# Cal R5

## 1

**Interp: The affirmative must defend appropriation as a general principle, not specify a subset**

**Appropriation is a definite uncountable noun–that’s generic**

**WMWRC 18**. William and Mary Writing Resource Center, 2018, Using Articles, <https://www.wm.edu/as/wrc/newresources/handouts/using-articles.pdf> //SR

Use of the articles a, an, and the can depend on any of four paired noun qualities: countable vs. noncountable, definite vs. indefinite, first vs. subsequent mention, and general vs. specific: Countable vs. Non-countable A and an are used if the noun can be counted. I ran into a post. (How many posts did you run into? Just one. Therefore, use a.) I ate a piece of cake. I saw an eagle. The is used when the noun cannot be counted. I ran into the water. (How many waters did you run into? The question doesn't make any sense because water is non-countable. Therefore, use the.) I ate the rice. I saw the milk spill. Indefinite Articles: a and an A and an signal that the noun modified is indefinite, referring to any member of a group. These indefinite articles are used with singular nouns when the noun is general; the corresponding indefinite quantity word some is used for plural general nouns. The rule is: a + a singular noun beginning with a consonant: a boy an + a singular noun beginning with a vowel: an elephant some + a plural noun: some girls Note that in English, the indefinite articles are used to indicate membership in a profession, nationality, or religion. I am a teacher. Brian is an Irishman. Seiko is a practicing Buddhist. Definite Article: the The definite article is used before singular and plural nouns when the noun is particular or specific. The signals that the noun is definite; it refers to a particular member of a group. Compare the indefinite and definite articles in the following pairs: A dog (any dog). The dog (that specific dog) The is used with both singular and plural nouns: the book, the cat the books, the cats The is not used with non-countable nouns referring to something in a general sense: [no article] Coffee is a popular drink. [no article] Japanese was his native language. [no article] Intelligence is difficult to quantify. The is used with non-countable nouns that are made more specific by a modifying phrase or clause: The coffee in my cup is too hot to drink. The Japanese he speaks is often heard in the countryside. The intelligence of animals is variable but undeniable. The is also used when a noun refers to something unique: the White House; the theory of relativity; the 2016 federal budget Geographical Uses of the DO NOT use the before: names of countries, except the Netherlands, the US, the Philippines (Italy, Mexico, Bolivia) names of cities, towns, or states (Seoul, Manitoba, Miami) names of streets (Washington Blvd., Main St.) names of lakes and bays, except with a group of lakes like the Great Lakes (Lake Louise, Lake Erie) names of mountains, except with ranges of mountains like the Andes or the Rockies or unusual names like the Matterhorn (Mount Everest, Mount Fuji) names of continents (Asia, Europe) names of islands except with island chains like the Aleutians, the Hebrides, or the Canary Islands (Easter Island, Maui, Key West) DO use the before: names of rivers, oceans and seas (the Nile, the Pacific, the Sea of Japan) points on the globe (the Equator, the North Pole) geographical areas (the Middle East, the West) deserts, forests, gulfs, and peninsulas (the Sahara, the Persian Gulf, the Black Forest, the Iberian Peninsula) First vs. Subsequent Mention A or an is used to introduce a noun when it is mentioned for the first time in a piece of writing. The is used afterward each time you mention that same noun. An awards ceremony at the Kremlin would not normally have attracted so much attention. But when it was leaked that Soviet President Konstantin Chernenko would be presenting medals to three cosmonauts, interest in the ceremony intensified. (Time, Sept. 17, 1984). Note: There is and there are can be used to introduce an indefinite noun at the beginning of a paragraph or essay. General vs. Specific A, an, and the can all be used to indicate that a noun refers to the whole class to which individual countable nouns belong. This use of articles is called generic, from the Latin word meaning "class." A tiger is a dangerous animal. (any individual tiger) The tiger is a dangerous animal. (all tigers: tiger as a generic category) The omission of articles also expresses a generic (or general) meaning: no article with a plural noun: Tigers are dangerous animals. (all tigers) no article with a non-countable noun: Anger is a destructive emotion. (any kind of anger)

**Standards**

**1–Precision outweighs - anything outside the res is arbitrary and unpredictable because the topic determines prep, not being bound by it lets them jettison any word. Aff arguments are non-unique since (a) it relies on semantics to convey those messages and (b) pragmatics can be discussed anytime while we only have 2 months to discuss the wording of this unique topic. 1ar reps voters are drop the arg to let us learn from our mistake**

