## 1

### 1nc – t

#### Interpretation - the affirmative must defend an instrumental implementation of a policy action that states that the appropriation by private entities is unjust.

#### “Resolved” means enactment of a law.

Words and Phrases 64 Words and Phrases Permanent Edition (Multi-volume set of judicial definitions). “Resolved”. 1964.

Definition of the word **“resolve,”** given by Webster is “to express an opinion or determination by resolution or vote; as ‘it was resolved by the legislature;” It **is** of **similar** force **to the word “enact,”** which is defined by Bouvier as **meaning “to establish by law”.**

#### Vote neg for limits – not defending a policy skirts links out of politics DAs, process CPs, etc. that destroy core neg generics.

## 2

### 1nc – t

#### Interpretation: the aff may not defend that a subset of appropriation is unjust.

#### ISs imply a generic “rules reading” in the context of moral statements

Cohen 1 — (Ariel Cohen, Professor of Linguistics @ Ben-Gurion University of the Negev, PhD Computational Linguistics from Carnegie Mellon University, “On the Generic Use of Indefinite Singulars”. Journal of Semantics 18: 183-209, Oxford University Press, 2001, accessed 12-7-20, HKR-AM) \*\*BP = bare plurals

According to the rules and regulations view, on the other hand, generic sentences do not get their truth or falsity as a consequence of properties of individual instances. Instead, generic sentences are evaluated with regard to rules and regulations, which are basic, irreducible entities in the world. Each generic sentence denotes a rule; if the rule is in effect, in some sense (different theories suggest different characterizations of what it means for a rule to be in effect), the sentence is true, otherwise it is false. The rule may be physical, biological, social, moral, etc. The paradigmatic cases for which this view seems readily applicable are sentences that refer to conventions, i.e. man-made, explicit rules and regulations, such as the following example (Carlson 1995: 225):

(40) Bishops move diagonally.

Carlson describes the two approaches as a dichotomy: one has to choose one or the other, but not both. One way to decide which approach to choose is to consider a case where the behavior of observed instances conflicts with an explicit rule. Indeed, Carlson discusses just such a case. He describes a supermarket where bananas sell for $0.49/lb, so that (41a) is true. One day, the manager decides to raise the price to $1.00/lb. Immediately after the price has changed, claims Carlson, sentence (41a) becomes false and sentence (41b) becomes true, although the overwhelming majority of sold bananas were sold for $0.49/lb.

(41) a. Bananas sell for $0.49/lb.

b. Bananas sell for $1.00/lb.

Consequently, Carlson reaches the conclusion that the rules and regulations approach is the correct one, whereas the inductivist view is wrong.

While I share Carlson’s judgements, I do not accept the conclusion he draws from them. Suppose the price has, indeed, changed, but the supermarket employs incompetent cashiers who consistently use the old price by mistake, so that customers are still charged $0.49/lb. In this case, I think there is a reading of (41a) which is true, and a reading of (41b) which is false. These readings are more salient if the sentence is modified by expressions such as actually or in fact:

(42) a. Bananas actually sell for $0.49/lb.

b. In fact, bananas sell for $1.00/lb.

BP generics, I claim, are ambiguous: on one reading they express a descriptive generalization, stating the way things are. Under the other reading, they carry a normative force, and require that things be a certain way. When they are used in the former sense, they should be analysed by some sort of inductivist account; when they are used in the latter sense, they ought to be analysed as referring to a rule or a regulation. The respective logical forms of the two readings are different; whereas the former reading involves, in some form or another, quantification, the latter has a simple predicate-argument structure: the argument is the rule or regulation, and the predicate holds of it just in case the rule is ‘in effect’.

#### Violation: they only defend Mars

#### Net benefits:

#### Limits – there are countless affs accounting for every subset of space actors, like nations and companies – unlimited topics incentivize obscure affs that negs won’t have prep on – limits are key to reciprocal prep burden – potential abuse doesn’t justify foregoing the topic and 1AR theory checks PICs – literally the MARS aff is the smallest aff on the topic that no one has cards on

#### Ground – spec guts core generics like space col good, the heg DA, and the NewSpace econ DA, because the link is premised on reducing space privatization across the board – also means there is no universal DA to spec affs

#### TVA – read the aff as an advantage under a whole res aff

#### Fairness and education are voters – debate’s a game, and fairness is necessary to determine the winner of the game, and education is the reason why schools fund debate.

#### Drop the debater – dropping the argument doesn’t rectify abuse since winning T proves why we don’t have the burden of rejoinder against their aff.

#### Use competing interps – reasonability invites arbitrary judge intervention since there’s no consensus as to what’s reasonable.

## 3

### 1nc – cp

#### Spacefaring nations should:

- **Establish a self-replenishing fund for space colonization that doesn't siphon funds from budget issues**

#### -increase ocean fertilization via pyrogenic aerosol iron deposits

#### -increase funding for and implement carbon capture technology

#### - ban the use of weapons in space

#### Plank 1 doesn’t defund anything and solves adv 1

#### Plank 2 solves warming adaptation – their terminal

Ito et al. 21 – \*Yokohama Institute for Earth Sciences, JAMSTEC, Yokohama, Kanagawa, Japan [Akinori, Ying Ye, Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Clarissa Baldo, School of Geography, Earth and Environmental Sciences, University of Birmingham, Zongbo Shi School of Geography, Earth and Environmental Sciences, University of Birmingham, “Ocean fertilization by pyrogenic aerosol iron,” 5/21/2021, Nature, <https://www.nature.com/articles/s41612-021-00185-8>, DKP]

Iron (Fe) is the fourth most abundant element in the Earth’s crust, but the rise of the oxygen level during the late Archean and early Paleoproterozoic periods reduced the capacity of seawater to retain dissolved Fe (DFe). In parts of the global ocean where the supply of Fe, either from the bottom (e.g., sediment and hydrothermalism) or the top (i.e., atmospheric deposition), is low, Fe becomes a micronutrient that limits the marine productivity. These oceans are often termed as the high-nutrient low-chlorophyll (HNLC) regions such as the subarctic north Pacific, the east equatorial Pacific, and the Southern Ocean1,2. It has been hypothesized that enhanced dust deposition led to an increase in the export of biogenic carbon from the surface to the deep ocean (i.e., via the biological carbon pump), substantially contributing to the lower concentration of the atmospheric carbon dioxide (CO2) during the last glacial maximum (LGM), the so-called “iron hypothesis”3.

A number of artificial Fe fertilization experiments in the open ocean confirmed that the addition of Fe in HNLC regions leads to increased phytoplankton growth4 and export of organic particles into the deep ocean5,6. Further investigations have been found in naturally Fe fertilized regions, for example, in Fe-limited regions in the Southern Ocean where the input of Fe from islands or shelf regions leads to patches of phytoplankton blooms, which can be observed in satellite images7. Furthermore, atmospheric delivery of Fe to the open ocean also stimulates nitrogen fixation and thus relieves nitrogen limitation in low latitude oceans8,9.

Long-range transport of desert dust to the open oceans has been well documented since the 1980s10,11. A traditional view is that mineral dust dominates the global supply of atmospheric Fe to the ocean, which is why dust aerosol was in the center of the global research in the atmospheric Fe cycle. Global aerosol models have been used to estimate atmospheric deposition fluxes of Fe in dust from arid and semi-arid regions. By assuming a solubility of Fe in the dust (i.e., the ratio of dissolved to total Fe in unit of percentage), the deposition flux of DFe could also be estimated, although a wide range of aerosol Fe solubility was reported over different oceanic regions of the world12,13. Recent atmospheric models14,15,16 estimated that the deposition flux of DFe to the ocean varied between 0.26 and 0.53 Tg Fe yr−1, which was in the higher range of estimates in earlier studies (0.05–0.54 Tg Fe yr−1)12,13 (Table 1).

In the last decade, Fe-containing aerosol from anthropogenic sources has raised attention because of its high aerosol Fe solubility17,18. The term “anthropogenic” Fe is used here as primary Fe from fossil fuel and biofuel combustion sources. Anthropogenic sources of Fe also include dust and biomass burning, which are directly or indirectly emitted due to human activities such as climate and land use/cover changes19. The emission fluxes of these sources are difficult to quantify due to the episodic nature of dust and open fire events, and thus are not explicitly disentangled in this work. Therefore, anthropogenic sources mainly contribute to pyrogenic Fe, while pyrogenic Fe from biomass burning can be partly ascribed to natural sources.

#### Plank 3 reverses C02 and also solves adv!

**Welch 19**, (Craig Welch covers the environment and natural resources, with a focus on climate change and oceans, *National Geographic*, “To curb climate change, we have to suck carbon from the sky. But how?” January 17, https://www.nationalgeographic.com/environment/2019/01/carbon-capture-trees-atmosphere-climate-change/)//AH

In the three years since 195 nations committed in Paris to cap global temperature increases at 2 degrees Celsius—while also agreeing to aim for 1.5 degrees—a few things have become bracingly clear. The world must quickly stop burning fossil fuels. And **that is no longer enough.** Again and again, including in a major report published fall, the Intergovernmental Panel on Climate Change and other science bodies have reached a stark conclusion: **Most paths to halting global temperature** increases at 2 degrees—and every path to reach 1.5 degrees—rely in some way on adopting methods of **sucking CO2 from the sky.** It is a significant about-face. For years many scientists dismissed or downplayed the most highly engineered CO2 removal strategies. Those techniques were often lumped in with more dangerous forms of "geoengineering," such as injecting sulfates or other aerosols into the stratosphere to reflect sunlight and cool the planet. Focusing money and energy on any such technological fix seemed both risky and fraught with "moral hazard"—a distraction from the urgent need to cut emissions by slashing use of coal, oil, and gas. But now many see "negative emissions," as CO2 removal strategies are also called, as **an essential bridge to a clean-energy future.** "CO2 removal has gone from a moral hazard to a **moral imperative,**" says Julio Friedmann, senior research scholar at the Center for Global Energy Policy at Columbia University. There are several reasons for the shift. For starters, attempting to set a hard target at 1.5 or 2 degrees gives the world an emissions cap. With carbon emissions from fossil fuels estimated to have risen 2.7 percent in 2018, we're clearly not moving fast enough to reduce emissions—or even in the right direction. "The longer we have postponed drastic reductions, the more daunting the challenge of achieving those reductions in the necessary time frame," says Erica Belmont, a University of Wyoming engineering researcher. Even if the developed world rapidly switched to clean fuels, poorer countries would likely take longer. Emissions from some industries, such as cement and steel production, will be hard to eliminate, and alternative fuels for air travel are expected to remain expensive for quite some time.

#### Plank 4 solves space weaponization and the OST advantage

## 4

### 1nc – k

#### The call to space fuels strategies of managerialism that position the American transcendental state as supreme---transcendence of limits enables imperialistic violence through intervention, war, circumvention of norms, preemption, and tactics of control. That makes war an inevitable outcome of calculative logics---removes the inter-subjective nature of war and reduces conflict to risk calculations that always justify conflict because of the increasing sophistication and remoteness of weapons

Daniel Sage 16, Senior Lecturer in Human Resource Management and Organizational Behavior at Loughborough University, Ph.D. in Political and Cultural Geographies from Loughborough University, 4/29/16, How Outer Space Made America: Geography, Organization and the Cosmic Sublime, p. 153-156

In the preceding eight chapters I have argued that some of the unique qualities of outer space—vastness, Otherness, sublimity, timelessness, spacelessness—are just as integral to extra-terrestrial projections of US geopower, as its well-known capacity (Arendt, 1963; Cosgrove, 2001; Dickens and Ormrod, 2007; Dolman, 2001; Macdonald, 2007) to function as an Archimedean high point to monitor and control the surface, and atmosphere, of the Earth. While the focus of my study has been the United States, and more specifically NASA, the implications of this cosmic projection of geopower—the American transcendental state—are global in reach, from enabling and shaping imperialistic ideologies (Chapters 1-3 and 7) to fuelling the extension of technocratic managerialism (Chapter 4-6 and 8). What is more, messianic hope in America remains a global commodity, consumed, for example, through the internationally franchised Star Trek television episodes and films (Penley, 1997: 98-99), multinational ‘Space 2.0’ corporations, like SpaceX (Chapter 6), worldwide audiences to the addresses of American presidents (Chapter 6) and global tourist attractions like the National Air and Space Museum and Kennedy Space Center Visitor Complex (Chapter 7). These global circulations suggest that while my empirical focus in this study has been on the extra-terrestrial assemblage of the American transcendental state, as viewed from within the borders of the US, the salience of my analysis is geo-political.

The development of the American transcendental state through space exploration must also be viewed as an integral component of a far older geopolitical project—the production of an American identity defined in terms of the transcendence of limits, whether technological, economic, spiritual or territorial, enabling the moral aggrandizement of the past, present and future of a horizontal strata of sovereign territory and its peoples (McDougall, 1997; Noble, 2002; Nye, 1994; O’Brien, 1988; Ricard, 1999; Stephanson, 1995). Over the last decade or so, a growing number of scholars, including geographers, have turned their attention to how messianic-exceptionalist visions of America as the ‘Promised Land’ of ‘Chosen People’ have inflected various imperialistic projects including: the pursuit of democracy through military intervention in the ‘global south’ (Anthony, 2008); the technocratic ‘greening’ of Western global capitalism (Singer, 2010); the building of a ‘culture of war’ in foreign policy (Marsella, 2011), the circumvention of international institutions (Agnew, 2006); and most prominently perhaps, George W. Bush’s ‘war on terror’ where invasions of Afghanistan and Iraq became justified as a ‘cosmic struggle between good and evil’ (Agnew, 2006: 183; see also Barkun, 2010; Dijink, 2006; Strum, 2010; Wallace, 2006). All of this work indicates two points: first, the enduring Apocalyptic influence of dispensational pre-millennialism on both interventionist and isolationist currents within American (geo)politics (Strum and Dittmer, 2010: 18); and secondly, the rise of a religious cosmology that positions America at the moral, geographical, and spiritual, centre of the universe (Strum, 2010: 150).

My analysis of American spaceflight adds to this body of work on religion and geopolitics by drawing attention to five less discussed conduits of this pious vision of American geopower: (i) the secular—museums, family theme parks, systems management; (ii) the sublime—astronomical artwork, Moon landings and distant Nebula; (iii); the profane—Nazi slave labor camps, technocratic patriarchy, and dead astronauts; the technological (iv)—rocket production lines, O-rings, electrical wiring; and (v) the revolutionary—female astronauts, May 1968, and Richard Feynman. Analytically, these diverse registers suggest the utility of working with a broader, less explicitly spiritual, set of theoretical assumptions, to address the cosmological aspects of American geopolitics. This is why I mobilized the concept of the ‘American transcendental state’, rather than ‘deified nation’ (O’Brien, 1988: 41) within this study. This deliberately hallucinogenic sounding term captures some sense that the messianic-exceptionalistic projection of American geopower is a more diffusive, experimental, fantasmic, embodied, and ostensibly secular, affair, than conveyed within much discursive analysis of the religious undercurrents inflecting American geopolitics (for example Agnew, 2006; Dijink, 2006; Strum, 2010; Wallace, 2006).

