retain and increase his voters. But other considerations weighed on the minds of a larger number of voters. The issues of identity, colour and class, and the virus, for example. Biden’s promise wasn’t an economic boom. At the other extreme is the Putin phenomenon. In fact, this week’s National Interest was sparked by this Ruchir Sharma column in the FT, where he talks about how Putin has not only made Russia sanctions-proof, but continues to keep winning despite insignificant economic growth. We record all the qualifications on Russia’s electoral process — ours still is much cleaner in spite of some vote-filled EVMs hitching a ride in a candidate’s car in Assam. Yet, there is no denying that he’s widely popular and will win a fairer election as well. How is he able to do this without growth? Putin is **riding** the **deep** **insecurities** **of** a **people** **scarred** **by** much **instability**, political and economic, **preceding** **his** **rise**. For them, therefore, **stability** becomes the **first** **priority**. The economy can wait. If we were to build on this, **stability** **brings** **nationalistic** **self**-**esteem**. Putin fought off many separatist or religiously inspired forces, insurgency and terrorism, “taught the upstart Ukrainians a lesson” by grabbing Crimea, stood up to America, and probably even played it in the Trump period. Under him, Russia is back to being a power that enough of the world still holds in awe. How does it matter that its economy has shrunk relative to the rest? Even compared to the emerging markets. For comparison, it is just about **60** **per** **cent** **of** **India**’s at $1.7 trillion (in 2019), **with** **no** **hope** **of** **catching** **up**. **But**, **if** the **nation** **is** **together**, **can** **punch** **above** its **economic** **weight** in its neighbourhood and in the global balance of power, it is because of stability and leadership. The economy is about my self-interest. I can sacrifice it for some time. **Apply** **the** **same** **parallel** **to** **India**. By 2014, **India** still **had** the **scars** **of** 20**08** (26/11) and much **terrorism** that **preceded** **and** **followed** it, going right back to the early Vajpayee years. It was like **two** **decades** **of** **humiliation** with a much weaker neighbour hurting us often, at will. All India would do, from Vajpayee to Manmohan Singh, was to go complaining to America and the rest. On top of it, we had a prime minister so weakened by his own party that he had been reduced to a caricature of that high office. Plus, the discourse across the board was all about corruption from the opposition, and inequality even by the ruling party. Between 2003 and 2009, India had built enormous pride and optimism with a booming economy. That optimism brought the UPA back to power. In the following years, it was fully reversed. It was an incredible election where the ruling party also campaigned complaining about inequality and poverty instead of its economic successes. For the Modi proposition, if the promise of taking the ‘**Gujarat** **Model’** nationwide **was** **the** **engine**, this widespread negativity provided a 200-knot tailwind. Through these seven years, he’s mostly failed to deliver on the first promise, the economy. **But**, on the second, **national** **pride**, **standing** **up** **to** **terrorism** from the neighbourhood, on **restoring** the **majesty** **of** **the** prime minister’s **office**, **he** **scores** 10 upon 10. May be even **11** **upon** **10**. Remember, we are only talking about his voters. The belated flurry of **economic** **reform** would **suggest** **Modi** has **figured** that **his** **script** **is** getting **jaded** **and** that he **needs** **a new one**. He will try for an economic recovery but still **stick** **to** **what** **has** **worked** for him so far: The three-pronged offering of massive, efficient welfarism for the poorest; hard, visible infrastructure-building; and harder, cast-in-Hindutva **nationalism**. The engines of the economy, left to idle for long, take time gathering pace. It is likely that India will get a great year anyway on the back of a terrible one. Some equivalent of the stock markets’ dead cat bounce will come in. The larger, more widespread economic gains take time. They also, inevitably, increase inequality first. Usually, it’s some successor who will benefit from this. So, can’t count on it. **Modi** **gets** **this**. The question is, do his challengers get it? Much of their attack is still over economic distress under Modi. Two large areas, **identity** (which includes religion and culture) **and** **national** **pride**, they’ve **ceded** **to** **him** altogether. Check out the Congress and Left parties’ flip-flop on Sabarimala to understand the point on identity. Or the manner of questioning over Uri, Balakot and Galwan. These **underline** their faltering on **nationalism**. **Economic** **distress** **brings** **insecurity**, **but** it **isn’t** a **fraction** **of** **the** **visceral** **emotion** a **perceived** **threat** **to** **identity** **or** **national** **pride** **brings**. This is why demagogues across the democratic world keep winning. The reason we’d prefer to say at this point: It isn’t the economy, genius.