**2–Limits and Ground - affs get infinite ways to appropriate space, each with different political implications, economic costs, and utilities which makes contesting the aff with unifying neg ground impossible and means they can always pick the most aff skewed slice of offense that they can prep for months while we have to react on the spot with unprepared bad quality generics–also infinitely expands the small school case lists which makes debate inaccessible**

**3–TVA–plan as an advantage under whole res–still get content education and aff flex through different advantages, frameworks, etc. But, 1ar theory checks pics and they incentivize more cheaty counterplans cuz nothing but cheaty generics link–it’s also just preemptive abuse at best which doesn’t justify actual abuse the same way you don’t get 50 aprioris to prevent 40 condo pics**

**4–Reasons spec is good are an independent shell for us–if specifying a form of appropriation was good, you should’ve also specified parts of space, private entities, etc for the same reason**

**Paradigm Issues: Fairness and education are voters – debate’s a game that needs rules to evaluate it and it teaches portable skills that we use lifelong. Drop the debater - severance kills 1NC strat construction—1AR restart favors aff since it’s 7-6 time skew and they get 2 speeches to my one. No rvi - a) they’ll bait theory and prep it out with aff infinite prep—justifies infinite abuse and chilling us from checking abuse in fear of things like 2ar ethos which lets them recontextualize and always seem right on the issue b) forces the NC to go 7 minutes of theory because nothing else matters--outweighs because its the longest speech and the 2nr can never recover since the nc is our only route to generate offense. Competing interps - a) reasonability’s arbitrary & forces judge intervention especially with 2ar recontextualizations to always sound like the more reasonable debater b) norm setting - we find the best possible norms c) reasonability collapses - you use offense/defense paradigm to evaluate brightlines. Evaluate the debate after the 2nr–we both get 2 speeches so it’s the most reciprocal**

## 2

**Interp – Appropriation has to be exclusive control and access.**

**Trapp 13**, Timothy Justin. "Taking up Space by Any Other Means: Coming to Terms with Nonappropriation Article of the Outer Space Treaty." U. Ill. L. Rev. (2013): 1681. (JD Candidate at UIUC Law School)//Re-cut by Elmer

The issues presented in relation to the nonappropriation article of the Outer Space Treaty should be clear.214 The ITU has, quite blatantly, created something akin to “property interests in outer space.”215 It allows nations to exclude others from their orbital slots, even when the nation is not currently using that slot.216 This is directly in line with at least one definition of outer-space appropriation.217 [\*\*Start Footnote 217\*\*Id. at 236 (“Appropriation of outer space, therefore, is ‘the exercise of exclusive control or exclusive use’ with a sense of permanence, which limits other nations’ access to it.”) (quoting Milton L. Smith, The Role of the ITU in the Development of Space Law, 17 ANNALS AIR & SPACE L. 157, 165 (1992)). \*\*End Footnote 217\*\*] The ITU even allows nations with unused slots to devise them to other entities, creating a market for the property rights set up by this regulation.218 In some aspects, this seems to effect exactly what those signatory nations of the Bogotá Declaration were try3ing to accomplish, albeit through different means.219

**Violation – The Affirmative bans Space Stations that are multilateral in nature – they have no intent to be exclusive.**

**Trapp 13**, Timothy Justin. "Taking up Space by Any Other Means: Coming to Terms with Nonappropriation Article of the Outer Space Treaty." U. Ill. L. Rev. (2013): 1681. (JD Candidate at UIUC Law School)//Elmer