I would like to suggest now that there is another benefit in bringing together these diverse practices under a broader analysis of the American transcendental state: their common geography becomes all the more obvious. That is, all these practices involve thinking, doing or resisting, celestial transcendence as an apparatus of American geopower; hence they can all be rightly considered ‘vertical geopolitics’ (Elden, 2013; Graham, 2004; Graham and Hewitt, 2013). This label has developed to identify a body of work addressing how the circulation of American geopower involves more than two-dimensional geographies of area. It currently includes analyses of; drone warfare (Gregory, 2011); aerial bombardment (Graham, 2004); police helicopters (Adey, 2010); satellite surveillance (Macdonald, 2007) and satellite drone navigation and targeting (Gregory, 2011). Elden (2013: 40) explains that ‘vertical geopolitics’ is mostly focussed upon how state political technologies allow diverse populations to be measured, calculated, controlled and killed, ‘from above’, and occasionally ‘from below’ (for example Elden, 2013; Graham and Hewitt, 2013). By contrast, the vertical orientation I have adopted here, while related, is different. Specifically, I have described how aspects of the projection of American identity, geopower, and territory, also involve a vertical spacelessness—a deterritorialization—a potential collapse into sublime, cosmic, insignificance; in short, rather than the ‘view from above’, the perspective I have traced has been a ‘view into the above’ (and back). In part, therefore, my study can be considered a response to Elden’s (2013) recent question: ‘How would our thinking of geo-power, geo-politics and geo-metrics work if we took the earth; the air and the subsoil; questions of land, terrain, territory; earth processes and understandings of the world as the central terms at stake, rather than a looser sense of the ‘global?’ (p49)

I propose we add to this list celestial entities, including the Moon (Chapter 3), the Martian surface (Chapter 6) and the Eagle Nebula (Chapter 7), as well as God (Agnew, 2006; Dittmer and Strum, 2010; Strum, 2013). Thus, perhaps we should be cautious of Elden’s (2013b) rather geocentric call ‘about how geopolitics might be thought as earth-politics rather than simply a synonym for global politics’ (p59). Instead, it might be more useful to bear in mind Deleuze and Guattari’s (1988: 101) argument that even absolute deterritorialization—something akin perhaps to the mathematical cosmic sublime of Kant (Nye, 1994: 7-8)—always involves reterritorialization(s). Recall how Charles Bonestell (Chapter 2), William Clancey (Chapter 6) and the National Air and Space Museum (Chapter 7), respectively, and persuasively, associated vistas of the Moon, Mars and the Eagle Nebula with the American West, and by extension locate America at the centre of God’s universe (Boime, 1991; Stephanson, 1995).

This analysis of American spaceflight also sheds light on seldom acknowledged connections between religious and vertical geopolitics and technocracy. The relation between critical analysis of geopolitics (O Tuathail, 1996) and technocratic management (Alvesson, 1987), remains remarkably undeveloped. Arguably this lacuna says more about the disciplinary separation between critical security studies and organization studies (Grey, 2009) than the various intellectual crossfertilizations between organization studies and human geography (Clegg and Kornberger, 2006; Dale and Burrell, 2008; Parker, 2013). Nevertheless, there are, as Grey (2009) maintains, clear resonances:

Indeed it could said that, in the same way that the development of security studies in particular, and organization studies to an extent, was shaped by geopolitics of wars both hot and cold, so too many current and future directions be in part a reflection of developments in contemporary geo-politics (p31).

Some organizational practices are of course, very much on the ‘front line’ of practical geopolitics; that is, they comprise the ‘the foreign policy bureaucracy’ (Ó Tuathail and Dalby, 1998: 4) through which geographical concepts are deployed to aid ‘conceptualization and decision making’ in ‘everyday foreign policy’ (O Tuathail, 1999: 110). Examples here include the work of the US Air Force, the CIA (Central Intelligence Agency) and the UK’s Foreign and Common Wealth Office. There are also a host of other organizations that no doubt influence how practical geopolitics is produced, from security analysts like the RAND Corporation to global defense contractors like McDonnell Douglas. However, analysis of the relationship between organizational and geopolitical practices remains embryonic. For example, Anderson’s (2011) study of urban counterinsurgency and Gregory’s (2011) of drone warfare, do no more than merely infer that the rise of the ‘networked organization’ is reworking the projection of American geo-power. Correspondingly, two organizational studies of the military only hint that, for example, masculine discipline (Godfrey et al., 2012) and team identities (Corona and Godart, 2010) shape and are themselves shaped by grand geopolitical narratives like the ‘war on terror’.

But the imbrication of geopolitical and organizational practice can also be more subtle and much less militaristic—concerning the anticipation and cultivation of geopower through shared national identities, that is ‘popular geopolitics’ (O Tuathail, 1999: 110). Here, the connection to organizational practices is no less significant, yet invisible in the literature. NASA offers a good example: from its inception, the space agency developed increasingly refined technocratic techniques that aligned people and machines to naturalize the pursuit of a popular geopolitics wedded to American geopower. Viewed in this way, imperialistic geopower and technocratic-managerialism are interwoven forces; hence the present study suggests the richness of more sustained critical analysis of organization and geopolitics.

#### The alternative is a refusal to name and command space, a movement of transcendence to a plane focused on human experience, and an exploration of new affects that all interfere with the state’s technocratic, imperial impulses

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However, I am all too aware that in stressing the widespread application of this concept of the America transcendental state to understand American geopower— and, concomitantly, the fecundity of bringing together analyses of religion, verticality and now technocracy within critical geopolitics—I run the risk of constructing a totalizing, monstrous, edifice. The reader might rightly ask at this juncture, paraphrasing Nietzsche, have you not gazed into the cosmic abyss of American geopower for too long; are you not also reifying American geopower in the cosmos rather than challenging it? Indeed, throughout the preceding chapters I made reference to a rather singular sounding concept of the ‘American transcendental state’. But, as in the introduction, I must stress again here, that I took this decision for reasons of analytical clarity rather than to suggest I have revealed an independent, singular, definite and a priori reality (Law, 2006), some essence akin perhaps to what Agnew (2006: 184) refers to as ‘Americanism’. Instead, within each chapter I have traced the progressive assemblage of the American transcendental state—that is, nothing less than the divinely sanctioned, exceptional, and messianic, right and duty, of America, and its leaders in its name (Wallace, 2006: 225), to command cosmic space and time by evoking forces of ‘good’ and ‘evil’, ‘us’ and ‘them’ (Agnew, 2006; Strum, 2010). But the immutability of this cosmic vision (Strum and Dittmer, 2010; Wallace, 2006) belies the transformative, fragmented, heterogeneous components that sustain it, across landscape artwork, through Kennedy’s Moon Speech, to the O-rings of Space Shuttle Challenger. Throughout this study I have suggested countless relations through which this vision is not only produced (Dijink, 2006; McDougall, 1997; Noble, 2002; Nye, 1994; Ricard, 1999; Stephanson, 1995; Wallace, 2006) but circulated, maintained, resisted, repaired, transformed, and experimented with.

How then to conceptualize this heterogeneous, but obdurate, cosmic being? Latour’s actor-network theory (1987; 2005; 2012) is useful to an extent here; first, we can conceptualize the transcendental state as an ‘immutable mobile’ that ‘ends up traversing the universe’ by ‘pay[ing] for each transport with a transformation’ (Latour, 2013: 127); it is ‘not displacement without transformation but displacement through transformation (Latour, 2005: 223); second, the transcendental state can be understood as offering a prophetic, but partial, ‘panorama’ of the ‘world [cosmos] to be lived in’ (p189) which must then, in turn, be:

… carefully situated inside one of the many Omnimax theatres offering complete panoramas of society—and we now know that the more thrilling the impression, the more enclosed the room has to be. [American] Society is not the whole ‘in which’ everything is embedded, but what travels ‘through’ everything, calibrating connections and offering every entity it reaches some possibility of commensurability. (p242)

Read against Latour’s concepts of the ‘immutable mobile’ and the ‘localizable panorama’ it is easy to see why my analysis of American transcendental state has involved mapping circulations within as well as beyond our lives. And this is a political move too, because it suggests that opportunities to test and resist the American transcendental state are closer to hand than we might think. As revealed in Chapter 8, a great deal of effort is required to keep the transcendental state circulating because the heterogeneous conduits it passes through—electrical wiring, teleconferences, flight readiness reviews, budget decisions and O-ring joints—are capricious and experimental; that is, affective. Other Chapters acknowledged similar fragility accompanying the assemblage of the transcendental state, including; the partially-owned Declaration of Independence (Chapter 1), the globally unifying Earthrise photograph of Apollo 8 (Chapter 3) and the rusting rockets on display in the gardens of the Kennedy Space Center Visitor Complex (Chapter 7). Now located within this chain of heterogeneous transformations, what strategies might aid us in purposefully transforming this now confined totality? Or put differently, how might we engage outer space to resist this cosmic deification of America (O Brien, 1988)? In concluding this study, I propose three techniques but no doubt there are many more.

First, we can expose the void at the heart of this messianic-technocratic projection of geopower (Wallace, 2006). This approach was evidenced in Chapter 1 by Derrida’s (2002) deconstructive reading of Declaration of Independence. Derrida (2002) emphasizes how signing the Declaration in God’s name entails no democratic ownership over America’s future, in outer space or elsewhere. Across the development of American spaceflight, the perils of messianic, freefloating, notions of ‘Progress’, ‘Exploration,’ ‘Frontier’ and ‘The Future’ are all too apparent, not least for NASA itself. Lester and Robinson (2009) suggest the emergence of this critique within the American space policy community:

We should accept that “exploration” is a multivalent term, with many meanings, some of which are contradictory, and all of which have historical precedent. For too long we have looked at the history of exploration selectively, seeking to find the antecedents which justify our own vision of exploration: as science, as human adventure, as geopolitical statement. This is a definitional fight which cannot be won. Space policy must acknowledge the multiple visions for space exploration, developing a clear-eyed metric of value which avoids the vagaries of lofty “exploration-speak”, If the merits of human exploration of the Moon and Mars are primarily symbolic and geopolitical, what are these goals worth in terms of federal funding?

I am unconvinced by the economically instrumentalist conclusions made by Lester and Robinson (2009) about putting a value upon even NASA’s ‘softer’ geopower, but the general caution about harnessing nebulous messianic mythologies to advance American space exploration is valuable. Of course the problem is this tradition of finding our God in the cosmos is long-established as Olsson (2007) suggests via this retelling of the Babylonian creation epic, Enuma elish:

Marduk is the Lord of lords … Hail to the Chief! Fifty were his names, so numerous that if ever attacked he could always hide behind another alias. Never catchable as the specific this or that, always on the move as an ambiguous this and that … Ungraspable multiplicity. … In this mist-enveloped region of religion naming is the name of the game, an exercise in ontological transformations where earthly people appear as projections of heavenly gods, social relations as signs in the sky. … a signified meaning searching for its own coordinates (Olsson, 2007: 23).

Perhaps a more modest approach is required: we should simply resist the urge to name, and tame, the cosmos as a Whole, by naming a celestial Godhead in it that we claim for ourselves (Wallace, 2006) but cannot ever fully own. ‘Evil is the disaster of a truth when the desire to force the naming of the unnameable is unleashed . … Evil is not disrespect for the name of the other, but rather the will to name at any price’ (Badiou, 2004: 115-6; original emphasis). Challenging the cosmic aggrandization of America might therefore imply some attempt to resist naming our God/Future/Progress in the cosmos. Put simply, this all too easy act of cosmic de/reterroritalizaiton is too crude, too undemocratic, too costly.

A second, related, strategy which can be adopted to resist the American transcendental state was discussed within Chapter 3; this is the capacity to push transcendence to another plane or refuge—to follow one line of flight of cosmic deterritorialization and then re-territorialize the Earth in a panorama that starts with a common human experience, rather than those of any particular nation/ God/future. The aim of this strategy is to mobilize a cosmic imagination that can register something of the shared experience of being human.

In Chapter 3 I discussed how the Earthrise photograph from NASA’s Apollo 8 mission have stimulated new cosmic imaginations—including ‘spaceship’ Earth (Cosgrove: 2001, 257-262; Henry and Taylor, 2009; Ward, 1964), Noetic science (Benjamin, 2003: 60-61), global political ecologies (Connolly, 2002)—that defied nationalistic appropriations by inferring a human transcendence. However, as the American author Kurt Vonnegut explains such a transcendental image of humanity, emptied of territorial divisions and difference, is not itself without risk: ‘Earth is such a pretty blue and pink and white pearl in the pictures NASA sent me. It looks so clean. You can’t see all the hungry, angry earthlings down there—and the smoke and sewage and trash and sophisticated weaponry’ (Vonnegut cited in Burrows, 1998: 423). Similarly, Deleuze and Guattari (1988) suggest we should always remain sceptical that de-territorialization is a progressive act on its own: ‘Never believe that a smooth space will suffice to save us’ (p500).

A third strategy is to augment different affects amid the assemblage of the American transcendental state. As described in Chapter 8, the American transcendental state depends upon the cultivation of confidence in technocracy allied to an affective becoming hopeful—a positive openness to the future as life enhancing—orientated around the transcendence of America in cosmic space and time. But, as Anderson (2006), explains, becoming hopeful does not necessarily need to operate in this transcendental manner: hopefulness can also emerge not to ward off suffering, but through every day sorrows, through diminishment of the body’s potential to affect and be affected. Consider, for example, how Dotty Duke refused to discuss her fears and anxieties with her astronaut husband as she kept the ‘house in order and [took] out the garbage’ (Duke 1990—Chapter 5). Dotty Duke epitomizes a different kind of becoming hopeful—a capacity to remain open-ended about the future in a life enhancing manner through diminishment—devoid of discussion of a better future in Earth or in the cosmos; this is hope that challenges ‘the easy equation between transcendence and a future elsewhen or elsewhere in favor of an imminent transcendence from within vectors of diminishment’ (Anderson, 2006: 749; for more analysis of immanent transcendence related to Space see Smith, 2009: 211).

Another affect which is useful in short-circuiting the hopeful assemblage of the transcendental state is boredom. Anderson (2004) describes boredom as the moment when the ‘“forgetting” intrinsic to habit has been momentarily incapacitated. It is the unravelling of habit, a sudden realization of the again’ (p743). Boredom depresses the life enhancing capacity of ourselves to be open to the future, engendering stillness and slowness of thought-action in spacetime, where, as Anderson (2004) puts it, the capacity to experience the ‘not yet’ (p749) is suspended. The evolution of American spaceflight might appear to some the antithesis of boredom, but, as Jorgensen (2009) suggests, the American humanization of outer space has gone hand in hand with endless repetition (of middle America):

The August 1969 Life Special Issue, released to commemorate the landing, wants to produce sympathetic accounts of the astronauts. It is filled with glossy, high color photographs of the astronauts not only mastering outer space, but their domestic spaces as well. Neil Armstrong bakes pizza, Buzz Aldrin jogs through the suburbs, and Mike Collins prunes his garden. These images resonate with outer space itself, as the astronauts use tools in both terrestrial and extraterrestrial environments. The spatula and shears the astronauts use to cook lamb curry and prune roses with resemble the objects they hold while walking the moon, these being a laser reflector, seismometer and solar wind sheet (p179).