#### Greenlights diversionary war - overwhelming evidence.

Humayun et al. 20 (, F., Walt, Quinn, Tatar, Katerji, Crabtree, Agrawal, Maqsood, Walt, Gao and Moody, 2020. After India’s Skirmish With China, Is Pakistan Next?. [online] Foreign Policy. Available at: <https://foreignpolicy.com/2020/06/29/india-skirmish-china-modi-pick-fight-pakistan/> [Accessed 25 October 2021] Yale University, Ph.D., Political Science 2022 Dissertation: “Democratic Institutions & International Crisis Behaviour” Committee: Steven I. Wilkinson (Yale), Alexandre Debs (Yale), Vipin Narang (MIT) Yale University, M.A., Political Science 2019 University of Cambridge, M.Phil, International Relations 2013 London School of Economics, B.Sc, International Relations & History 2011. Research is supported by the MacMillan Center for International and Area Studies, the Yale South Asian Studies Council, and International Security Studies at Yale)-rahulpenu

After India’s Skirmish With China, Is Pakistan Next? **Looking** **to** **reinvigorate** **support** at home, **Modi** could **pick** a **fight** **with** his country’s **traditional** **enemy**. The worst border skirmish between India and China in the Himalayas in decades has abated for now, but the **potential** **for** **crisis** still **looms** **large** **over** a **nuclear**-**armed** **South** **Asia**. Last week, India announced it was formally downgrading relations with its other adversary and neighbor, Pakistan, by reducing the staff at its High Commission by 50 percent. The last time India asked for a similar reduction of embassy staff was in 2001, following an attack on the Indian Parliament. Bilateral ties between the two states have been shunted since New Delhi unilaterally revoked the special status of the disputed territory of Jammu and Kashmir on Aug. 5, 2019, and intensified a heavy-handed crackdown in the valley. So what exactly does the dust-up with China have to do with Pakistan’s relationship with India? In short, there are five reasons why this month’s Himalayan standoff increases the likelihood of a fresh India-Pakistan crisis. First: India’s muted response to China in the aftermath of the Galwan Valley skirmish has raised difficult logistical questions and reputational concerns about New Delhi’s much-touted role as counterweight to China in the Indo-Pacific. Although New Delhi adopted a position of nonalignment for much of the Cold War, its potential as a regional diplomatic and military bulwark against a rising China took on new significance after U.S. President George W. Bush sought to enlist it as a strategic partner and approved the sale of U.S. nuclear technology to the country. More recently, New Delhi and Washington announced an expanded defense partnership, including $3 billion in arms sales. Yet hostile encounters with China in both 2017 and again this year have underscored for Indian policymakers the need to get along with Beijing if only to sustain a mutually feasible cohabitation; informal summits such as those in 2018 and 2019 were driven by this strategic necessity. In the aftermath of the most recent crisis, corps commander-level talks and diplomatic negotiations between Beijing and New Delhi mean India is likely to prioritize a minimum-working engagement with China over an unambiguous geopolitical rivalry that would come with fully partnering with the United States. Meanwhile, the political compulsion to demonstrate military capability—especially in the face of a conventional balance of forces that has shifted in China’s favor—may impel India to look elsewhere to offset suggestions of strategic impotency. If military capabilities drive policy choices, then the theater with Pakistan is a suitable foil for perceived Indian weaknesses compared to China. Second, since coming to power in 2014, Indian Prime Minister Narendra **Modi** has **demonstrated** both a **willingness** **and** a **capability** **to** **deliver** **on** **nationalistic** **pledges** at home, **especially** **when** his government’s **ability** **to** **deliver** **on** the **economic** **front** has **hit** **snags**. Although India has seen its GDP growth fall to its lowest rate in the last 11 years, Modi’s Bharatiya Janata Party (BJP) has sought to **consolidate** its political **base** **by** **doubling** **down** on its **nationalist**ic pledges—from revoking the special status for Jammu and Kashmir (disputed between India and Pakistan since 1947) to building a Hindu temple to the god Ram on a disputed holy site where the Babri Masjid once stood. Research shows that **leaders** looking to **divert** **attention** tend to **target** **traditional** **enemies** and enduring rivals (as conflict against such persistent adversaries is most likely to promote in-group solidarity), and **diversionary** **conflicts** are particularly **likely** to **take** the **form** **of** **territorial** **disputes**. Since the controversial measures in Kashmir last year, India’s politicians have systematically upped the bilateral ante with Pakistan by declaring intent to “secure” the Pakistani administrative areas of Azad Kashmir and Gilgit-Baltistan. Earlier this year, India’s new Army chief said the Indian Army was “**ready** **to** **seize** **control**” of Pakistan-administered Kashmir if directed by the Indian government; the same month, **Modi** **said** India needed **seven** **to** **10** **days** **to** **defeat** **Pakistan** **in** **war**. Two weeks ago, India’s defense minister reiterated that taking Pakistani Kashmir was now a “stated goal of India’s Parliament.” **Ordinarily**, **such** **statements** **might** **be** **put** **down** to cheap talk—**except**, **in** **this** **case**, the **BJP’s** own track **record** of **follow**-**through** **suggests** these **threats** should be **taken** **seriously**. Operationally, the Indian **Army** has **begun** to **set** **up** **artillery** **strikes** deep into Kashmiri villages to launch **long**-**distance** **fire** into Pakistan-administered territory. In May, after months of deliberation, the India Meteorological Department began to list several areas on the Pakistani side of the border, in its own internal weather reports—an unprecedented development. Third, while tempers and temperatures arguably cool on the Sino-Indian front, memories of a short but tense air duel between India and Pakistan last February are still fresh in both Islamabad and New Delhi. While Pakistan shot down an aging, Soviet-era Indian MiG-21 Bison and captured and returned an Indian pilot in the dogfight, India claimed it had downed a Pakistani F-16. The air duel over Kashmir quickly escalated into a war of narratives: Pakistan rejected India’s allegations and asserted it had lost no jets. In the days after the dogfight, the New York Times ran a story about the implications of India losing a plane to a country whose military was half the size and received a quarter of the funding. India’s right-wing Shiv Sena has since called for more “**surgical** **strikes**” on Pakistan to consolidate the BJP’s grip on Kashmir. Furthermore, when Indian papers ran headlines of India having killed “300-400 terrorists” in an airstrike on Balakot last February, Pakistan countered that the targets had been “little more than rocks and trees.” Since last year, India’s opposition too has on various occasion taken swipes at Modi for the Balakot episode; pollsters meanwhile have disputed the extent to which the Balakot strikes actually buoyed the BJP in its 2019 electoral victory. The “decider’s dilemma” for Modi is that the **unfinished** **business** from the Balakot standoff needs a less ambiguous final chapter, short of which the BJP risks being domestically perceived as having backed away prematurely from a weaker enemy. This leads to a fourth and crucial point: Successive **regional** **crises** **under** the **BJP** mean that the domestic costs for India’s leaders to not be seen as backing down against external adversaries are growing, not diminishing. In the standoff with China, losses incurred by the Indian Army have been a shot in the arm for India’s opposition politicians, who have been quick to condemn the BJP for its lack of preparation and in some cases for surrendering entirely. **Conflict** **with** **Pakistan** could be a **much**-**needed** **salve** **for** a **disheartened** Indian **media** that is largely controlled by the Indian ruling party: According to analysis conducted after an attack on a military convoy in Kashmir last February, **Modi** got **near**-**total** media **coverage** despite energetic campaigning by India’s opposition at the same time. Bringing up the threat of a salient out-group could help the BJP reenergize its patriotic and supportive base and paper over divisions in its coalition. A final factor that explains why the China-India **standoff** may **spill** **over** **into** **tensions** with Pakistan has to do with the White House’s current occupant: President Donald Trump. Proponents of a strong Indo-U.S. relationship have lobbied hard to present a positive image of bilateral ties, buoyed largely by symbolic spectacles. On the critical economic front leading up to the COVID-19 crisis, however, both the Indian economy and U.S.-Indian economic relations were on a downward trajectory. Trump has at least thrice offered to mediate the India-Pakistan conflict over Kashmir, the highest U.S. official to do so since President Bill Clinton after the two sides fought a short war over Kargil. New Delhi has traditionally been allergic to the idea of third-party mediation, referring to the 1972 Simla Agreement between India and Pakistan under which both sides agreed to bilaterally resolve outstanding disputes. Ironically, the same Simla Agreement also held that neither party would unilaterally alter the situation in Jammu and Kashmir—a position India itself compromised by revoking Kashmir’s special status last August. Ties between the United States and Pakistan, meanwhile, have seen a steadying in recent years, in part because of Pakistan’s facilitation in helping the United States reach a truce with the Taliban in Afghanistan. The absence of guaranteed validation from Washington on New Delhi’s position toward Pakistan thus makes India less, not more, secure and likely more convinced that it will need to rely on its own strength and power to clearly delineate its territorial and political interests for the foreseeable future. While an India-Pakistan crisis so soon after India’s standoff with China is by no means a forgone conclusion, current trends suggests it could. In the past, **troubled** **leaders** have rationally **pursued** risky, **high**-**variance** **strategies** of **initiating** another **conflict** to gloss over the failings of earlier scrambles. With the domestic and regional environment ripe for the taking, South Asia’s next crisis may happen **sooner than we expect.**