4. The International Space Station The International Space Station presents a unique application of the nonappropriation principle. All spacecraft must inherently occupy some amount of space. If this were to constitute appropriation by occupation and thus violate the nonappropriation article, the result would be absurd and would render the nonappropriation article unenforceable. The International Space Station, however, is different from regular satellites in that it actually contains a livable area within itself, making it a sort of man-made celestial body.182 Thus, it would seem that any exclusion of any party from the space inside the spacecraft would count as appropriation by exclusion. It would even stand to reason that any claim of ownership of any part of the spacecraft would be appropriation by claim of sovereignty. In fact, the Intergovernmental Agreement on Cooperation in the Detailed Design, Development, Operation, and Utilization of the Permanently Manned Civil Space Station (ISS Agreement) sets up a regime of national control, ownership, and exclusion.183 So why does this not count as appropriation? Though it may seem that the International Space Station has appropriated the space it occupies through the terms of the ISS Agreement, this agreement has one important bit of language to keep it safe.184 Specifically, the ISS Agreement says that “[n]othing in this agreement shall be interpreted as . . . constituting a basis for asserting a claim to national appropriation over outer space or over any portion of outer space.”185 The effectiveness of such a proclamation may make it seem that it is enough for an actor merely to say that it is not appropriating space. That cannot be the case, however, because any actor could make such a claim and then act in direct violation of it. Something more subtle must be going on in the context of the International Space Station. One of the saving graces of the International Space Station must be that the ISS Agreement makes sure that the space station complies with the general principles guiding the exploration and exploitation of outer space.186 Indeed, the space station is a cooperative effort, furthering the goal of international harmony through space exploration.187 The agreement establishing the space station also directly states that it “will enhance the scientific, technological, and commercial use of outer space,” thus furthering the Outer Space Treaty’s goal of making sure that use is for the benefit of all.188 Furthermore, the ISS Agreement provides that the International Space Station will be used for peaceful purposes, again complying with the Outer Space Treaty’s mandate of the same.189 By complying with the underlying principles of the Outer Space Treaty, it seems that the International Space Station gains legitimacy and is thus not subject to stricter interpretations of the nonappropriation article.190

**Replace means Substitute – that means the Aff replaces both the ISS place and purpose.**

**Merriam Webster No Date** “Replace”<https://www.merriam-webster.com/dictionary/replace> //Elmer

2: to take the place of especially as a substitute or successor.

**1] Limits – Opening the Topic to “anything that operates in Outer Space” would devastate Predictability – any Space Station Aff, Satellite Aff, Spacecraft Aff, would be Topical on top of every Permutation of subsets.**

**2] Ground – They shift the ground of Debate from Exclusive Control Good/Bad to Existing in Outer Space Good/Bad which structurally favors Aff since no generic applies to every category since Innovation/Primacy/Appropriation Good requires a subset which the Aff explodes.**

## 3

**Interp: The affirmative must only fiat a policy action by states, not private actors**

**Resolved means policy action**

**Louisiana State Legislature** (https://www.legis.la.gov/legis/Glossary.aspx) Ngong

A legislative instrument that generally is used for making declarations, stating policies, and making decisions where some other form is not required. A bill includes the constitutionally required enacting clause; a resolution uses the term "resolved". Not subject to a time limit for introduction nor to governor's veto. ( Const. Art. III, §17(B) and House Rules 8.11 , 13.1 , 6.8 , and 7.4 and Senate Rules 10.9, 13.5 and 15.1)

**Unjust demands legal action**

**The Law Dictionary, ND**, Def of Unjust, URL: <https://thelawdictionary.org/unjust/>

Contrary to right and justice, or to the enjoyment of his rights by another, or to the standards of conduct furnished by the laws.

**Violation–they fiat private entities not appropriating instead of a multilateral ban by states**

**Vote neg for strat skew and clash–the crux of this topic is space policy and how to enforce it–things like OST and moon treaty prove–they exclude core topic discussions and destroy all neg ground especially for small affs like this such as concon and ICJ–we also lose debates about circumvention since they can just win by fiating utopian things like no country ever even causing debris–no point in discussing unrealistic politics**

## 4

**Permissibility and presumption negate—aff has a normative obligation to prove the res true, so neg gets anything to deny that. There is no obligation to actively do something if obligations cannot exist**

**Ethics are not a universal truth but rather mere categories of languages created by us**

**Parrish 1** (Rick Parrish. "Derrida's Economy of Violence in Hobbes' Social Contract." Theory & Event 7, no. 4 (2005) <https://muse.jhu.edu/>)