There is no hopefulness on offer in Jorgensen’s (2009) reading of American spaceflight. Instead the boredom experienced in the cosmic repetition of middle America signals despair: ‘Apollo 11 represented an America that had become unhinged by its own technocracy, its middle class lifestyle, and television’ (p188). Jorgensen (2009) is not, of course, alone in identifying aspects of spaceflight repetitive, even boring. As the emergence of the Teacher in Space program demonstrated (see Chapter 8), NASA itself has historically attempted to introduce elements of excitement, even increased risk, to engage a global audience. Yet, of course, a balance has always had to be struck, as Parker (2009) explains of Apollo: ‘Everything was supposed to be boring, because boredom meant no surprises, and hence the possibility of the adventure in some sense rested on its denial’ (p326). Although fleeting, boredom is surely an unavoidable ingredient in NASA’s technocratic confidence, but when focused and channeled, it does suspend hope in the cosmos as a better place, perhaps providing an opportunity for us to pause and register something of the sublime Otherness of Space, where we concurrently repeat and differ ourselves into infinity: ‘Media representations of space travel turn the vastness of space into the similitude of domesticity, as human familiarity comes to stand in for the infinite. At the same time, the domestic attains the dimensions of the infinite, and in turn becomes strangely unfamiliar to the television viewer’ (Jorgensen, 2009: 179).

These three techniques of cosmo-political intervention—refusal to name, human transcendence, and sensitivity to new affects—are all worthy of greater attention, especially when they can be connected up to, and interfere with, the assemblage of the American transcendental state. Clearly not all of those involved directly in the development of spaceflight will want or be able to practise these techniques. Nevertheless even among this group these techniques are intended to offer greater receptivity to new cosmographical imaginations which move beyond the cosmic aggrandization of messianic-imperialistic-technocratic impulses. If we have entered the Cosmic Age where all territorializing assemblages, all States, now derive vital energy from the Cosmos (Deleuze and Guattari (1988: 342), then the imperative becomes not to simply do cosmopolitics (Latour, 2005) but rather which cosmo-politics do we want to pursue? My favoured vision of a Geography of Space is one where this question is endlessly asked but never answered with absolute confidence.

## 5

### 1nc – da

#### Xi’s grip on the Party is secure - right now, no one is equipped to oppose him openly or covertly & any political uncertainty that exists has been intentionally fostered for his own agenda. Any concern for “policy disasters” is post-2022

**Buckley 2022** [Buckley, Chris. “A Succession Drama, Chinese Style, Starring Xi Jinping.” *The New York Times*, The New York Times, 14 Feb. 2022, https://www.nytimes.com/2022/02/14/world/asia/china-xi-jinping.html.]

One rising Chinese provincial leader [lauded](http://paper.cntheory.com/html/2021-12/27/nw.D110000xxsb_20211227_1-A1.htm) Xi Jinping as the Communist Party’s “greatest guarantee.” The party chief of a big coastal city [urged officials](https://djyj.12371.cn/2021/12/31/ARTI1640928099900579.shtml) to revere Mr. Xi’s “noble bearing as a leader and personal charisma.” A [top general said](http://paper.people.com.cn/rmrb/html/2021-11/30/nw.D110000renmrb_20211130_1-06.htm) Mr. Xi had faced down “grave political risks” to achieve the “revolutionary reinvention” of China’s military. The orchestrated adulation that has carried Mr. Xi into 2022 adds to the growing certainty that he will secure another term in power at a Communist Party congress late in the year. **In an era of global upheaval and opportunity,** [**scores of senior officials**](https://www.xuexi.cn/xxqg.html?id=0c231ef0f8e2481e9c566b26352d7a2f) **have said, China needs a resolute, powerful central leader — that is, Mr. Xi — to ensure its ascent as a superpower.** But one great uncertainty looms over China, and it is of Mr. Xi’s own design: Nobody, except maybe a tight-lipped circle of senior officials, knows how long he wants to stay in power, or when and how he will appoint a political heir. Mr. Xi seems to like it that way. **“Xi’s political genius is the strategic use of uncertainty; he likes to keep everyone off balance,”** said [Christopher K. Johnson](https://chinastrategiesgroup.com/#:~:text=Our%20Team-,Christopher%20K.,opportunities%20in%20China%20and%20regionally.), the president of the China Strategies Group and a former Central Intelligence Agency analyst of Chinese politics. At the congress, **Mr. Xi is highly likely to keep his key post as Communist Party general secretary for five more years, bucking the previous assumption that Chinese leaders were settling into a pattern of decade-long reigns. Chinese** [**legislators abolished a term limit**](https://www.nytimes.com/2018/03/07/world/asia/china-xi-jinping-party-term-limit.html) **on the presidency in 2018, clearing the way for Mr. Xi, 68, to hold onto all his major posts indefinitely: president, party leader and military chairman.** **But for how many years?** And who would take over after him? The dilemmas of when and how to signal a plan to step away from formal office and confirm an heir could test Mr. Xi’s redoubtable political skills. **Keeping everyone guessing could help reinforce loyalty to him, and give him more time to judge potential successors.** Yet holding off from designating one could magnify anxiety, even rifts, in China’s elite. “To pick an heir would make Xi a lame duck to some extent,” [Guoguang Wu](https://www.uvic.ca/socialsciences/politicalscience/people/directory/wuguoguang.php), a professor at the University of Victoria in Canada who served as an adviser to [Zhao Ziyang](https://www.nytimes.com/2019/10/18/world/asia/zhao-ziyang-china-tiananmen-square-protests.html), the Chinese leader ousted in 1989, wrote by email. “But it would also reduce the pressure Xi has to confront in seeking his third term.” **Confidence, Mr. Xi has said, is key to protecting party power, and he wants no surprises to upset a triumphant buildup to the congress. Setting economic priorities for 2022, China’s leaders** [**repeated**](http://cpc.people.com.cn/n1/2021/1210/c64094-32305207.html) **“stability” seven times. Beijing is not wavering from its “zero Covid” strategy, while other countries have buckled. This year, too, China’s Winter Olympics, so far untroubled by protest, and** [**planned launch of a space station**](http://www.xinhuanet.com/english/20220106/fc0b7e466f81461fbd379c664ed2571d/c.html) **will bathe Mr. Xi in the aura of a statesman**. But the blaze of propaganda will shed few clues about internal deliberations building up to the congress. Secrecy around elite politics is ingrained in Communist Party leaders, and it has deepened under Mr. Xi. They see themselves as guarding China’s rise and one-party power in an often hostile world. Mr. Xi’s power games may only come into broad focus when a new leadership files out on the red carpet of the Great Hall of the People in Beijing at the end of the congress, which is likely to convene in November. Given his desire to keep his options open, Mr. Xi is likely to hold off even then from specifically signaling a successor who would be brought into the Politburo Standing Committee, the party’s innermost circle of power, several experts said. Mr. Xi and the premier, Li Keqiang, vaulted into the Standing Committee in 2007, confirming them as the two leaders-in-waiting at the time. Instead of making a similar move, **Mr. Xi is more likely to bring a cohort of next-generation officials into the full 25-member Politburo — the tier below the Politburo Standing Committee — creating a reserve bench whose loyalty and mettle would be tested in the years to come.** “The action will probably be in the Politburo,” said Mr. Johnson, the former C.I.A. analyst. “Doing anything that would signal a successor now seems unlikely.” China’s history of botched succession plans stands as a warning to Mr. Xi. Mao Zedong and Deng Xiaoping both had an unhappy record of choosing, then turning on, political heirs. Mr. Xi became top leader in 2012 after a year of lurid strife in ruling circles. He [has argued that](https://www.nytimes.com/2013/02/15/world/asia/vowing-reform-chinas-leader-xi-jinping-airs-other-message-in-private.html) the fall of the Soviet Union resulted from installing weak, unworthy leaders who betrayed the Communist cause. “Whether a political party and a country can constantly nurture outstanding leadership talent to a great extent determines whether it rises or falls,” Chen Xi, the party’s head of organizational affairs, wrote late last year [in People’s Daily](http://paper.people.com.cn/rmrb/html/2021-12/01/nw.D110000renmrb_20211201_1-06.htm), the party’s newspaper. Mr. Xi has already sought to prevent undercurrents of discontent from converging into opposition before the congress. **In November, he** [**oversaw a resolution**](https://www.nytimes.com/live/2021/11/11/world/china-xi-jinping-cpc) **on Communist Party history that gave a glowing affirmation of his years in power. Praise in such a weighty document will help deter pushback, and Mr. Xi has used it to** [**demand “absolute loyalty**](http://www.qstheory.cn/dukan/qs/2022-01/01/c_1128219233.htm)**” to the party from members. A recent** [**video series**](https://www.globaltimes.cn/page/202201/1246099.shtml)**, parading officials felled for corruption and abuses of power, reinforced the warning. “All the machinery of coercion is in his hands,”** [**Lance Gore**](https://nus.academia.edu/LanceGore/CurriculumVitae)**, a senior research fellow at the East Asian Institute of the National University of Singapore, said of Mr. Xi. “He’s offended a lot of people, but nobody is in a position to contend with him, openly or even covertly.”** Even so, Mr. Xi does not have carte blanche over the next leadership lineup. Other officials could press on his policy missteps to quietly seek more say, Mr. Johnson said. And **Mr. Xi’s own interests may also lie in showing some give and take, so different groupings feel they have a seat at the top table. “It’s not necessarily winner-takes-all,” said** [**Timothy Cheek**](https://history.ubc.ca/profile/timothy-cheek/)**, a historian of the Chinese Communist Party at the University of British Columbia. “He’s leaving room so that other people are somewhat accommodated.”** Even if politics goes smoothly, who retires and who rises presents Mr. Xi with tricky trade-offs. At the last party congress in 2017, leaders did not pick a successor to Mr. Xi, upending the ladder-like handover of power that had been taking shape in previous decades. Some of Mr. Xi’s protégés may now be too old to stay in the race, while promising younger officials remain untested, and generally unknown. Under an informal age ceiling for senior party posts, two of the seven members of the Politburo Standing Committee — the top tier of power — are likely to retire: Vice Premier Han Zheng and the head of the Chinese legislature, Li Zhanshu. That unspoken rule says that members who are 68 or older should step down when a congress comes around. Mr. Xi could also engineer more retirements, [including of the premier, Li Keqiang](https://www.uscc.gov/sites/default/files/2022-01/Neil_Thomas_Testimony.pdf), or expand the size of the Standing Committee, which is not fixed by rule. Possible recruits into the top body include Chen Min’er, Hu Chunhua, and Ding Xuexiang. All are Politburo members young enough to serve 10 years in the Standing Committee under the age rules. So far, though, none has received a telltale pre-congress move that suggests Mr. Xi has special plans for him, such as a high-profile transfer or a propaganda push. Party insiders once described Mr. Chen [as a favorite](https://www.nytimes.com/2017/09/12/world/asia/china-xi-jinping-successor-chen-miner.html) and possible heir of Mr. Xi. But Mr. Chen already seems too old to win elite approval, said Bo Zhiyue, a consultant in New Zealand who studies Chinese elite politics. Mr. Chen will be 67 in 2027, a year when Mr. Xi could step down at a party congress. Mr. Xi was 59 when he became leader at a congress in 2012. Mr. Xi “has to bring in new people, but he doesn’t want any of them labeled as his successor,” Mr. Bo said. “There’s the big dilemma for Xi Jinping — how to promote them but not too far and limit his options.” There is likely to be much more turnover in the full Politburo, the second-highest rung of power. Retirements there could create 11 vacancies, which Mr. Xi could use to promote a cohort of loyal officials in their 50s or early 60s, many [now provincial leaders](https://macropolo.org/chinese-politics-rising-stars-provincial/). But if Mr. Xi stays at the top for another decade or longer, they may also be passed over for even younger potential successors now working in obscurity in ministries and local administrations. **“If Xi stays healthy and avoids policy disasters, he could remain a capable national leader and a formidable political operator for another couple of decades,**” said [Neil Thomas](https://www.eurasiagroup.net/people/nthomas), who analyses Chinese politics for the Eurasia Group.

#### China’s “space dream” is key to Xi credibility – plan is a flip flop that undermines legitimacy

Kharpal 21 – senior technology correspondent based in Guangzhou, China at CNBC [Arjun, “China once said it couldn’t put a potato in space. Now it’s eyeing Mars,” 6/30/2021, https://www.cnbc.com/2021/06/30/china-space-goals-ccp-100th-anniversary.html]

Fast forward more than six decades and President Xi Jinping, China’s current leader, is seen congratulating three astronauts who were sent to the country’s own space station earlier this month.

Since Mao’s comments, China has launched satellites, sent humans to space and is now planning to build a base on Mars, achievements and ambitions Beijing has highlighted as the centennial of the CCP’s founding approaches.

Space is now another battleground between the U.S. and China amid a broader technological rivalry for supremacy, one that could have scientific and military implications on Earth.

“President Xi Jinping has declared that China’s ‘Space Dream’ is to overtake all nations and become the leading space power by 2045,” said Christopher Newman, professor of space law and policy at the U.K.’s Northumbria University. “This all feeds into China’s ambition to be the world’s single science and technology superpower.”

Why space?

In March, China highlighted space as a “frontier technology” it would focus on and research into the “origin and evolution of the universe.”

But there are other implications too.

“It is important for China and the US because it can advance technological development” in areas such as “national security and some socioeconomic development,” according to Sa’id Mosteshar, director of the London Institute of Space Policy and Law, and research fellow Christoph Beischl.

While experts doubt it could spiral into war in space, extra-terrestrial activities can support military operations on Earth.

Space achievements are also about the optics.

Through space exploration to the Moon or to Mars, “China and the U.S. display their technological sophistication to the domestic audience and the world, increasing their domestic and international prestige, domestic legitimacy and international influence,” Mosteshar and Beischl said.