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#### Indian leadership’s under-appreciated---their gradualist strategy accounts for alt-causes but sustained economic growth is key.

Dhruva Jaishankar 19, Director of the US Initiative at the Observer Research Foundation, 10/5/19, “On climate, connectivity, maritime security, India is reshaping the world order,” https://www.orfonline.org/research/on-climate-connectivity-maritime-security-india-is-reshaping-the-world-order-56189/

Currently, the major centres of world power are self-absorbed. The United States (US) is preoccupied with the possibility of President Donald Trump’s impeachment by the House of Representatives. The United Kingdom is in the throes of deliberating its withdrawal from the European Union, with implications for the rest of that 28-country bloc. China continues to witness demonstrations in Hong Kong, while experiencing the adverse effects of massive tariffs by the US.

Amid these developments, questions are being raised about India’s role in international affairs. Where does India stand on supporting or opposing what has, in recent years, been a US-led international order? Is India willing, and able, to assume a leadership position of its own, at least on certain issues and in certain areas?

At the outset, it should be clear that Indians, by and large, do not view a US-led international order with the nostalgia of many Americans or Europeans. The Cold War was a trying time for India, and even when it was in the right — as on disarmament, decolonisation, or managing rivalries — it often lacked the power to impose its will upon the world. For India, the Cold War era was defined by divisions, hunger, warfare, and nuclear isolation, often enabled or encouraged by the world’s leading powers.