Perhaps the single most telling quote from Hobbes on this point comes from The Philosophical Rudiments Concerning Government and Society (usually known by its Latin name, De Cive), in which he states that "to know truth, is the same thing as to remember that it was made by ourselves by the very usurpation of the words." 24 "For Hobbes truth is a function of logic and language, not of the relation between language and some extralinguistic reality," 25 so the "connections between names and objects are not natural." 26 They are artificially constructed by persons, based on individual psychologies and desires. These individual desires are for Hobbes the only measure of good and bad, because value terms "are ever used with relation to the person that useth them, there being nothing simply and absolutely so, nor any common rule of good and evil to be taken from the nature of the objects themselves." 27 Since "there are no authentical doctrines concerning right and wrong, good and evil," 28 these labels are placed upon things by humans in acts of creation rather than discovered as extrinsic facts. Elaborating on this, Hobbes writes that "the nature, disposition, and interest of the speaker, such as are the names of virtu es and vices; for one man calleth wisdom, what another calleth fear; and one cruelty what another justice." 29 A more simplistic understanding of the brutality of the state of nature, which David Gauthier calls the "simple rationality account," 30 has it that mere materialistic competition for goods is the cause of the war of all against all, but such rivalry is a secondary manifestation of the more fundamental competition among all persons to be the dominant creator of meaning. Certainly, Hobbes writes that persons most frequently "desire to hurt each other" because "many men at the same time have an appetite to the same thing; which yet very often they can neither enjoy in common, nor yet divide it; whence it follows that the strongest must have it, and who is strongest must be decided by the sword." 31 But this competition for goods only arises as the result of the more primary struggle that is inherent in the nature of persons of meaning creators. In the state of nature, "where every man is his own judge," 32 persons will "mete good and evil by diverse measures," creating labels for things as they see fit, based on individual appetites. 17. One of the most significant objects that receives diverse labels in the state of nature is 'threat'. Even if most people happen to construe threat similarly, there will be serious disagreement regarding whether or not a specific situation fits a commonly held definition. This is of course the key to the famous Security Dilemma that internationalrelations theorists spend so much time trying to overcome34 -- certain perfectly innocent actions by one person (or state) can easily be construed, and rationally must be construed, as a threat. Furthermore, any attempt by one person to allay another's fears about the threatening nature of actions must be taken as strategic disinformation, rather than as genuine explanation. Even if "I agree with you in principle about your right to preserve yourself," this agreement is useless "if I disagree about whether this is the moment for you to implement that right." 35 Given that persons "are individual in experience, they are individual in their conceptions and in their speech. Their power of reasoning with words . . . dissociates them and provokes violent competition" 36 specifically because concepts that seem simple invoke very different interpretations. If there were some universally objective and knowable set of circumstances that constituted Threat as such, the rationally self-interested persons of the state of nature would not have to seek control over all things for their own protection. All persons could both avoid actions that would be defined as threat and shed the overbearing suspicion that, taken together, make the Hobbesian state of nature so unbearably brutish.

**To escape the state of nature, people unite to imbue a sovereign with absolute authority to define ethics and enforce them at will. The sovereign is the only binding ethical force - absent it, ethics fail since everyone has competing conceptions of the good**

**Parrish 2** (Rick Parrish. "Derrida's Economy of Violence in Hobbes' Social Contract." Theory & Event 7, no. 4 (2005) <https://muse.jhu.edu/>)

All of the foregoing points to the conclusion that in the commonwealth the sovereign's first and most fundamental job is to be the ultimate definer. Several other commentators have also reached this conclusion. By way of elaborating upon the importance of the moderation of individuality in Hobbes' theory of government, Richard Flathman claims that peace "is possible only if the ambiguity and disagreement that pervade general thinking and acting are eliminated by the stipulations of a sovereign. Pursuant to debunking the perennial misinterpretation of Hobbes' mention of people as wolves, PaulJohnson argues that "one of the primary functions of the sovereign is to provide the necessary unity of meaning and reference for the primary terms in which men try to conduct their social lives." 58 "The whole raison d'être of sovereign helmsmanship lies squarely in the chronic defusing of interpretive clashes," 59 without which humans would "fly off in all directions" 60 and fall inevitably into the violence of the natural condition. 26. It is not surprising that so many noted students of Hobbes have reached this conclusion, given how prominently he himself makes this claim. According to Hobbes, "in the state of nature, where every man is his own judge, and differeth from others concerning the names and appellations of things, and from those differences arise quarrels and breach of peace, it was necessary there should be a common measure of all things, that might fall in controversy." 61 The main categories of the sovereign's tasks are "to make and abrogate laws, to determine war and peace, [and] to know and judge of all controversies," 62 but each of these duties is a subspecies of its ultimate duty to be the sole and ultimate definer in matters of public importance. It is only through the sovereign's effective continued accomplishment of this duty that the people of a commonwealth avoid the definitional problems that typify the state of nature. 27. Judging controversies, which Hobbes lists as the third main task of the sovereign, is the duty most obviously about being the ultimate definer. In fact, Hobbes declares it a law of nature that "in every controversy, the parties thereto ought mutually to agree upon an arbitrator, whom they both trust; and mutually to covenant to stand to the sentence he shall give therein." 63 As I repeatedly alluded to above, this agreement to abide by the decision of a third party arbitrator, a sovereign in the commonwealth, is necessary because of the fundamentally perspectival and relative nature of persons' imputations of meaning and value into the situations they construct. Hobbes understands this problem, as evidenced by his claim that "seeing right reason is not existent, the reason ofsome man or men must supply the place thereof; and that man or men, is he or they, that have the sovereign power" 64 to dictate meanings that will be followed by all. The sovereign is even protected from potential democratic impulses, by which a 'true' meaning would be that agreed upon by the greatest number of people. Because "no one man's reason, nor the reason of any one number of men, makes the certainty," they willstill "come to blows . . . for want of a right reason constituted by nature" 65 unless both the majority and the minority agree to abide by the meanings promulgated by the sovereign. 28. These meanings are usually created and promulgated by the sovereign in the form of laws, another of the tasks with which 7/29/13 RickParrish | Derrida's Economyof Violence in Hobbes' Social Contract | Theory& Event 7:4 https://muse.jhu.edu/journals/theory\_and\_event/v007/7.4parrish.html 13/42 Hobbes charges it. In one of his clearest explanations of the law, Hobbes writes that "it belongs to the same chief power to make some common rules for all men, and to declare them publicly, by which every man may know what may be called his, what another's, what just, what unjust, what honest, what dishonest, what good, what evil; that is summarily, what is to be done, what to be avoided in our common course of life." 66 The civil law is the set of the sovereign's definitions for ownership, justice, good, evil, and all other concepts that are important for the maintenance of peace in the commonwealth. When everyone follows the law (that is, when everyone follows the sovereign's definitions) there are far fewer conflicts among persons because everyone appeals to the same meanings. This means that people know what meanings others will use to evaluate the actions of themselves and others, so the state of nature's security dilemmas and attempts to force one's own meanings upon others are overcome.