#### That factionalizes the CCP and emboldens challenges to Xi – the PLA is increasingly powerful and not unconditionally subservient

Simpson 16 [(Kurtis, Centre Director with Defence Research and Development Canada, has been conducting research on China’s leadership, Communist Party politics, the People’s Liberation Army and foreign policy for over 30 years,Master’s Degree and a Ph.D from York University, previously served as an intelligence analyst at the Privy Council Office and leader of the Asia Research Section at the Department of National Defence’s Chief Defence Intelligence (CDI) organization) “China’s Re-Emergence: Assessing Civilian-Military Relations In Contemporary Era – Analysis,” Eurasia Review, 12/21/2016] JL

Paralleling divided loyalties between Chinese Party, military and government bodies, one must also recognize that within each, factions exist, based upon generational, personal, professional, geographic, or institutional allegiances.19 These minor fault lines are most pronounced during crises, and they continue independent of professionalization.20 As was demonstrated by the civil-military dynamics of the Chinese government’s suppression of student demonstrators, both divisions and allegiances of interests emerged with respect to how to contain this situation and factional interests largely determined which troops would carry out the orders, who commanded them, what civilian Party leaders supported the actions, and who would be sanctioned following the mêlée. A consequence of factionalism within the PLA is that the Party’s control mechanisms (particularly because rule of law and constitutional restraints on the military are weak) needs to be robust to control not only a single military chain of command but (particularly during crises) perhaps more than one. This is not likely the case. A review of the evidence indicates the military’s influence, on the whole, is increasing, and the Party’s control decreasing.

On one level, the Party clearly controls the military as the Central Military Commission or CMC (the highest military oversight body in the PRC) is chaired by a civilian, President Xi Jinping. Moreover, the PLAs representation on formal political decision-making bodies (such as the Politburo Standing Committee, the Politburo, the Central Committee, and the NPC) has decreased over the years, but this does not necessary equate to a reduced level of influence. For example, the two Vice-Chairman of the CMC are now military generals, as are the remaining other eight members. Irrespective of institutional membership, military leaders retain considerable say. Personal interactions and informal meetings with senior party elites provide venues to sway decisions. They do, also, hold important places on leading small groups dedicated to issues like Taiwan and other security questions, such as the South China Seas.21

In a similar vein, other methods of Party influence, as exercised through political commissars, party committees, and discipline inspection commissions are no longer empowered to enforce the ideological dictates of a paramount leader. In the face of diffuse reporting chains, competing allegiances, and often effective socialization by the military units they are supposed to be watching over, most do not provide the Party guardian and guidance function once so pervasive.

While perhaps overstated, Paltiel’s observation that “…China’s energies over the past century and half have given the military a prominent and even dominant role in the state, preempting civilian control and inhibiting the exercise of constitutional authority” is likely now truer than ever before in history.22 While still loyal to the party as an institution, the PLA is not unconditionally subservient to a particular leader and retains the resources to enter the political arena if (at the highest levels) a decision is made to do so.

The civilian-military trend lines evident in China since the end of the Cultural Revolution affirm that the symbiotic nature of the Party-PLA relationship has morphed in important respects since the late 1960s. The promotion of professionalism, a reduced role for ideological indoctrination, an increasing bifurcation of civil-military elites, and growing state powers (complete with divided loyalties and continued factionalism) has complicated the political landscape informing how the CCP interacts with the PLA. If, as postulated, we have moved from a fused, ‘dual role elite’ model to one of ‘conditional compliance’ in which the military actually holds a preponderance of the power capabilities and where its interests are satisfied through concessions, bargaining, and pay-offs, empirical evidence should reflect this. A review of China’s three major leadership changes since the transition from the revolutionary ‘Old Guard’ to the modern technocrats confirms this.

Formally anointed and legitimized by Deng in 1989, Jiang assumed leadership without military credentials and few allies, viewed by many as a ‘caretaker’ Party Secretary in the wake of the Tiananmen Massacre. Despite his limitations, Jiang was well versed in the vicissitudes of palace politics. Informed by a high political acumen, he immediately promoted an image as an involved Commander-in-Chief, personally visiting all seven military regions, a sign of commitment not made by either the likes of Mao or Deng. Symbolic gestures like this were bolstered by his providing incentives to the PLA, such as: consistent raises in the defence budget; funds for military modernization; as well as equipment, logistics, and augmented R&D.23

Referred to as the ‘silk-wrapped needle,’ Jiang marshalled Party resources to not only reward, but to punish.24 His institutional authority over appointments enabled him to manipulate factions, dismiss those who opposed him, enforce new rigid retirement standards, and promote loyalists. A delicate equilibrium was established during the early-1990s until his semi-retirement in 2004,25 where Jiang guaranteed military priorities such as supporting ‘mechanization’ and an ‘information-based military’ (promoting the concept of RMA with Chinese characteristics) in exchange for the PLA backing of his legacy contributions to Marxist Leninist Mao Zedong thought with the enshrinement of his “Three Represents” doctrine.

Like Jiang, Hu Jintao’s succession was the product of negotiation, compromise, and concessions. While neither opposed by the PLA, nor supported by the military ‘brass,’ Hu was a known commodity, having served as Vice-President (1998) and CMC Vice-Chairman since 1999. He was deemed acceptable until proven otherwise. In the shadow of Jiang (who retained the position of CMC Chair until 2004), Hu did not exert the same kind of influence in, nor engender the same kind of deference from, China’s military, but equally proved capable of fostering a pragmatic relationship with the army which ensured its interests, and in so doing, legitimized his leadership position.

Ceding much of the military planning and operational decisions to the PLA directly, Hu played to his strengths and focused upon national security issues (such as the successful resolution of SARs in China), which bolstered his credibility as a populist leader among the masses, indirectly increasing his power within both the military and the Party. Additionally, he focused upon foreign military security affairs (most notably, North Korea-US negotiations), which enabled him to link his personal political agenda with the military’s latest ambitions.

In according the military a distinct place in China’s national development plan, supporting China’s rise, and ensuring its vital interests, Hu recognized the military’s evolving requirement to ‘go global’ and its worldwide interests in non-combat operations, such as peacekeeping and disaster relief, as well as stakes in the open seas, outer space, and cyberspace as interest frontiers with no geographic boundaries.26 Under the slogan of ‘China’s historical mission in the new phase of the new century’ and his acquiescence to the PLA’s stated requirements ‘to win local wars under modern conditions’ by funding new technology acquisition, Hu received the army’s formal recognition for his contributions to military thought based upon “scientific development” which informed a “strategic guiding theory,” resulting in a new operational orientation for China’s military. Emulating his predecessor, Hu won ‘conditional compliance’ from the PLA by successfully bartering military needs and wants for the army’s support and endorsement of his political tenure. This was not done outside of self-interest. Hu, as did Jiang, skillfully coopted, fired, and promoted select Generals to serve his greater ends, and he did this through varied means. Ultimately, however, it was done in a manner acceptable to the military.

Xi Jinping’s rise to power in 2012, while replicating the ‘horse-trading’ of Jiang and Hu, marks a fundamental departure in leadership style. Often described as a transformative leader, Xi is openly critical of his predecessors and rails against earlier periods where reform stalled and corruption grew.27 An advocate of ‘top-level design,’ incrementalism is being supplanted by a massive attempt to centralize all aspects of the CCP’s power, which includes a major restructuring of the economy, government, administration, and military.

Nicknamed “the gun and the knife” as a slight for his attempts to simultaneously control the army, police, spies, and the ‘graft busters,’ Xi’s power appears uncontested at present. Nevertheless, he is also viewed as ‘pushing the envelope too far’ and endangering the equilibrium which has been established between the Party and PLA over the past 25 years. For example, only two years into his mandate, he fostered a Cult of Personality, “the Spirit of Xi Jinping” which was officially elevated to the same standing as that of Mao and Deng, by comparison, foundational figures in Chinese history. His open attacks of political ‘enemies’ (most notably Zhou Yongkang, a Politburo Standing Committee member and former security czar) breeds fear among almost every senior official, all of whom are vulnerable on some point. Equally true, an unprecedented anti-corruption campaign is inciting comrades to turn on comrades, not unlike a massive game of prisoner’s dilemma.

Nowhere is the pressure for reform greater than in the PLA. Xi advocates administering the army with strictness and austerity, promoting frugality and obedience. At his direction, “mass-line educational campaigns” designed to “rectify work style” through criticism and self-criticism are being implemented.28 Ideological and political building is now equated with army building, as a means of ensuring the Party’s uncontested grip over the troops ideologically, politically, and organizationally. Select military regions (those opposite Taiwan and adjacent to the South China Seas) and commanders from those regions are witnessing favoritism and promotion at the expense of others. Moreover, a new “CMC Chairmanship Responsibility System” has been instituted, which directly calls into question the support of some of Xi’s senior-most generals.

A ‘hardliner’ by nature, Xi recognizes that he must earn the support of the PLA. New military priorities he supports include: accelerating modernization; Joint Command and C4ISR; training; talent management, as well as equipment and force modernization. That said, his goal of achieving the Chinese dream of building a “wealthy, powerful, democratic, civilized, and harmonious socialist modernized nation” by 2021, the 100th anniversary of the founding of the CCP, is exceptionally ambitious. It will require endless commitments to competing interests in a period of economic stagnation and global economic downturn. Should the PLA come to believe they are not first in line for government largess, support for Xi could erode very quickly.29

#### CCP instability collapses the international order – extinction

Perkinson 12 [(Jessica, MA in international affairs from American University) “The Potential for Instability in the PRC: How the Doomsday Theory Misses the Mark,” American University School of International Service, 2012] JL

Should the CCP undergo some sort of dramatic transformation – whether that be significant reform or complete collapse, as some radical China scholars predict2 – the implications for international and US national security are vast. Not only does China and the stability of the CCP play a significant role in the maintenance of peace in the East Asian region, but China is also relied upon by many members of the international community for foreign direct investment, economic stability and trade. China plays a key role in maintaining stability on the Korean Peninsula as one of North Korea’s only allies, and it is argued that instability within the Chinese government could also lead to instability in the already sensitive military and political situation across the Taiwan Strait. For the United States, the effect of instability within the CCP would be widespread and dramatic. As the United States’ largest holder of US treasury securities, instability or collapse of the CCP could threaten the stability of the already volatile economic situation in the US. In addition, China is the largest trading partner of a number of countries, including the US, and the US is reliant upon its market of inexpensive goods to feed demand within the US.

It is with this in mind that China scholars within the United States and around the world should be studying this phenomenon, because the potential for reform, instability or even collapse of the CCP is of critical importance to the stability of the international order as a whole. For the United States specifically, the potential - or lack thereof - forreform of the CCP should dictate its foreign policy toward China. If the body of knowledge on the stability of the Chinese government reveals that the Chinese market is not a stable one, it is in the best interests of the United States to look for investors and trade markets elsewhere to lessen its serious dependence on China for its economic stability, particularly in a time of such uncertain economic conditions within the US.

## Case

### Solvency

#### 1) Vote neg on presumption – not defending implementation means the aff does nothing and desont declare a policy action

#### 2) Their aff is just absolutely ridiculous – literally their internal ilnks are missing so many args

#### 3) The authors are all bloggers and Youtubers – you should assign their scenarios extremely low risk given that they havent read evidence from qualified authors

#### 4) THEY JUST NO SOLVENCIED THEIR OWN AFF – if musk is just doing what nasa would do anyway then mars col is inevitable because nasa would do it post aff – means they only get impacts that say private col uniquely bad

#### Gonna turn the aff right here –

#### 5) Mars colonization is coming and possible:

#### 6) Terraforming is good and feasible — Mars.

**Tomlinson 19** [Zachary Tomlinson — author at *Interesting Engineering, “*Terraforming Will Define The Long-Term Future of Humanity,” *Interesting Engineering,* January 20th, 2019, <https://interestingengineering.com/terraforming-will-define-the-long-term-future-of-humanity>] KS

What We Could Benefit When addressing the issue of terraforming, there is the inevitable question – “why should we?” Given the expenditure in resources, the time involved, and other challenges that naturally arise, what reasons are there to engage in terraforming? Putting aside for the moment the prospect of some catastrophe like a nuclear holocaust, there is also the likelihood that life will become untenable on certain parts of our planet in the coming century. Carbon dioxide levels in the atmosphere have now surpassed 400 ppm, a level not seen since the Pliocene Era – when global temperatures and sea level were significantly higher. This trend is expected to continue for the rest of the century without serious counter-measures, and could result in an eight-degree increase in average global temperature. ADVERTISEMENT Terraforming Will Define The Long-Term Future of Humanity Source: Peter Harris If you haven’t already guessed, what I’m getting at is that humans have actually been altering climates at the planetary scale for quite some time now, we just didn’t fully realize what we were doing. And so we find ourselves in the situation where our own actions may make our own planet unlivable in a worryingly short amount of time. And while terraforming may allow us to create a second home to escape to on another planet, more importantly, it could also be a proving ground for the techniques and technologies we need to develop in order to make Earth more Earth-like again. ADVERTISEMENT But even if we can all agree that terraforming is a worthwhile pursuit, the questions still remains… Where? Making Mars Habitable Terraforming Will Define The Long-Term Future of Humanity Source: Wikimedia Commons Within the Solar System, several possible locations exist that could be well-suited to terraforming. Consider the fact that besides Earth, Venus and Mars also lie within the Sun’s Habitable Zone (aka. “Goldilocks Zone”). However, owing to Venus’ runaway greenhouse effect, and Mars’ lack of a magnetosphere, their atmospheres are respectively too thick and hot, or too thin and cold, to sustain life as we know it. However, this could theoretically be altered through the right kind of ecological engineering. Other potential sites in the Solar System include some of the moons that orbit the gas giants, several of which have an abundance of water ice which could make habitability especially easy. And there is even some research into whether our own moon could be terraformed, although what the moon may have going for it in proximity to us, it more than makes up for with the challenges it brings. What this all boils down to in the end, is that the primary contender for a first go at terraforming is, and really always has been, Mars. ADVERTISEMENT There are several reasons for this, ranging from Mars’ proximity to Earth, its similarities to Earth in daily and seasonal cycles, and the fact that it once had an environment that was very similar to Earth’s. Lastly, of course, there is currently a lot of evidence that Mars may have additional sources of water beneath its surface. Of course, that doesn’t mean that terraforming Mars would be easy. Mars would need to undergo vast transformations in order for human beings to live on its surface. The atmosphere would need to be thickened drastically, and its composition would need to be changed. Above all, Mars lacks a magnetosphere, which means that its surface receives significantly more radiation than we are used to here on Earth, and unfortunately leaves it vulnerable to atmosphere-stripping solar wind. ADVERTISEMENT Luckily these problems aren’t insurmountable. There have been a range of different terraforming options proposed for mars which all could work including bombarding its poles with meteors to melt the ice caps, building orbital mirrors to reflect sunlight, building factories to release greenhouse gasses while manufacturing parts for a space colony, or even using bioengineered extremophile bacteria to convert the atmospheric composition into one we can breath. The essence of all of these approaches though is to thicken the atmosphere, thus initiating a greenhouse effect to warm the planet up, then refining the atmospheric composition once liquid water returns.In short, there are plenty of options for terraforming Mars. And many of them, if not being readily available, are at least on the table. It is important to keep in mind though, that without some immense leap in these technologies, the process of terraforming any planet is something that will happen on the order of many decades if not centuries. So don't get your hopes up for winter holidays skiing the slopes of Olympus Mons anytime soon.