A much stronger case can be made in favour of New Delhi supporting a post-1991 international order. India was arguably one of the top beneficiaries (along with China and the US) of the post-Cold War system, which coincided with India’s initial economic liberalisation. Indian opportunities for growth and development widened and its security increased. However, the changing distribution of power in India’s favour contrasted with the intransigence of important global institutions. It is naturally frustrating from New Delhi’s perspective that the global governance of security, international economics, and technology is still based on antiquated organisations that serve vested interests.

These realities — the shifts in world power coming into conflict with anachronistic institutions — provide the context for Indian engagement with world affairs today. Hints of the kind of international order that India seeks are apparent in several developments over the past few years. Consider three examples.

The first relates to climate change. India was often portrayed as a reluctant actor by the West in committing to a global climate agreement, as in Copenhagen in 2009, even when its per capita emissions were only a fraction of the West’s. But the situation has changed dramatically. Today, it is the US that has unilaterally withdrawn from the Paris Climate Treaty. India has responded by doubling down on its commitment to sustainable development. Not only has India shown leadership through initiatives such as the International Solar Alliance, but it has made commitments at home. The Climate Action Tracker — an independent assessment of climate commitments of countries — rates Europe’s actions as insufficient, China’s and Japan’s as highly insufficient, and US and Russian measures as critically insufficient. India is among only a handful of countries whose measures are rated satisfactorily.

A second example of Indian leadership relates to connectivity. In 2017, when every major country — including the United States, Japan, and most Europeans — sent representatives to China’s Belt and Road Forum, India decided not to participate. Instead, it articulated a set of normative principles for connectivity. These included the sustainability of financing, employment, and the environment; greater transparency; and respect for sovereignty. Today, these principles have formed the basis for norms laid out by several others, including the US, Europe, and Japan. India could certainly do more to elaborate on and assess these values, and work with others to enforce them. But New Delhi was ahead of the curve in anticipating the resulting challenges.

A third example of Indian leadership relates to maritime security, where action has been most pronounced, particularly in the Indian Ocean. Over the past several years, India has increased its naval patrols; improved its logistics network from East Africa to the Gulf to South-east Asia; enhanced its ability to monitor maritime traffic; invested in military infrastructure and maritime assistance to less capable states; and elevated interoperability and information-sharing with key partners.

These signs of Indian leadership are indicative of India’s broader world view when it comes to global affairs, even if they are not always well appreciated either in India or elsewhere.

Of course, many obstacles to Indian leadership remain, and they mostly arise from within. Economic growth and the prosperity of one’s population offer the basic foundations of international power, and the recent growth figures for India have been underwhelming. The amendment of Article 370 and its implications for Jammu and Kashmir have generated urgent new priorities. Resource and capacity constraints persist inside and outside government, requiring any progress to be gradual and ambitions to remain in line with capabilities. Nevertheless, it should be clear from recent developments that India is not just sitting on its hands as the world turns.

### 1AC—Plan

#### Resolved: States ought to prohibit the appropriation of Low Earth Orbit by private entities.

#### A] Normal means is ratification of the Moon Treaty

**Mallick and Rajagopalan 19** ~~[(Senjuti Mallick, graduated from ILS Law College, Pune, in 2016. She was a Law Researcher at the High Court of Delhi from 2016 to 2018 and is currently pursuing LL.M in International Law at The Fletcher School of Law and Diplomacy, USA. She has been doing research on Outer Space Law since she was a student at ILS. Presently, she is working on different aspects of Space Law, in particular, Space debris mitigation and removal, and the law of the commons. She has published articles on Space Law in the All India Reporter Law Journal and The Hindu.)( Dr Rajeswari (Raji) Pillai Rajagopalan is the Director of the Centre for Security, Strategy and Technology (CSST) at the Observer Research Foundation, New Delhi.  Dr Rajagopalan was the Technical Advisor to the United Nations Group of Governmental Experts (GGE) on Prevention of Arms Race in Outer Space (PAROS) (July 2018-July 2019).  She was also a Non-Resident Indo-Pacific Fellow at the Perth USAsia Centre from April-December 2020.  As a senior Asia defence writer for The Diplomat, she writes a weekly column on Asian strategic issues.) "If space is ‘the province of mankind’, who owns its resources?" Occasional Papers, January 24, 2019, https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/~~] TDI   
A third possible option is to get a larger global endorsement of the Moon Treaty, which highlights the common heritage of mankind. The Moon Treaty is important as it addresses a "loophole" of the OST "by banning any ownership of any extraterrestrial property by any organization or private person, unless that organization is international and governmental."[~~[lxiv~~]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn64) But the fact that it has been endorsed only by a handful of countries makes it a "failure" from the international law perspective.[~~[lxv~~]](https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/#_edn65) Nevertheless, efforts must be made to strengthen the support base for the Moon Agreement given the potential pitfalls of resource extraction and space mining activities in outer space. Signatories to the Moon Treaty can take the lead within multilateral platforms such as the UN to debate the usefulness of the treaty in the changed context of technological advancements and new geopolitical dynamics, and potentially find compromises where there are disagreements.