#### 7) Fourth wave of science means it’s feasible and solves

**Kaku 18** [Michio, an American theoretical physicist, futurist, and popularizer of science. He is a professor of theoretical physics in the City College of New York and CUNY Graduate Center. “There's Only One Way For Humanity to Survive. Go To Mars.,” <https://news.nationalgeographic.com/2018/02/there-s-only-one-way-for-humanity-to-survive--go-to-mars-/>] BJR

You use the phrase “the fourth wave of science.” Explain what this means and how it could one day make it possible to terraform Mars. We’ve had three waves of scientific innovation. The first wave, the Industrial Revolution, gave us the steam engine, the locomotive, and factories. The second wave was electricity and magnetism, whereby we had TV, internal combustion cars, a beginning of the space program. The third revolution is high tech: computers, lasers, the Internet. Now we have the fourth wave of innovation: artificial intelligence, biotech, and nanotech. That’s going to change the way we view Mars. Many people say Mars is cold and desolate, and there’s nothing to grow there. We can genetically modify plants and algae to thrive in the Martian atmosphere. But who’s going to do the heavy lifting? We all would like to see futuristic cities on Mars, but robots are going to become much more adapted to working in these harsh environments by the end of this century, so we expect to see robotic construction workers building the fantastic domed cities you see in science fiction novels.

#### 8) Investing in space exploration solves extinction, the economy, and warming

Dubner, American journalist & Freakonomics Author, 8 (Steven, Is Space Exploration Worth the Cost? A Freakonomics Quorum, Freakonomics Blog, http://freakonomics.com/2008/01/11/is-space-exploration-worth-the-cost-a-freakonomics-quorum/)

Pretend that instead of being responsible for your household budget, which means paying for rent or a mortgage, transportation, some schooling costs, groceries, healthcare, vacation, etc., you are instead responsible for a considerably larger budget that provides a variety of services for about 300 million people including the maintenance of an army, protecting the borders, etc. In other words, pretend you are responsible for the U.S. Federal budget. And now ask yourself how much of that money you want to spend on manned space travel, and why. We gathered up a group of space authorities — G. Scott Hubbard, Joan Vernikos, Kathleen M. Connell, Keith Cowing, and David M. Livingston, and John M. Logsdon — and asked them the following: Is manned space exploration worth the cost? Why or why not? Their responses are below. As I suggested above, take your time. For the impatient among you, here are a few highlights: Logsdon on a not-so-obvious incentive for manned space travel: “Space exploration can also serve as a stimulus for children to enter the fields of science and engineering.” Vernikos on the R.O.I. of space travel: “Economic, scientific and technological returns of space exploration have far exceeded the investment. … Royalties on NASA patents and licenses currently go directly to the U.S. Treasury, not back to NASA.” Cowing on space expenditures relative to other costs: “Right now, all of America’s human space flight programs cost around $7 billion a year. That’s pennies per person per day. In 2006, according to the USDA, Americans spent more than $154 billion on alcohol. We spend around $10 billion a month in Iraq. And so on.” I hope you enjoy their answers, and learn from them, as much as I did. G. Scott Hubbard, professor of Aeronautics and Astronautics at Stanford University and former director of the NASA Ames Research Center: The debate about the relative merits of exploring space with humans and robots is as old as the space program itself. Werner Von Braun, a moving force behind the Apollo Program that sent humans to the moon and the architect of the mighty Saturn V rocket, believed passionately in the value of human exploration — especially when it meant beating the hated Soviet Empire. James Van Allen, discoverer of the magnetic fields that bear his name, was equally ardent and vocal about the value of robotic exploration. There are five arguments that are advanced in any discussion about the utility of space exploration and the roles of humans and robots. Those arguments, in roughly ascending order of advocate support, are the following: 1. Space exploration will eventually allow us to establish a human civilization on another world (e.g., Mars) as a hedge against the type of catastrophe that wiped out the dinosaurs. 2. We explore space and create important new technologies to advance our economy. It is true that, for every dollar we spend on the space program, the U.S. economy receives about $8 of economic benefit. Space exploration can also serve as a stimulus for children to enter the fields of science and engineering. 3. Space exploration in an international context offers a peaceful cooperative venue that is a valuable alternative to nation state hostilities. One can look at the International Space Station and marvel that the former Soviet Union and the U.S. are now active partners. International cooperation is also a way to reduce costs. 4. National prestige requires that the U.S. continue to be a leader in space, and that includes human exploration. History tells us that great civilizations dare not abandon exploration. 5. Exploration of space will provide humanity with an answer to the most fundamental questions: Are we alone? Are there other forms of life beside those on Earth? It is these last two arguments that are the most compelling to me. It is challenging to make the case that humans are necessary to the type of scientific exploration that may bring evidence of life on another world. There are strong arguments on both sides. Personally, I think humans will be better at unstructured environment exploration than any existing robot for a very long time. There are those who say that exploration with humans is simply too expensive for the return we receive. However, I cannot imagine any U.S. President announcing that we are abandoning space exploration with humans and leaving it to the Chinese, Russians, Indians, Japanese or any other group. I can imagine the U.S. engaging in much more expansive international cooperation. Humans will be exploring space. The challenge is to be sure that they accomplish meaningful exploration. Joan Vernikos, a member of the Space Studies Board of the National Academy and former director of NASA’s Life Sciences Division: Why explore? Asked why he kept trying to climb Everest, English mountaineer George Mallory reputedly replied, “Because it was there.” Exploration is intrinsic to our nature. It is the contest between man and nature mixed with the primal desire to conquer. It fuels curiosity, inspiration and creativity. The human spirit seeks to discover the unknown, and in the process explore the physical and psychological potential of human endurance. There have always been the few risk-takers who ventured for the rest of us to follow. Because of earlier pioneers, air travel is now commonplace, and space travel for all is just around the corner. Economic and societal benefits are not immediately evident, but they always follow, as does our understanding of human potential to overcome challenges. Fifty years after Sputnik, space remains the next frontier. Without risking human lives, robotic technology such as unmanned missions, probes, observatories, and landers enables space exploration. It lays the groundwork, and does the scouting. But as I heard former astronaut Thomas Jones often say, “only a human can experience what being in space feels like, and only a human can communicate this to others.” It is humans who repair the Hubble telescope. It is humans who service the International Space Station (ISS). Mercury astronauts were the first to photograph Earth from space with hand-held cameras. Earth scientists in orbit on the ISS may view aspects of global change that only a trained eye can see. In addition, studying astronauts in the microgravity of space has been the only means of understanding how gravity affects human development and health here on Earth. It is highly probable that, in this century, humans will settle on other planets. Our ability to explore and sustain human presence there will not only expand Earth’s access to mineral resources but, should the need arise, provide alternative habitats for humanity’s survival. At what cost? Is there a price to inspiration and creativity? Economic, scientific and technological returns of space exploration have far exceeded the investment. Globally, 43 countries now have their own observing or communication satellites in Earth orbit. Observing Earth has provided G.P.S., meteorological forecasts, predictions and management of hurricanes and other natural disasters, and global monitoring of the environment, as well as surveillance and intelligence. Satellite communications have changed life and business practices with computer operations, cell phones, global banking, and TV. Studying humans living in the microgravity of space has expanded our understanding of osteoporosis and balance disorders, and has led to new treatments. Wealth-generating medical devices and instrumentation such as digital mammography and outpatient breast biopsy procedures and the application of telemedicine to emergency care are but a few of the social and economic benefits of manned exploration that we take for granted. Space exploration is not a drain on the economy; it generates infinitely more than wealth than it spends. Royalties on NASA patents and licenses currently go directly to the U.S. Treasury, not back to NASA. I firmly believe that the Life Sciences Research Program would be self-supporting if permitted to receive the return on its investment. NASA has done so much with so little that it has generally been assumed to have had a huge budget. In fact, the 2007 NASA budget of $16.3 billion is a minute fraction of the $13 trillion total G.D.P. “What’s the hurry?” is a legitimate question. As the late Senator William Proxmire said many years ago, “Mars isn’t going anywhere.” Why should we commit hard-pressed budgets for space exploration when there will always be competing interests? However, as Mercury, Gemini and Apollo did 50 years ago, our future scientific and technological leadership depends on exciting creativity in the younger generations. Nothing does this better than manned space exploration. There is now a national urgency to direct the creative interests of our youth towards careers in science and engineering. We need to keep the flame of manned space exploration alive as China, Russia, India, and other countries forge ahead with substantial investments that challenge U.S. leadership in space. Kathleen M. Connell, a principal of The Connell Whittaker Group, a founding team member of NASA’s Astrobiology Program, and former policy director of the Aerospace States Association: The value of public sector human space exploration is generally perceived as worth the cost when exploration outcomes address one or more national imperatives of the era. For example, in the twentieth century, the Soviet Union’s launch of Sputnik required a bold technological retort by the U.S. Apollo put boots on the moon, winning the first space race. The resulting foreign policy boost and psychic prestige for the U.S. more that justified the cost for the Cold War generation. Unquestionably, manned exploration of that era also created unintended economic consequences and benefits, such as the spinoff of miniaturization that led to computers and cell phones. Apollo also created new NASA centers in the South, acting as an unanticipated economic development anchor for those regions, both then and now. In the twenty-first century, what would happen if U.S. manned space programs were managed based upon the contemporary demands of the planet and the American taxpayer? NASA could be rewarded to explore, but with terrestrial returns as a priority. Space exploration crews could conduct global warming research on the International Space Station National Laboratory, while other crews from the public or private sector could rapidly assemble solar energy satellites for clean energy provision to Earth. Lunar settlements could be established to develop new energy sources from rare compounds that are in abundance on the moon. Getting to Mars, to develop a terrestrial lifeboat and to better understand the fate of planets, suddenly takes on new meaning and relevance. I have to come the conclusion, after over 20 years in the space industry, that addressing global challenges with space solutions that benefit humanity and American constituents is the key to justifying the cost of manned space exploration. I believe we are about to find out, all over again, if civil manned space capability and policy can adapt and rise to meet new imperatives. Keith Cowing, founder and editor of NASAWatch.com and former NASA space biologist. Right now, all of America’s human space flight programs cost around $7 billion a year. That’s pennies per person per day. In 2006, according to the USDA, Americans spent more than $154 billion on alcohol. We spend around $10 billion a month in Iraq. And so on. Are these things more important than human spaceflight because we spend more money on them? Is space exploration less important? Money alone is not a way to gauge the worthiness of the cost of exploring space. NASA is fond of promoting all of the spinoffs that are generated from its exploits, such as microelectronics. But are we exploring space to explore space, or are we doing all of this to make better consumer electronics? I once heard the late Carl Sagan respond to this question by saying, “you don’t need to go to Mars to cure cancer.” If you learn how to do that as a side benefit, well, that’s great, but there are probably more cost effective ways to get all of these spinoffs without leaving Earth. To be certain, tax dollars spent on space projects result in jobs — a large proportion of which are high paying, high tech positions. But many other government programs do that as well — some more efficiently. Still, for those who would moan that this money could be “better spent back on Earth,” I would simply say that all of this money is spent on Earth — it creates jobs and provides business to companies, just as any other government program does. You have to spend all of NASA’s money “on Earth.” There is no way to spend it in space — at least, not yet. Where am I going with this? Asking if space exploration — with humans or robots or both — is worth the effort is like questioning the value of Columbus’s voyages to the New World in the late 1490s. The promise at the time was obvious to some, but not to others. Is manned space exploration worth the cost? If we Americans do not think so, then why is it that nations such as China and India — nations with far greater social welfare issues to address with their limited budgets — are speeding up their space exploration programs? What is it about human space exploration that they see? Could it be what we once saw, and have now forgotten? As such, my response is another question: for the U.S. in the twenty-first century, is not sending humans into space worth the cost? David M. Livingston, host of The Space Show, a talk radio show focusing on increasing space commerce and developing space tourism: I hear this question a lot. So a few years ago, I decided to see what really happened to a public dollar spent on a good space program, compared to spending it on an entitlement program or a revenue generating infrastructure program. I used the school breakfast program for the test entitlement program. I chose Hoover Dam for the revenue generating infrastructure program. The space program I chose was the manned program to the moon consisting of the Mercury, Gemini, and Apollo programs. Let me briefly summarize what I discovered. All programs, if properly managed, can produce benefits in excess to the original invested dollar. There is no guarantee that a program will be properly managed, and this includes a space program. “Properly managed” implies many things, but I don’t think space is any more or less likely to be well managed than anything else the government does. A mismanaged space program wastes money, talent, and time, just like any other faulty program. As for what happened to the dollar invested in the respective programs, the school breakfast program was successful, in that it increased the number of kids who received breakfast. However, when funding for this program or this type of program stops, as soon as the last of the funds goes through the pipeline, the program is over. It has no life past government funding. I was unable to find an inspirational or motivational quality for the program leading to downstream business, economic, or science advancements. One could make the case that kids who benefited from the program went on through school to accomplish great things, and I don’t doubt that — I simply could not document it in my research. The Hoover Dam was very interesting. This project paid off its bond cost early, was a major contributor to the U.S. victory in World War II, and has been a huge economic factor for development in the Western part of the country. However, the Hoover Dam requires overhead and maintenance investment on a continual basis. It needs repairs, updates, modernization, and security, and it employs a labor force. Were we to stop investing in the Hoover Dam, over time it would lose its effectiveness and cease to be the value to our nation that it is now. Its value to us depends on our willingness to maintain, protect, and update it as necessary. The Hoover Dam and Lake Mead have given birth to thousands of private businesses, economic growth for the region, and much more. However, as with the entitlement program above, I could not find an inspirational or motivational aspect to the Hoover Dam. What I discovered about our manned lunar program was different. When I did this study, it was 34 years after the last dime had been spent on Apollo, the last of the manned moon programs. Thirty-four years later, when I asked guests on The Space Show, students, and people in space-related fields what inspired or motivated them to start a space business or pursue their science education, over 80 percent said they were inspired and motivated because of our having gone to the moon. Businesses were started and are now meeting payrolls, paying taxes, and sustaining economic growth because the founder was inspired by the early days of the manned space program, often decades after the program ended! This type of inspiration and motivation seems unique to the manned space program and, of late, to some of our robotic space missions. I found the same to be true when I asked the same question to Space Show guests from outside the U.S. John M. Logsdon, director of the Space Policy Institute and acting director of the Center for International Science and Technology Policy at George Washington University’s Elliott School of International Affairs: The high costs of sending humans into orbit and beyond are measured in dollars, rubles, or yuan. The benefits of human spaceflight are not so easily calculated, since they include both tangible and intangible payoffs. So answering the question, “Do the benefits outweigh the costs?” is not straightforward. If the payoffs are limited to scientific discovery, the position taken by many critics of human spaceflight is “no.” With both current and, especially, future robotic capabilities, the added value of human presence to missions aimed primarily at new understanding of the moon, Mars, near-Earth asteroids, and other celestial destinations most likely does not justify the added costs and risks involved. However, Steve Squyres, the principal investigator for the Mars Exploration Rovers, has frequently said that he wished that spirit and opportunity were working in partnership with humans on the surface of Mars; that combination, he argues, would greatly increase the scientific payoffs of the mission. To me, the primary justifications for sending people into space require that they travel beyond low Earth orbit. For the next few decades, the major payoffs from humans traveling to the moon and Mars are intangible, and linked to both national pride and national power. Space exploration remains an effort that can be led by only a few countries, and I believe that it should be part of what the United States does in its desire to be seen by both its citizens and the global public as a leader, one to be admired for its continued willingness to invest in pushing the frontiers of human activity. In the longer run, I believe that human exploration is needed to answer two questions. One is: “Are there activities in other places in the solar system of such economic value that they justify high costs in performing them?” The other is: “Can humans living away from Earth obtain at least a major portion of what they need to survive from local resources?” If the answer to both questions is “yes,” then I believe that eventually some number of people in the future will establish permanent settlements away from Earth, in the extreme case to ensure that the human species will survive a planetary catastrophe, but also because people migrate for both economic opportunities and new experiences. That is a big jump from today’s argument regarding the costs and benefits of human spaceflight, but I believe such a long range perspective is the best way to justify a new start in human space exploration.