#### B] Unjust means unlawfully receiving something of value to which one is not entitled

Waters 98 [H. FRANKLIN WATERS, Senior District Judge. Colonia Ins. Co. v. City Nat. Bank, 13 F. Supp. 2d 891 - Dist. Court, WD Arkansas 1998] TDI \*\*bracketed for gendered violence

3. Unjust Enrichment

Plaintiffs allege in the amended complaint that Coleman has been unjustly enriched by all amounts he received from Welch and AGA. "To find unjust enrichment, a party must have received something of value, to which he [one] was not entitled and which he must restore." Coleman's Serv. Ctr., Inc. v. F.D.I.C., 55 Ark.App. 275, 299, 935 S.W.2d 289, 302 (1996) (citing Dews v. Halliburton Indus., Inc., 288 Ark. 532, 536, 708 S.W.2d 67, 69 (1986)). "However, there must be some operative act, intent, or situation to make the enrichment unjust and compensable." Sparks Regional Medical Ctr. v. Blatt, 55 Ark.App. 311, 317, 935 S.W.2d 304, 306 (1996) (citation omitted). "One who is free from fault cannot be held to be unjustly enriched merely because he has chosen to exercise a legal or contract right." Id. (citation omitted).

Arkansas law is clear on the issue that in the realm of unjust enrichment, the word "unjust" means "unlawful." "One is not unjustly enriched by receipt of that to which he is legally entitled. \* \* \* No recovery of money received can be based upon unjust enrichment when the recipient can show a legal or equitable ground for keeping it." Halvorson v. Trout, 258 Ark. 397, 403, 527 S.W.2d 573, 577 (1975) (quoting Whitley v. Irwin, 250 Ark. 543, 550-51, 465 S.W.2d 906, 910-11 (1971)). See also, Jackson County Grain Drying Coop. v. Newport Wholesale Electric, Inc., 9 Ark.App. 41, 46, 652 S.W.2d 638, 640 (1983) (no one shall be allowed to unjustly enrich himself at the expense of another; the word "unjustly" means "unlawfully").

Coleman contends that because he was an employee of AGA, he was entitled to the money he received as remuneration for his services, and, as such, he was not unjustly enriched. The court believes that, based on the reasons set forth above, a genuine issue of material fact exists as to whether Coleman knew that the source of the money he received from Welch and AGA, especially the bonuses and gifts, was plaintiffs' premiums. Therefore, Coleman is not entitled to summary judgment on plaintiffs' unjust enrichment claim.

#### The plan clarifies customary law to ban private satellite mega-constellations that appropriate Low Earth Orbit and solves otherwise detrimental space debris.

Johnson 20 [Chris, Space Law Advisor for Secure World Foundation, 9 years of professional experience in international space law and policy. J.D. from New York Law School; 2020; “The Legal Status of MegaLEO Constellations and Concerns About Appropriation of Large Swaths of Earth Orbit,” <https://swfound.org/media/206951/johnson2020_referenceworkentry_thelegalstatusofmegaleoconstel.pdf>] brett

Yes, This Is Impermissible Appropriation

Article II of the Outer Space Treaty, discussed above, is clear on the point that the appropriation of outer space, including the appropriation of either void space or of celestial bodies, is an impermissible and prohibited action under international law. No means or methods of possession of outer space will legitimize the appropriation or ownership of outer space, or subsections thereof.

Excludes Others

The constellations above, because they seem to so overwhelmingly possess particular orbits through the use of multiple satellites to occupy orbital planes, and in a manner that precludes other actors from using those exact planes, constitute an appropriation of those orbits. While the access to outer space is nonrivalrous – in the sense that anyone with the technological capacity to launch space objects can therefore explore space – it is also true that orbits closer to Earth are unique, and when any actor utilizes that orbit to such an extent to these proposed constellations will, it means that other actors simply cannot go there.

To allow SpaceX, for example, to so overwhelmingly occupy a number of altitudes with so many of their spacecraft, essentially means that SpaceX will henceforth be the sole owner and user of that orbit (at least until their satellites are removed). No other actors can realistically expect to operate there until that time. No other operator would dare run the risk of possible collision with so many other spacecraft in that orbit. Consequently, the sole occupant will be SpaceX, and if “possession is 9/10th of the law,” then SpaceX appears to be the owner of that orbit.

Done Without Coordination

Additionally, SpaceX and other operators of megaconstellations are doing so without any real international conversation or agreement, which is especially egregious and transgressive of the norms of outer space. Compared to the regime for GSO, as administered by the ITU and national frequency administrators, Low Earth Orbit is essentially ungoverned, and SpaceX and others are attempting to seize this lack of authority to claim entire portions of LEO for itself; and before any international agreement, consensus, or even discussion is had. They are operating on a purely “first come, first served” basis that smacks of unilateralism, if not colonialism.

Governments Are Ultimately Implicated

As we know, under international space law, what a nongovernmental entity does, a State is responsible for. Article VI of the Outer Space Treaty requires that at least one State authorize and supervise its nongovernmental entities and assure their continuing compliance with international law. As such, the prohibition on nonappropriation imposed upon States under Article II of the Outer Space Treaty applies equally to nongovernmental private entities such as SpaceX.

Nevertheless, through the launching and bringing into use of the Starlink constellation, SpaceX will be the sole occupant, and thereby, possessor, both fact and in law, of 550 km, 1100 km, 1130 km, 1275 km, and 1325 km above our planet (or whatever orbits they finally come to occupy). The same is true for the other operators of these large constellations which will be solely occupying entire orbits.