#### 9) Economic decline causes extinction.

Qian **Liu 18**. China-based economist. “From economic crisis to World War III.” Project Syndicate. 11-8-2018. https://www.project-syndicate.org/commentary/economic-crisis-military-conflict-or-structural-reform-by-qian-liu-2018-11

The next economic crisis is closer than you think. But what you should really worry about is what comes after: in the **current** **social, political, and technological** **landscape**, a **prolonged** **economic crisis**, combined with rising income inequality, could well escalate into a **major global military conflict**. The 2008-09 global financial crisis almost bankrupted governments and caused systemic collapse. Policymakers managed to pull the global economy back from the brink, using massive monetary stimulus, including **q**uantitative **e**asing and near-zero (or even negative) interest rates. But monetary stimulus is like an adrenaline shot to jump-start an arrested heart; it can revive the patient, but it does nothing to cure the disease. Treating a sick economy requires structural reforms, which can cover everything from financial and labour markets to tax systems, fertility patterns, and education policies. Policymakers have utterly failed to pursue such reforms, despite promising to do so. Instead, they have remained preoccupied with politics. From Italy to Germany, forming and sustaining governments now seems to take more time than actual governing. Greece, for example, has relied on money from international creditors to keep its head (barely) above water, rather than genuinely reforming its pension system or improving its business environment. The lack of structural reform has meant that the unprecedented excess liquidity that central banks injected into their economies was not allocated to its most efficient uses. Instead, it raised global asset prices to levels even higher than those prevailing before 2008. In the United States, housing prices are now 8% higher than they were at the peak of the property bubble in 2006, according to the property website Zillow. The price-to-earnings (CAPE) ratio, which measures whether stock-market prices are within a reasonable range, is now higher than it was both in 2008 and at the start of the Great Depression in 1929. As monetary tightening reveals the vulnerabilities in the real economy, the collapse of asset-price bubbles will trigger another economic crisis – one that could be even more severe than the last, because we have built up a tolerance to our strongest macroeconomic medications. A decade of regular adrenaline shots, in the form of ultra-low interest rates and unconventional monetary policies, has severely depleted their power to stabilise and stimulate the economy. If history is any guide, the consequences of this mistake could extend far beyond the economy. According to Harvard’s Benjamin Friedman, **prolonged** **periods of** **economic** **distress** have been characterised also by public **antipathy toward** **minority groups or** **foreign countries** – attitudes that can help to **fuel unrest**, **terrorism**, or even **war**. For example, during the Great Depression, US President Herbert Hoover signed the 1930 **Smoot-Hawley** Tariff Act, intended to protect American workers and farmers from foreign competition. In the subsequent five years, global trade shrank by two-thirds. Within a decade, **World War II** had begun. To be sure, WWII, like World War I, was caused by a multitude of factors; there is no standard path to war. But there is reason to believe that high levels of inequality can play a significant role in stoking conflict. According to research by the economist Thomas **Piketty**, a spike in income inequality is often followed by a great crisis. Income inequality then declines for a while, before rising again, until a new peak – and a new disaster. Though causality has yet to be proven, given the limited number of data points, this correlation should not be taken lightly, especially with wealth and income inequality at historically high levels. This is all the more worrying in view of the numerous other factors stoking social unrest and diplomatic tension, including technological disruption, a record-breaking migration crisis, anxiety over globalisation, political polarisation, and rising nationalism. All are symptoms of failed policies that could turn out to be trigger points for a future crisis. Voters have good reason to be frustrated, but the emotionally appealing **populists** to whom they are increasingly giving their support are offering ill-advised solutions that will **only** **make matters worse**. For example, despite the world’s unprecedented interconnectedness, **multilateralism is** **increasingly** **being eschewed**, as countries – most notably, Donald J. Trump’s US – pursue unilateral, isolationist policies. Meanwhile, **proxy wars** are **raging in Syria and Yemen**. Against this background, we must take seriously the possibility that the **next** **economic** **crisis could lead to a large-scale military confrontation**. By the logic of the political scientist Samuel Huntington, considering such a scenario could help us avoid it because it would force us to take action. In this case, the key will be for policymakers to pursue the structural reforms that they have long promised while replacing finger-pointing and antagonism with a sensible and respectful global dialogue. The alternative may well be global conflagration.

### Colonization adv

#### 1) Scenario is dumb – their internal link ev which is the Morton ev is super speculative and says NOTHING

#### 2) Williston is irrelevant – about past programs, doesn’t assume the neg’s specific ones and doesn’t say col attempts are bad

#### 3) Kern – this card is powertagged and doesn’t say the pursuit of Mars colonization is bad

#### 4) Mars col not happenieg means just vote neg on presumption bc there is nothing the aff does ??

#### 5) Mordern is a retired philosopher, but we read actual evidence about the aff

#### 6) The warming impact is absurd – it assumes that we started a fully self sustaining mars col which they said wont happen – the ev that they name dropped in cx doesn’t make that claim, only Morton does, and you can just read that ev after the round

#### 7) They havent read war causes ext which means their arg doesn’t matter

#### We get to insert re-highlightings – it’s not ‘cheating’ because it just points out broader arguments we’re making about the evidence – anything else causes a moral hazard where teams will spam miscut evidence because reading recuttings and pointing out evidentiary flaws takes longer than reading the evidence

**8) Risen has absolutely no quals, you shouldn’t give any credence to Risen thinking that private appropriation trades off with other issues on Earth AND they think that Mars col is good– Harker reads yellow**

**1AC Risen 17**

(Tom covers breaking news and writes features. He has reported for U.S. News & World Report, Slate and Atlantic Media. <https://aerospaceamerica.aiaa.org/features/selling-mars-as-planet-b/>, June)

Musk has long favored Mars colonization as a means to survive what he calls an “inevitable” extinction event on Earth. On its website, SpaceX says that the company was founded in 2002 “with the ultimate goal of enabling people to live on other planets.” The tech entrepreneur reiterated that survivalist message in September at the International Astronautical Congress in Mexico, saying humans have to become “a multiplanetary species” and build complete cities on Mars with all the amenities, including “iron foundries, pizza joints, you name it.” Voices in popular culture and social media have echoed this argument for why NASA and its presumed international partners should spend years of work and billions of dollars sending humans to Mars. Interviews with a broad range of scientists and futurists, however, **reveal skepticism about the wisdom and feasibility of selling Mars as “Planet B.”** The implication that Mars colonization should be **prioritized over fixing Earth’s problems**, **such as climate change**, unsettles Katharine Hayhoe, director of the Climate Science Center at Texas Tech University. “Mars is **not an escape hatch** for planet Earth,” Hayhoe says. “If we do not take action to reduce and eventually eliminate our carbon emissions, they will overwhelm human civilization as we know it**, long before Mars is ready to be colonized** by large numbers of people.” A Mars colony would need a huge investment of supply ships to keep settlers alive in the toxic, freezing Martian environment, but the numerous abandoned bases in Antarctica show that building cities in less hazardous places on Earth is difficult enough. Advocates of a colony tout the potential to mine water and rare minerals on the red planet, but searching for resources or avoiding a potential asteroid strike on Earth are not immediate enough motivations to inspire a Mars settlement, says Andy Weir, author of “The Martian,” which depicts an astronaut stranded on Mars. “I don’t believe there will ever be a permanent settlement on Mars or the moon or anywhere else off Earth until there’s an economic reason for it,” Weir says. “**Whatever Earth’s problems are, it’s considerably easier to fix Earth than it is to colonize Mars.”** Weir and others consider Mars an inhospitable place where the first goal should be **research rather than settlement,** at least for the near future. Pascal Lee, a planetary scientist at NASA’s Ames Research Center in California, points to exploration of Antarctica as a realistic model for how Mars might be studied. International research stations on Antarctica host rotating scientific teams, and this strategy has kept a sustained but limited human presence there. “There is an **escapism** to wanting to go to Mars and start anew,” Lee says of the appeal of colonization. “The issue with that particular enticing concept is — ‘to go to what?’ You would need an entire infrastructure set up in advance to support people there.” Missions to Mars don’t need to result in colonization to **improve humanity’s chances of survival**, says Robert Zubrin, president of the nonprofit Mars Society, which advocates for research to explore and study the red planet. The Mars Society is training people at research stations in the Canadian Arctic and the Utah desert to simulate life on Mars. “A culture which is going to Mars is going to be much more adept at furthering its prospects on Earth,” Zubrin says. Zubrin is bullish on exploration, but says he “**doesn’t see merit” in the concept of colonizing** Mars to ensure that at least some humans would live on after a catastrophe on Earth like a massive asteroid strike. That said, Zubrin expects “Mars will be a pressure cooker for innovation because you have to adapt.” By exploring Mars, scientists and engineers could uncover new technologies to deflect asteroids and also improve medicine or grow more productive crops on Earth. “By becoming a spacefaring species we will gain greater control over our environment, which is essential to our long-term survival,” he says. If colonization were to be attempted, how might that work? A future where millions of humans live on Mars is central to the story of “The Expanse,” a TV show on the Syfy Channel inspired by novels written by Daniel Abraham and Ty Franck. Abraham says logistics would be a challenge to making this fantasy a reality. “Moving large populations from one planet to another with present or foreseeable technology is like drinking a lake through a coffee straw,” he says. “The more likely scenario to me is that we make Mars, Venus, Europa or wherever we’re aiming for a habitable, sustainable environment and then build up the population in the traditional way.” Humanity’s need to explore and expand has not always been a positive instinct, Franck says. On the show, the vision of colonization is far from utopian, as an independent Mars government and a crowded Earth are on the brink of war. He and Abraham caution against looking at Mars as an escape from the side of human nature that Hawking fears could threaten life on Earth. “Humanity isn’t likely to change much, whatever context you put us in,” Abraham says. “If the barrier to space exploration is that we have to change human nature first, we’re kind of sabotaging the project at the start, right?”

**9) Pizzigati isn’t about how private appropriation of space is inherently bad, it’s just a tirade about Musk – they don’t keep the government from giving tax money to SpaceX or Musk from using it on whatever he wants – Harker reads yellow**

**1AC Pizzigati 18**

Sam Pizzigati, (Veteran labor journalist and Institute for Policy Studies associate), 3-21-2018, "Billionaires won’t save the world – just look at Elon Musk," https://www.commondreams.org/views/2018/03/21/billionaires-wont-save-world-just-look-elon-musk, // HW AW

Will Mars save humanity? Or will our savior be billionaire Elon Musk? Musk, the CEO of SpaceX and Tesla, humbly believes we don’t have to choose. Mars will save us, he promises, and Musk himself will engineer this Mars miracle. In 2019, Musk claims, SpaceX will [start making](https://www.cbsnews.com/news/elon-musk-revises-spacex-mars-plans-hopes-for-flights-2022/) short trips to Mars. By the early 2020s, his company will begin colonizing the Red Planet with a human population. Why this feverish haste to set foot on interplanetary terra firma? Musk [sees](https://www.cnet.com/news/elon-musk-wants-to-preserve-humanity-in-space/?ftag=CAD090e536&bhid=21042762719686224048097372147668) a new “dark age” descending on our precious Earth. Another world war — or some environmental collapse — appears likely to threaten us with extinction, he fears. Mars strikes Musk as our ideal refuge, the place where humankind will heroically regroup and eventually “bring human civilization back” to our mother planet. And we can even have some fun in the process. The Mars colony that Musk envisions will have everything from iron foundries to “pizza joints and nightclubs.” “Mars,” he [quips](https://www.cnet.com/news/elon-musk-wants-to-preserve-humanity-in-space/?ftag=CAD090e536&bhid=21042762719686224048097372147668), “should really have great bars.” Reporters have become accustomed to this sort of visionary whimsy from Musk. The billionaire, In These Times says, has [crafted](http://inthesetimes.com/working/entry/20899/elon-musk-spacex-tesla-falcon-heavy-launch) his image as “a quirky and slightly off-kilter playboy genius inventor capable of conquering everything from outer space to the climate crisis with the sheer force of his imagination.” This carefully cultivated image has proven extraordinarily lucrative. Investors now value Tesla, his 15-year-old car company, at around $60 billion — not bad, [note](http://wallstreetonparade.com/2018/03/this-is-not-normal-markets-elon-musk-and-donald-trump/) Wall Street watchdogs Pam and Russ Martens, for a firm that “lost almost $2 billion last year and has never delivered an annual profit to shareholders.” But Musk remains [supremely confident](https://www.cbsnews.com/news/elon-musk-mars-explorers-sxsw-south-by-southwest-austin-texas-today-2018-03-13/) that his enterprise on Mars will take root and prosper. He’s betting a good chunk of his fortune on that. Or rather, **he’s betting a good chunk of taxpayers’ fortune**. Musk owes his billions, as commentator Kate Aronoff [points out](https://www.salon.com/2018/02/12/the-case-for-nationalizing-elon-musk/), to the **billions in direct taxpayer subsidies his companies have received over the years — and the billions more in taxpayer-funded research into rocket technology and other high-tech fields of knowledge**. **So Musk is essentially investing our billions in his own pet projects, everything from the Mars gambit to establishing a** [**mass-market niche**](https://www.theverge.com/tldr/2018/2/1/16954950/elon-musk-flamethrowers-sold-out) **for high-tech flamethrowers.** None of this is going to rescue humanity anytime soon. Indeed, if Musk really wanted to ensure humankind a sustainable future, he wouldn’t be plotting escapes to Mars or marketing flamethrowers to the masses. He’d be challenging the global economic status quo that’s left him phenomenally rich and our world phenomenally unequal. This inequality **may well pose the greatest threat to our well-being as a species.** Stark economic divides invite armed confrontations. Inequality and conflict, Norwegian scholars observed last year in a [major report](https://www.prio.org/Publications/Publication/?x=10538) for the United Nations and the World Bank, remain “inextricably linked.” They found that “**inequality influences the outbreak and dynamics of violent conflict,”** going all the way back to the ancient Greeks. In more recent years, researchers have made great strides in understanding the actual pathways in unequal societies that turn conflict violent. But huge gaps in the research are still frustrating our understanding. What we do know: Hawking high-tech flamethrowers is never going to save humanity. Neither will bar-hopping on Mars.