Long-Term Occupation Constitutes Appropriation

These altitudes are additionally significant, as nonfunctional spacecraft in orbits lower than around 500 km will re-enter the Earth’s atmosphere in months or a few years, but the altitudes selected for the Starlink constellation, while technologically desirable for their purposes, also mean that any spacecraft which are not de-orbited from these regions may be there for decades, or possibly even hundreds of years. By comparison, the granting of rights for orbital slots at GSO is in 15-year increments, a length of time much less than what the altitudes of the megaconstellations threaten. Such long spans of time at these altitudes by these megaconstellations further bolster the contention that this occupation rises to the level of appropriation of these orbits.

Prevents Others from Using Space

Article I of the Outer Space Treaty establishes that the exploration and use of outer space is “the province of all mankind.” It further requires that this exploration and use shall be by all States “without discrimination of any kind, on a basis of equality and in accordance with international law...” However, when one private corporation so overwhelmingly possesses entire portions of outer space, their use is discriminatory to other potential users and interferes with their freedom to access, explore, and use outer space. So long as these actors are so dominantly possessing and occupying those orbits, their actions exclude others from using them. What other operator would dare use orbits where there are already hundreds of satellites operating as part of a constellation? It would be an extremely unwise and risky decision to try to share these orbits with a mega constellation, so they will likely choose other altitudes and orbits. This massive occupation of particular orbits effectively defeats others from enjoying the use of outer space. While a State can issue permits for one of its corporations allowing them to launch and operate satellites to this extent, that does not automatically mean that their activities in outer space, an area beyond national sovereignty, are therefore in perfect accordance with the strictures of international law. Indeed, national permissions offer no such guarantee.

No Due Regard for Others

That these megaconstellations violate the prohibition on appropriation in Article II is additionally supported by Article IX of the Outer Space Treaty. Article IX requires that in the exploration and use of outer space, States “shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space... with due regard to the corresponding interests of other States...” There is hardly any way to view this deployment of megaconstellations as showing any type of due regard to the corresponding interests of others. This lack of regard further supports the notion of their unilateral transgressive violations of the purposes of space law norms.

Harmful Contamination

The impacts of the spacecraft on the pressing issue of space debris need not be gone into detail here. Suffice it to say, megaconstellations threaten mega-debris. The failure rate of these comparatively cheap satellites should give pause, because if 5% of a constellation of 100 satellites fails, this is 5 guaranteed new pieces of debris intentionally introduced to the fragile space domain. Article IX of the Outer Space Treaty warns of harmful contamination of the space environment and requires States to take appropriate measures to prevent this harmful contamination. A responsible government could not, in all seriousness, permit the intentional release of such amounts of space debris, especially in the already fraught orbits that many megaconstellations are headed towards. While the threat of space debris is not directly relevant to the accusation of appropriation of outer space, it goes towards the argument that these actors are conducting activities in a manner lacking in regard to others, and in fact, amounts to excluding others from using the space domain. By excluding others, this has the effect of taking orbits for themselves, which IS occupation.

If This Isn’t Appropriation, Then What Is?

Arguing in the alternative, if these megaconstellations — in their dominant occupation of entire orbits in orbital planes with numerous satellites — could be considered (merely for the sake of argument) to not be appropriation, we must therefore ask: what would be appropriation? What use of void space, including orbits of the Earth, would constitute actual appropriation? What further, additional fact of these uses of space, if added to the scenario, would cause that constellation to cross over the line into clearly prohibited appropriation? Perhaps the exact same scenario, but supplemented with an actual, formal claim of sovereignty, issued by a government, is the only element which could be added to megaconstellations which would then cross the threshold into appropriation. However, a formal claim of sovereignty would be merely an act occurring on Earth and would not change any actual facts in the space domain. Consequently, the lack of a formal claim of sovereignty should not be the deciding criteria in arriving at the conclusion that megaconstellations constitute appropriation of orbits.

Conclusion

In conclusion, these megaconstellations effectively occupy entire orbital regions with their vast fleet of spacecraft and in so doing effectively preclude other actors from sharing those domains. They have done so, or are attempting to do so, without any international consensus or discussion, which is most egregious for a domain outside of State sovereignty and which no State can own. Governments will ultimately be responsible for this appropriation, and both are prohibited from appropriating space. In distinction to GSO, their permission to go there means that they could occupy these regions for incredibly long periods — which again shows their appropriation. These constellations significantly prevent others from using those regions, which therefore interferes with others’ right to explore and use space. And ultimately, this reckless ambition shows absolutely no due regard (as per Article IX) for the corresponding rights of others. As such, these megaconstellations constitute an impermissible appropriation of particular regions of outer space, regardless of any formal, official claim of such by a responsible, authorizing government.