**10) Bharmal has literally no quals be highly skeptical to their claim that private space appropriation causes serial policy failure (and honestly what does this even mean?) or resource misallocation Private colonization ensures error replication and resources would be better deployed terrestrially – Harker reads quals in yellow**

**1AC Bharmal 18**

(Zahaan works for Google and is a recipient of Nasa’s Exceptional Public Achievement Medal for YouTube Space Lab. [https://www.theguardian.com/science/blog/2018/aug/28/the-case-against-mars-colonisation 8-28](https://www.theguardian.com/science/blog/2018/aug/28/the-case-against-mars-colonisation%208-28))

The most polarising issue in the Mars debate is arguably the tension between those dreaming of a second home and those prioritising the one we have now. Before his death, Stephen Hawking made the bleak prediction that humanity only had 100 years left on Earth. Faced with a growing list of threats – climate change, overpopulation, nuclear war – Hawking believed that we had reached "the point of no return" and had no choice as a species but to become multi-planetary – starting with the colonisation of Mars. Elon Musk has also said on numerous occasions that we need a “backup planet” should something apocalyptic – like an asteroid collision – destroy Earth. **However, not everyone agrees**. In the Pew survey mentioned earlier, a majority of US adults believed that Nasa’s number one priority should be fixing problems on Earth. The billions – if not trillions – of dollars needed to colonise Mars could, for example, **be better spent investing in renewable forms of energy to address climate change or strengthening our planetary defences against asteroid collisions.** And of course, **if we have not figured out how to deal with problems of our own making here on Earth, there is no guarantee that the same fate would not befall Mars colonists.** Furthermore, if something truly horrible were to happen on Earth, it’s not clear Mars would actually be an **effective salvation.** Giant underground bunkers on Earth, for example, **could protect more people, more easily than a colony on Mars**. And in the event of apocalyptic scenario, it is possible that the conditions on Earth – **however horrific** – **may still be more hospitable than the Martian wasteland**. Let's not forget that Mars has next to no atmosphere, only one third gravity and is exposed to surface radiation approximately 100 times greater than on Earth.

**11) Their “discount optimism about space col” card is once again literally from a rando AND it says Mars colonization is feasible – Harker read yellow**

**1AC Prell 18**

(James Prell is a recent graduate of the University of Pennsylvania. He reads and writes about science, technology, and society. [https://www.sciencehistory.org/distillations/the-folly-of-the-martian-back-up-plan 8-17](https://www.sciencehistory.org/distillations/the-folly-of-the-martian-back-up-plan%208-17))

In an interview with the American astrophysicist Neil deGrasse Tyson in 2010, Stephen Colbert called astronauts “the supermodels of science.” The bit was satirical, but Colbert had a point: for many, spaceflight is sexy. The serious question is: do we actually need to send people into space—supermodels or not? In recent years, buzz has surrounded the partnership between NASA and SpaceX, a company whose founder, Elon Musk, has famously stated that he will launch the first manned mission to Mars in 2024. On February 6, SpaceX ran its first test launch of the Falcon Heavy, a rocket system with three reusable boosters that Musk says is the precursor to the BFR, or Big Falcon Rocket, that he intends to build in order to carry the first colonists to Mars. For Musk, an independent colony on Mars would function as a way to "back up the biosphere." If anything were to happen on Earth that could cause an extinction event, such as nuclear war or a meteor strike, Musk sees Mars as a way to ensure that humanity survives. This existential reasoning for traveling to the red planet does **come with a problem**. We have barely developed the technology to consistently launch these rockets. Musk is confident in the tech behind his reusable boosters, but experts like Dan Dumbacher—a former NASA employee—remain skeptical. “We tried to make [the space shuttle] reusable for 55 flights,” he told SpaceNews in 2014. “Look how long and how much money it took for us to do that, and we still weren’t completely successful for all the parts. I want to be realistic: **We are not as smart as we think we are and we don’t understand the environment as well as we think we do.”** The cost of each launch during the space shuttle program, with refurbishment costs taken into account, ran between $450 million and $1.5 billion. SpaceX’s account of their costs have been well below those figures, averaging between $61.2 million and $42.8 million per launch. However, the private company does not have 30 years’ worth of data on refurbishment costs at this point, so it is too early to celebrate its success. And that’s just getting off the ground. It would cost between $121 and $48 billion per person per year to sustain a Martian colony according to data from Popular Science Magazine in 2013, but the real cost is impossible to know without actually going. Why should we spend time and resources trying to survive **on Mars when we could be working to understand how to survive on earth** in the event of the kind of catastrophe that set Musk’s eye on Mars in the first place? If some group were to attempt the journey today, they would need access to technologies that would make them as self-sufficient as possible. After all, Earth would be nearly 33.9 million miles away during its closest pass to the red planet. Water recovery systems that reclaim vapor, wastewater, and urine — like the ones currently installed on the International Space Station — would have to be used on the journey, and sent ahead to Mars along with habitats ready for assembly upon the astronauts’ arrival. According to NASA such a system would have to have an efficiency much higher than the current 74% in order to be viable for deep space missions. The same goes for oxygen regeneration and carbon dioxide removal, which, as of today stands at around 40% efficiency and “must increase significantly” before anyone attempts the journey to Mars. As for food, astronauts would have to rely on a one-time supply of food sent ahead, or attempt to grow it themselves along the way. Since self-sustainability is key, a mission hoping to survive on the dead surface of Mars would likely rely on greenhouses, such as the inflatable ones in development under Dr. Ray Wheeler at NASA. These greenhouses use hydroponic farming techniques to grow crops and “sustain astronauts on a vegetable diet,” with the added benefit of helping carbon dioxide, oxygen, and wastewater management. While all of these systems might be ready for use by a small crew within a few years, a colony of a size large enough to safeguard humanity from extinction would **push them to the breaking point**. It would take, optimistically, **decades before Mars was truly self-sufficient**, and that time and money could be spent working to **prevent the kind of disasters that threaten our existence on Earth**, such as natural disasters related to climate change. On its best day, Mars still barely has an atmosphere. Its core is inactive, which means that it lacks any kind of magnetic field to block out the most intense solar radiation. It is a dead planet that would take efforts only dreamed about in science fiction to colonize. **Even Earth after total nuclear war would be easier to live on.** There is scientific value in the exploration of other planets, but discoveries can be achieved without the steep added cost of having to keep an astronaut **alive during** the trip. Compared to the projected cost of a Martian base, NASA’s Curiosity rover cost a fraction of that, coming in at $2.5 billion. Curiosity has far exceeded its life expectancy of two years and continues to operate today, with the added benefit of not needing to eat, breath, or worry about dying from radiation exposure.

### Microbes

#### 1) Havent demonstrated the impact of preserving martian life – a) we don’t know it exists and b) who cares

#### 2) The martian diseases kill us all scenario is nonunique because nasa would do it anyway

#### 3) Its absurd for them read impact offense for earth diseases when their impact is mars diseases

#### 4) Aliens don’t exist

Redd, 18—Space.com contributor, citing Anders Sandberg, philosopher at the University of Oxford (Nolan Taylor, “Alien Life May Be Rare in Our Galaxy Today,” <https://www.space.com/41080-alien-life-may-be-rare-today.html>, dml)

The hunt for E.T. may have gotten more difficult. New research suggests that alien life may not be as widespread as we had hoped.

When it comes to hunting for alien civilizations, a key question is how plentiful intelligent extraterrestrials are in the universe — but the answer to that question depends on a lot of knowledge scientists don't have yet.

In 1960, Frank Drake, an astronomer and hunter of extraterrestrial intelligence, devised an equation to calculate the probability of hearing from an intelligent, communicating alien civilization. The Drake equation relies on the values of several constants to determine how widespread such civilizations might be, how likely they are to evolve and how likely they are to have broadcast when we were able to detect. While some of the numbers, such as how many stars have planets around them, are fairly well-known, others, such as the fraction of those worlds with life, remain uncertain. [The Father of SETI: Q&A with Astronomer Frank Drake]

Over the years, scientists have attempted to "solve" the Drake equation. But the uncertain quantities required estimation. Optimists tended to put in numbers that would reflect their thoughts — life on other planets is plentiful! Civilizations last for millions of years! Pessimists skew their results the other way, assuming life is rare and civilizations quickly burn out.

Searching for a more accurate answer to the question 'Are we alone?' the new study's researchers have included the uncertainties of the numbers — how confident scientists are in them. Rather than giving each component a hard-and-fast amount, they attempted to gauge the strength of the research into these questions. "We can show that, given current scientific uncertainty, we get a distribution that could make both the optimists and pessimists happy at the same time: a fair chance of several alien civilizations, but also a fair chance of no aliens within the visible universe," Anders Sandberg told Space.com by email. Sandberg, a philosopher at the University of Oxford, is the lead author on the new research. "The uncertain sky should not be surprising given our level of uncertainty," Sandberg said. The study, which is available on the preprint site Arxiv, has been submitted to the journal Royal Society of London A. Alone in the universe? In 1950, Italian-American physicist Enrico Fermi looked to the skies and asked, "Where are they?" If the universe is filled with alien civilizations, why have none of them contacted Earth? The question, referred to as the Fermi paradox, provided the fuel for the Drake equation. The Drake equation has never sought a definite number. Instead, it has been used to make a rough estimate of the number of detectable civilizations in the Milky Way (N). According to the equation, N = RfpncflfifcL That number is based on the rate of star formation per year (R), the fraction of stars with planets (fp), the number of habitable planets per system of planets (nc), the fraction of those planets with life (fl), the fraction of life that is intelligent (fi), the fraction of intelligent civilizations that are detectable (fc), and the average lifetime of such civilizations in years (L). Observations of distant stars, with instruments such as NASA's Kepler telescope, have revealed that planets are plentiful around stars, and habitable worlds are spread across the galaxy. All the other variables remain up in the air. [The Most Intriguing Alien Planet Discoveries of 2017]

Sandberg and his colleagues decided to change the inputs for the unknown parts of the equation. Rather than estimating a single number, they included the range. For instance, saying that there is a 1/100 chance for life to evolve doesn't make it clear whether the odds are exactly 1 out of 100, between 1/1000 and 1/10, or between one and one in a googol (10^100), Sandberg said.

"One of the features that differs in [the new research] from previous Fermi paradox analyses is that the current authors tackle the problem of order-of-magnitude uncertainties in each component of Drake's equation in a less-biased, more robust way," Ian Jordan, an astronomer and engineer at the Space Telescope Science Institute in Baltimore, told Space.com in an email. Jordan is not part of the new research.

By factoring in the scientific uncertainty for components like how often life evolves, the researchers determined that the odds that we are the only intelligent life in the Milky Way range between 53 and 99.6 percent. The odds get a bit better when they include the observable universe — the chance that humanity is alone ranges between 39 and 85 percent. The research was published on the journal preprint server arXiv.

The new numbers mean there's a good chance humanity is the only detectable intelligent civilization around. Sandberg doesn't necessarily think that's a bad thing.

#### 5) Most likely there’s no intelligent life --- only our studies incorporate distribution probabilities ranges into the drake equation

Michael J. Coren 18, Contributor at quartz.com, cites Oxford study, written June 25 2018, “We may have answered the Fermi Paradox: We are alone in the universe”, <https://qz.com/1314111/we-may-have-answered-the-fermi-paradox-we-are-alone-in-the-universe/> //Pinheiro

Alien life should be everywhere. The sheer abundance of stars in the universe (the number far outstrips the total number of grains of sand on every beach on Earth) suggests that, somewhere, an intelligent lifeform should be warming itself on a distant planet. Even if life evolves rarely, ET should be phoning.

Yet, by all appearances, humanity seems to be flying solo in our galaxy, and perhaps the universe. Many solutions have been proposed to solve this riddle, known as the Fermi Paradox. The aliens are hiding. They’ve entered suspended animation until more propitious conditions arise. A Great Filter makes the leap from “life “to “intelligent life” improbable, if not impossible. They’ve blown themselves up.

Researchers of Oxford University’s Future of Humanity Institute have another answer. It’s likely **intelligent life doesn’t exist at all, outside of Earth.**

In a paper submitted to the Proceedings of the Royal Society of London (it appeared online this month on the pre-publication site arXiv), the researchers write that there is “a substantial ex ante probability of there being no other intelligent life in our observable universe,” and we shouldn’t be surprised if we fail to detect any signs of it. In other words, there is no need to speculate about the fate of aliens. It’s likely they’ve never existed, they assert in the paper, titled “Dissolving the Fermi Paradox.”

The Fermi Paradox derives from a question reportedly posed by physicist Enrico Fermi during a 1950 lunch in the Los Alamos National Laboratory in the state of New Mexico. According to Scientific American, a group of scientists were discussing a New Yorker cartoon showing aliens emerging a spaceship, onto the streets of New York City. ”Where is everyone?” Fermi asked. While he was likely questioning the possibility of interstellar travel, later accounts suggested he was casting doubt on the existence of extraterrestrials themselves, the magazine reports.

Scientists have been trying to answer Fermi’s question ever since. Many of the most rigorous attempts have built on a postulation known as the Drake equation. There are plenty of unknowns, but the equation suggests it’s plausible thousands of detectable alien civilizations could be roaming the Milky Way based on the probability of seven factors. The equation:

N: total detectable alien civilizations in the Milky Way

R∗: rate of star formation per year

fp: fraction of stars with planets

ne: Earth-like (or otherwise habitable) planets per system with planets

fl: fraction of such planets with life

fi: fraction with life that develop intelligence

fc: fraction of intelligent civilizations that are detectable/contactable

L: average longevity of such detectable civilizations

Previous estimates of the Drake equation have assigned a single number to those variables. The recent study sought to make a more informed guess. It relies on our latest knowledge of biology, chemistry, and cosmology, and uses a distribution of probabilities (a range) to capture the most likely scenarios, rather than assign a single value.

**When they did, the researchers found that the possibility we’re alone in the galaxy is far high**er than presumed given the truly gargantuan number of possible home planets. The authors assert that the chance humanity stands alone among intelligent civilizations in our galaxy is 53%–99.6%, and across the observable universe is 39%–85%.

Since the Fermi “paradox” exists only if we are confident alien civilizations are out there, this uncertainty suggests we may just be the lucky ones—thus, there is no such paradox. ”We should not actually be all that surprised to see an empty galaxy,” the authors write. But don’t give up entirely. The Drake equation, at best, merely gives us a way to formalize what is still unknowable. It’s a big universe.