#### The plan inaugurates a necessary international framework—establishing baseline legal limits preserves celestial observation. Resnick 20

Brian Resnick, a science reporter at Vox.com, covering social and behavioral sciences, space, medicine, the environment, and anything that makes you think "whoa that's cool." He is the co-creator of Unexplainable, a Vox podcast about unanswered questions in science. He serves as the show's science editor and senior reporter, shaping the editorial direction of the series. Before Vox, he was a staff correspondent at National Journal where he wrote two cover stories for the (now defunct) weekly print magazine, and reported on breaking news and politics. 1-7-2020, "The night sky is increasingly dystopian," Vox, https://www.vox.com/science-and-health/2020/1/7/21003272/space-x-starlink-astronomy-light-pollution, 12-29-2021//Aanya

Starlink and similar constellation satellites are different than many of the satellites in orbit in a way that makes them a nuisance to astronomy: They’re very close to Earth. If something is two times lower in orbit, Tyson explains, it’s four times brighter to us on the ground. Telescopes capture images of the sky with very sensitive cameras. The satellites are so bright, that they overexpose the cameras’ sensors. The effect is like taking an eraser to their images of the night sky, covering their images of the sky with tracts of unusable data. A zoomed-in look at Starlink tracks through Johnson’s observatory image. It’s like parts of the image have been erased. Along with his work at UC Davis, Tyson is the chief scientist at the Large Synoptic Survey Telescope, which was recently renamed the Vera Rubin Observatory. It’s an observatory under construction in Chile with a huge field of view: Its mirrors will be able to capture an area of the sky 40 times the size of the full moon, and spot objects 10 million times fainter than the human eye could see. Starting in 2023, the $500 million observatory will embark on a 10-year survey of the entire night sky. The project is called the Legacy Survey of Space and Time (LSST), which will show the universe in motion, and capture millions of stars evolving over time. But if there are tens of thousands of satellites in orbit, LSST’s unique view of the universe will be obscured. “There’ll be nowhere where you can take LSST and point it without having one of [the satellites] in the field of view,” Tyson told me in December. “We’re going to see a potentially revolutionary new view onto the transient universe, and instead we’re going to see a haze of streaks.” SpaceX says it has been working with the astronomy community, and the scientists at the Vera Rubin Observatory in particular, on mitigating the problem. (“Our level of brightness and visibility was a surprise to us,” Patricia Cooper, SpaceX’s vice president of satellite government affairs, told attendees of the recent American Astronomical Society meeting in January.) Their efforts are being recognized: “SpaceX is setting a very good precedent, I think, trying to do the right thing,” Beasley says. Tyson also believes that SpaceX is “committed to solving the problem” of interference with the Vera Rubin Observatory. In an experiment, SpaceX deployed a dark coating for the underside of one of its satellites on its previous launch to see if it will be less visible to telescopes. But it’s not guaranteed to work. And meanwhile, the company continues to launch more unaltered bright satellites into space. It’s not simple to just slap a coat of black paint on the satellites. Too dark, and the satellites will start to absorb excess heat, which could impact their functioning. It still unclear how dark SpaceX will ultimately go. The company is taking an iterative “trial and error” approach, as SpaceX president Gwynne Shotwell told reporters in December. Meanwhile, astronomers don’t have some mandated right to an unobstructed view of the night sky, and don’t have a forum to voice their complaints. I asked Tyson if astronomers are powerless in protecting their view on the night sky. “We’re definitely powerless,” he says. There are international protections for radio astronomy, but not optical The pessimism among astronomers is due to the fact that they have no legal — national or international — protections here. Simply put: “There are currently no regulations, rules, or guidelines of any sort dealing with the brightness of satellites,” Seitzer says. “Not at the international level, not at the national level anywhere.” Sure, SpaceX might be willing to work with the scientific community in reducing the brightness of their satellites. But another company, in another country, may not. To some, that’s an outrage. “The fact that one person, or one company, can take control and completely transform humans’ experience of the night sky, and not just humans, but every organism on Earth … that seems profoundly wrong,” Caitlin Casey, a University of Texas Austin astronomer says. There is some regulation here, administered in the United States by the FCC, and internationally by the UN’s International Telecommunication Union. But it mostly concerned with telecommunications, and decisions over who gets to use which parts of the electromagnetic spectrum, and for what (and also: making sure the satellites don’t crash into one another). They don’t regulate how the satellites look “We are aware from press articles that there have been some concerns raised about the effect of Starlink satellites on observations by astronomers at optical wavelengths,” Will Wiquist, an FCC spokesperson, says in an email. But also admits “this issue has not been raised in any FCC proceedings.” Casey does some of her work in radio astronomy. That’s where scientists look at the night sky at frequencies our eyes can’t see. Radio astronomy has access to some protected wavelengths that communications companies are not allowed to infringe on. Though, as Casey points out, radio astronomers like to look at all sorts of wavelengths outside of that range. Overall, they’ll have to depend on the goodwill of companies like SpaceX to turn off their satellite transmitters when orbiting over a big radio observatory. If the satellites aren’t turned off “the scenario is like trying to see a firefly in the vicinity of the sun. It would be incredibly bright,” she says. In the world of radio astronomy, a satellite beaming internet down to Earth might as well be a floodlight. At least, though, for radio astronomy, there are established channels to voice their concerns over radio use. But optical astronomy — which looks at the visible light of the universe — does not have international protections. “It doesn’t have a voice,” says Christopher Johnson, a space law adviser at the Secure World Foundation, a nonprofit that advocates for the sustainable and peaceful use of space. The UN Outer Space Treaty — the world’s governing framework for the use of space — says nothing on the topic of the reflectivity of satellites, nor their impact on astronomy. Even if one country began strictly protecting the night sky from overcrowding, another could ignore those regulations entirely, and spoil the night sky for everyone, Johnson explains. This is a problem “that falls in the cracks,” Mark Skinner, an astronomer associated with the International Institute of Space Law. Without regulations, the future could get weird Without stricter regulations, the future could get even weirder. People could launch bright satellites, to intentionally get the attention of people around the globe. And they already have: In January 2018, a New Zealand company launched a satellite called “humanity star.” It was basically a disco ball in low Earth orbit. Its creators hoped the light from the satellite would “create a shared experience for everyone on the planet.” Many astronomers were not delighted, likening it to “space graffitti.” Perhaps the humanity star is just a precursor to even bigger and brighter displays in the night sky. There’s no explicit international ban, Wired reports, on advertising in space. There’s at least one company hoping to arrange satellites in the sky to get people to buy more soda. The night sky is enormous, and viewable to everyone on the planet. It’s the perfect billboard. “There’s a huge driver for us to ring the alarm and try to bring some visibility to this now,” Johnson, of Northwestern, says. “This is just the tip of the iceberg.” Maybe with some more visibility, astronomers can convince the nations of the world to make sure the night sky remains clear for telescopes. But the fear is, at the end of the day, commercial interests will win over scientific ones. SpaceX “might have good intentions, but they’re still a company, they’re still out to make money,” Johnson says.