#### 6) Turn – mars disease is unlikely but the knowledge we’d get outweighs

David Warmflash 15.Astrobiologist postdoc at NASA, MD, science lead for the U.S. team of the Planetary Society's Phobos Living Interplanetary Flight Experiment.] “Might astronauts bring back a deadly disease from Mars?” Genetic Literacy Project, 9 April 2015. <https://geneticliteracyproject.org/2015/04/08/might-astronauts-bring-back-a-deadly-disease-from-mars/>

When we talk about isolation of Mars samples and returning astronauts, it’s really just a matter of precaution until we’re sure what we’re dealing with. But from an evolutionary perspective, it’s extremely unlikely that microorganisms native to Mars, or another world in our Solar System, will be harmful to human health. There are different ways that a microorganisms can be cause disease. The most feared kind of microbe disease is infectious disease. By infection, we mean that the microorganisms actually thrive inside the human body. This is the most unlikely scenario for an ET microbe. Microbes that infect humans are able to do so, because they co-evolved with us, or in some cases with other animals who serve as hosts. In the case of Ebola, the virus reached humans because it was already thriving inside bats and other “bush meat” in Africa. If an organism is going to infect your lungs and cause pneumonia, it must already be living in an environment similar to that of your lungs–warm and wet. That happens with the bacterium that causes tuberculosis, but it’s not going to happen with anything living on Mars, a cold, dry environment even more so than Antarctica. Another way that microorganisms can cause disease is by releasing a toxin into the environment and humans then get exposed to the toxin. Two examples on Earth, both from the same genus of bacteria, are botulism and tetanus. Compared with infectious disease, releasing a chemical that happens to be toxic to humans is quite a bit more realistic when considering possible organisms on another planet, such as Mars. When dealing with Martian materials, there will be a lot of containment procedures and other precautions, and the material will be tested for toxicity. It’s a real concern, but with the toxin kind of disease there is no issue of the organism spreading from person to person, causing an outbreak. You do not catch botulism or tetanus from another person. You get botulism by eating food that has been contaminated and tetanus from getting pricked with something that has been contaminated. But when we consider harm, we must think also about harm to our environment. While there should be no similarity between the warm, wet human body and the cold, dry Martian environment, there certainly can be environments on Earth where Mars life might thrive if carried here by a probe or human mission. Environmental ecology and biospheres on Earth are notoriously complex, so we don’t want to release a native Martian microbe on Earth, particularly in “Mars-like” regions of our planet. That’s something to keep in mind as we move forward, toward a Mars sample return mission, but as noted earlier containment is going to be extremely tight. As for disease, considering everything, the risk is fairly low, and alongside that risk we also must keep in site of the benefits. What will knowledge of the existence of a biosphere on another planet do to our perspective on biology? It could work wonders in that area, giving us unexpected insights and launching biology into a new era. At the same time, knowing that the planet just next door to us also is a home to life, we could be sure that we inhabit a cosmos in which life is extremely common. We could expect worlds with breathable atmosphere because of life forms using photosynthesis to make food, worlds orbiting nearly stars that we might eventually colonize without the need for pressure domes. And it would increase the likelihood that eventually we’ll come across an extraterrestrial civilization.

#### 7) No extinction from pandemics – THEIR AUTHOR – prefer cus hes way more explicit here

* Death rates as high as 50% didn’t collapse civilization
* Fossil record caps risk at .1% per century
* health, sanitation, medicine, science, public health bodies, solve
* viruses can’t survive in all locations
* refugee populations like tribes, remote researchers, submarine crews, solve

Ord 20 Ord, Toby. Toby David Godfrey Ord (born 18 July 1979) is an 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 and is a key figure in the effective altruism movement, which promotes using reason and evidence to help the lives of others as much as possible.[3] He is a Senior Research Fellow at the University of Oxford's Future of Humanity Institute, where his work is focused on existential risk. BA in Phil and Comp Sci from Melbourne, BPhil in Phil from Oxford, PhD in Phil from Oxford. The precipice: existential risk and the future of humanity. Hachette Books, 2020.

Are we safe now from events like this? Or are we more vulnerable? Could a pandemic threaten humanity’s future?10 The Black Death was not the only biological disaster to scar human history. It was not even the only great bubonic plague. In 541 CE the Plague of Justinian struck the Byzantine Empire. Over three years it took the lives of roughly 3 percent of the world’s people.11 When Europeans reached the Americas in 1492, the two populations exposed each other to completely novel diseases. Over thousands of years each population had built up resistance to their own set of diseases, but were extremely susceptible to the others. The American peoples got by far the worse end of exchange, through diseases such as measles, influenza and especially smallpox. During the next hundred years a combination of invasion and disease took an immense toll—one whose scale may never be known, due to great uncertainty about the size of the pre-existing population. We can’t rule out the loss of more than 90 percent of the population of the Americas during that century, though the number could also be much lower.12 And it is very difficult to tease out how much of this should be attributed to war and occupation, rather than disease. As a rough upper bound, the Columbian exchange may have killed as many as 10 percent of the world’s people.13 Centuries later, the world had become so interconnected that a truly global pandemic was possible. Near the end of the First World War, a devastating strain of influenza (known as the 1918 flu or Spanish Flu) spread to six continents, and even remote Pacific islands. At least a third of the world’s population were infected and 3 to 6 percent were killed.14 This death toll outstripped that of the First World War, and possibly both World Wars combined. Yet even events like these fall short of being a threat to humanity’s longterm potential.15 In the great bubonic plagues we saw civilization in the affected areas falter, but recover. The regional 25 to 50 percent death rate was not enough to precipitate a continent-wide collapse of civilization. It changed the relative fortunes of empires, and may have altered the course of history substantially, but if anything, it gives us reason to believe that human civilization is likely to make it through future events with similar death rates, even if they were global in scale. The 1918 flu pandemic was remarkable in having very little apparent effect on the world’s development despite its global reach. It looks like it was lost in the wake of the First World War, which despite a smaller death toll, seems to have had a much larger effect on the course of history.16 It is less clear what lesson to draw from the Columbian exchange due to our lack of good records and its mix of causes. Pandemics were clearly a part of what led to a regional collapse of civilization, but we don’t know whether this would have occurred had it not been for the accompanying violence and imperial rule. The strongest case against existential risk from natural pandemics is the fossil record argument from Chapter 3. Extinction risk from natural causes above 0.1 percent per century is incompatible with the evidence of how long humanity and similar species have lasted. But this argument only works where the risk to humanity now is similar or lower than the longterm levels. For most risks this is clearly true, but not for pandemics. We have done many things to exacerbate the risk: some that could make pandemics more likely to occur, and some that could increase their damage. Thus even “natural” pandemics should be seen as a partly anthropogenic risk. Our population now is a thousand times greater than over most of human history, so there are vastly more opportunities for new human diseases to originate.17 And our farming practices have created vast numbers of animals living in unhealthy conditions within close proximity to humans. This increases the risk, as many major diseases originate in animals before crossing over to humans. Examples include HIV (chimpanzees), Ebola (bats), SARS (probably bats) and influenza (usually pigs or birds).18 Evidence suggests that diseases are crossing over into human populations from animals at an increasing rate.19 Modern civilization may also make it much easier for a pandemic to spread. The higher density of people living together in cities increases the number of people each of us may infect. Rapid long-distance transport greatly increases the distance pathogens can spread, reducing the degrees of separation between any two people. Moreover, we are no longer divided into isolated populations as we were for most of the last 10,000 years.20 Together these effects suggest that we might expect more new pandemics, for them to spread more quickly, and to reach a higher percentage of the world’s people. But we have also changed the world in ways that offer protection. We have a healthier population; improved sanitation and hygiene; preventative and curative medicine; and a scientific understanding of disease. Perhaps most importantly, we have public health bodies to facilitate global communication and coordination in the face of new outbreaks. We have seen the benefits of this protection through the dramatic decline of endemic infectious disease over the last century (though we can’t be sure pandemics will obey the same trend). Finally, we have spread to a range of locations and environments unprecedented for any mammalian species. This offers special protection from extinction events, because it requires the pathogen to be able to flourish in a vast range of environments and to reach exceptionally isolated populations such as uncontacted tribes, Antarctic researchers and nuclear submarine crews. 21 It is hard to know whether these combined effects have increased or decreased the existential risk from pandemics. This uncertainty is ultimately bad news: we were previously sitting on a powerful argument that the risk was tiny; now we are not. But note that we are not merely interested in the direction of the change, but also in the size of the change. If we take the fossil record as evidence that the risk was less than one in 2,000 per century, then to reach 1 percent per century the pandemic risk would need to be at least 20 times larger. This seems unlikely. In my view, the fossil record still provides a strong case against there being a high extinction risk from “natural” pandemics. So most of the remaining existential risk would come from the threat of permanent collapse: a pandemic severe enough to collapse civilization globally, combined with civilization turning out to be hard to re-establish or bad luck in our attempts to do so.

### OST

#### 1) No reason why some rogue actors like Bezos have the capabilities to weaponize – means they don’t solve

#### 2) No extinction terminal – means reject new 1ar new spin because it justifies the 1ar just spamming scenarios and adding ones that the neg undercovers

#### 3) Should’ve thumped – musk already declared

#### 4) No explanation of their actors for the space scenario means its vague and reject on face

#### 5) OST collapse wouldn’t cause war or wreck i-law – asssumes their warrants

Hickman 7 [John Hickman is an associate professor in the Department of Government and International Studies at Berry College in Mt. Berry, Georgia, “Still crazy after four decades: The case for withdrawing from the 1967 Outer Space Treaty,” *The Space Review,* Sept 24, 2007, <https://www.thespacereview.com/article/960/1>, note: [brackets] mark change from original text, where likely OCR typo (word “any” in original text) was replaced with “only” – doesn’t change meaning, only fixes grammatical error to make sentence comport]

Arguments against withdrawal answered

Several arguments are advanced against withdrawal from the treaty, seven of which are neatly summarized by Wayne White in an essay in the 2000 book Space: The Free-Market Frontier. The first argument is that the treaty has become customary international law, in effect that other states have come to rely on the terms of the treaty to such an extent that it is now established law among states regardless of the wishes of individual states that might wish to withdraw. The rejoinder to this argument is that while forty years may have passed since the treaty entered into effect, states have come to rely on it in [only] the most abstract sense. No state has undertaken activities even remotely capable of asserting a claim to national sovereignty over any celestial body since the end of the Apollo Program and there are only five spacefaring powers currently capable of unmanned missions to other celestial bodies: the United States, Russia, the European Space Agency, China, and Japan.

The second argument is that competition for territory in space could cause military conflict as it did competition between the powers on Earth in previous centuries. The argument misunderstands history and thus makes a poor analogy. In fact, the gunpowder empires found more reasons and locations to wage war close to home much more often than in distant colonial possessions. Imperial competition for vast amounts of the Earth’s surface was often resolved peacefully. In the late 18th century and continuing into the 19th century Britain, the Netherlands, France, Germany, and the United States divided Australasia and the central island Pacific without war. Britain, the United States, and Imperial Russia successfully negotiated a resolution of their claims to northwestern North America in the mid 19th century without war. During the “Scramble for Africa” Britain, France, Belgium, Germany, Portugal, and Italy divided sub-Saharan Africa without fighting one another, the results of which were recognized at the Congress of Berlin. To be sure, wars were fought in these new colonial territories but they were wars between colonizers and the colonized. Thus, any future competition for sovereign territory on celestial bodies is highly unlikely to lead to war because spacefaring states are capable of negotiating their different claims and because there are no extraterrestrial natives anywhere else in the Solar System who might object to national appropriation. Our solar system would be a more interesting place if Martians did exist but they are conspicuous by their absence.

#### 6) Space conflicts won’t go nuclear

Smith 13[M.V. “Coyote” Smith, Space Weapons Officer, former Air Force Missile Launch Officer and commander of an ICBM squadron, comment in the Michael Krepon article “Space and nuclear deterrence” posted on *The Space Review,* September 16, 2013, http://www.thespacereview.com/article/2367/1]

As a former Air Force Missile Launch Officer and commander of an ICBM squadron, and later as a Space Weapons Officer, I need to point out that satellites are nice to have, but not required. I need to point out that satellites are nice to have, but not required. Our nuclear triad was created long before satellites began contributing to military operations. In some cases, some satellites have been added to speed-up attack warning or command-and-control communications, but only by a matter of a few seconds compared to other non-space systems. Redundancy upon redundancy was built into every aspect of our nuclear operations from start to finish–including attack detection and command-and-control. It is a system-of-systems wherein satellites make an important contribution, but we are far from dependent upon them for nuclear operations. Even if we suffered a complete take down of our space systems our nuclear forces would be comparatively unaffected. Snow storms in the Midwest cause more disruption to nuclear operations than losing satellites. That also illustrates the beauty of the redundancy of the triad; subs don’t mind the snow like ICBMs and bombers. The important point here is that taking out all of our satellites will not force a president’s hand to advance our nuclear posture or calculus. A president may decide to do that, but that is not driven by the loss of satellites in relation to nuclear forces. We have done all we can to ensure that a president always has options other than nuclear. A president’s hands are not tied to a nuclear escalation ladder. Next, we are already living in the age of space warfare. Satellite signals are frequently engaged and negated for political purposed...and we define warfare as the use of engagements for political purpose. One need only review the internet traffic on Libyan or Iranian jamming of satellites (not at LEO, but all the way out to GEO) to prevent Western news or entertainment programs from reaching their people and fomenting unrest. It is not that difficult. It doesn't take a national effort. For example, the Chinese dissident group, Falun Gong, has even inserted their streaming messages over Chinese satellite TV broadcasts. Note that these are not considered the most technically advanced countries or group. A few years ago the Chinese were making a hobby out of lasing our imagery satellites. These examples should suggest the level of development of such systems around the world. Ground-based jammers, lasers, and other directed energy systems are cheap and easy compared to kinetic strike ASAT weapons, conventional or nuclear. In addition, they are difficult to attribute. Moreover, targeted countries have demonstrated a reluctance to publicly admit their satellites had been attacked or to disclose the effectiveness and scope of such attacks. Based on Libyan and Iranian performance, ground-based space weapons can deliver temporary and reversible negation effects against specific signals or sensors very precisely that do not spill over to "collateral" signals. Most of the intelligence to conduct such strikes is available on the open internet--a side-effect of the growing call for transparency among the international community. Still, we should be thankful that countries have negated satellite signals in temporary and reversible ways on orbit in lieu of resorting to lethal and destructive force against people and property on Earth--in full compliance with the Law of Armed Conflict. In fact, we should encourage the temporary and reversible negation of satellite signals whenever doing so saves peoples lives and property.. Who would NOT want to prevent a Middle Eastern dictator from ordering the execution of chemical weapons against his own citizens if doing so required only temporary and reversible negation of a few satellite communications signals. Doing so could prevent a war crime atrocity and buy time for diplomatic solutions. Hence the rising rallying cry, "Negate satellites, not people!" We find the greatest threat to space systems, however, is not from weapons, but from the commercial sector. Mobile telephone towers, fiber optic cables, street cameras, and internet ubiquity continues to undermined the value of satellite sensors and data routing. Tweets and smart phones are reporting live from the scene as situations fester and stories develop around the globe. This is cutting into the overall value of spacefaring for both military and commercial purposes. In sum, do not tie satellites to cold war models of deterrence, and certainly do not link them or their negation to a nuclear decision tree. Instead, think of how we can enhance the value of space systems for commercial growth.