#### No circumvention. Authorization, supervision, and liability ensure compliance -- potential for liability causes self-regulation.

Johnson 20 [Chris, Space Law Advisor for Secure World Foundation, 9 years of professional experience in international space law and policy. J.D. from New York Law School; 2020; “The Legal Status of MegaLEO Constellations and Concerns About Appropriation of Large Swaths of Earth Orbit,” <https://swfound.org/media/206951/johnson2020_referenceworkentry_thelegalstatusofmegaleoconstel.pdf>] brett

Authorization and Continuing Supervision

The second sentence of Article VI then gives States a positive obligation to undertake authorization and continuing supervision of nongovernmental entities.

The activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty.

Consequently, it is not merely sufficient that governments allow private actors to access and explore space. States have a duty to authorize and supervise them. Looking again at the first sentence of Article VI, above, gives some indication as to what standard this supervision must meet. The first sentence of Article VI ends with “... and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty.” Consequently, States must authorize and supervise private entities to make sure that these private entities conform with the Outer Space Treaty.

Additionally, Article III of the Outer Space Treaty creates a link between the treaty and the rest of international law, including the UN Charter. Therefore, and to the extent that other sources of international law create norms applicable for private entities in outer space, all national activities – including private, nongovernmental activities – must conform with said laws. Some of these other sources include the other UN treaties on outer space, such as the 1968 Astronaut Rescue and Return Agreement, the 1972 Liability Convention, and the 1975 Registration Convention. Other specialized treaties on outer space, like the international telecommunications regime of the International Telecommunications Union Convention and Constitution, international enviromental law, international humanitiarian law, and other special regimes also form the rest of the normative order for outer space.

Potential Liability

Supplemental to international responsibility for acts in space committed by private entities is the potential for liability for damage resulting from their activities. Article VIII of the Outer Space Treaty establishes a liability provision, and the 1972 Liability Convention expands the mechanisms for dealing with liability claims. Liability is a requirement to pay compensation to an injured party for the damage or suffering that has been caused to them. In space law, liability is for physical damage to a space object by another space object. These provisions on liability have not yet been enforced relating to any actual claims of damage in space. However, and just like the obligation to be internationally responsible for private actors mentioned in Article VI, the potential for liability serves as a strong motivator and incentive for States to oversee, monitor, and regulate what private actors are doing in space.

### 1AC—Underview

#### 1] Yes 1AR Theory—the 1AR needs it to make the time investment worth 4 min and I can’t brute force substance and theory—otherwise the neg can do infinite bad things and I can’t check.

**2] Reject skep/permissibility – it’s an abhorrent view of the world that makes the debate space horrible which ow on accessibility – making args in favor of an alternate ethic solves.**

#### 3] Permissibility and presumption affirm.

**A] Freeze- otherwise we would not be able to justify morally neutral actions since there isn’t a prohibition and we would have to prove an obligation.**

**B] Trivialism- statements are true until proven false, if I told you my name you’d believe me.**

#### C] Negation Theory- Negating requires a complete absence of an existing obligation

Negate: to deny the existence of

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

#### D] The Law of Excluded Middles- if something is not false, it must be true, which means that if something is not prohibited, it must be obligatory, and permissibility is the same as obligatory.

#### 4] Use comparative worlds – A] topic ed – forces the neg to research the topic instead of low quality rez flaw args – the only benefit to debate is making us better arguers not perfect logicians, B] reciprocity – truth-testing allows the neg to disprove any part of the aff, but the aff has to defend every part, which gives the neg too much ground, C] inclusion – truth testing says rez is only thing that’s relevant which excludes ks – either only the rez matters so we can’t punish slurs, or people should get dropped for making debate unsafe which proves other things matter