**Implications:**

1. **Turns the aff fw at the highest layer - absent a sovereign we live in a state of nature where individuals can just force their own moral vision onto another which destroys any chance of productive ethics since no one can guarantee they achieve their ends in a chaotic state justifying infinite violations of their fw**
2. **The AC collapses - their fw presumes a sovereign to be able to bind and enforce it properly. Absent a legitimate sovereign, any taken action wouldn’t matter so we’re a prior question to policymaking**
3. **Only our framework explains subjectivity and motivation which is ontologically self interest, which means only we are able to properly ascribe moral obligations to agents and motivate them to be ethical**

**Thus, the standard is consistency with the Hobbesian Social Contract. Negate–**

**1–Space is functionally a state of nature since no one owns it–in a state of nature, nothing can be deemed impermissible which definitionally allows for space stations**

**2–Sovereign wills the squo–OST doesn’t say anything about private space stations specifically which means it’s permissible, otherwise they’d have no inherency**

**3–Private companies are inevitably tied to the state through public private partnerships–states can’t appropriate under the OST so the best way for them to gain power is to do it through private companies–private companies owning property acts as an opportunity for them to concede it to the state**

## 5

#### Commercial space stations are the future of tourism and commerce---NASA and countries is transitioning to private stations.

**Frey 1-6 (**, T., 2022. Private Space Stations: The Future Portals for Private Space Commerce and Tourism. [online] Futurist Speaker. Available at: <https://futuristspeaker.com/future-trends/private-space-stations-the-future-portals-for-private-space-commerce-and-tourism/> [Accessed 30 January 2022].)-rahulpenu

Private Space Stations: The Future Portals for Private Space Commerce and Tourism The future of space research and development is tied to private enterprise – specifically private space stations. Now that government-funded programs have proven basic concepts about getting to and living/working in space, NASA and agencies from other countries will continue to turn many aspects of space station work over to private companies. The International Space Station (ISS) will be unusable by the end of this decade and at that point NASA and other countries will resort to renting space on privately owned, earth orbiting stations. NASA is hedging its bets and providing grants to several private companies in hopes of jump starting and accelerating their development of private space stations. No doubt any of these companies will be honored to have NASA as a primary tenant, but they’re setting their sights even higher – literally. Space Flight Tourism Has Begun We’ve already broken the public-private barrier with tourist excursions for low-earth, brief or multi-day orbital flights. The Russians have been making their Soyuz vehicle available for ferrying private citizens to the ISS for more than a decade. Now, in addition to ferrying crews to the ISS for NASA, SpaceX also is using its equipment to provide multi-day orbital flights for private citizens. Late last year, SpaceX hosted four space tourists for a three-day orbiting tour. Space Destination Tourism Axiom Space, one of the companies supported by NASA, is planning to rent out the SpaceX vehicle from Elon Musk’s team to transport company clients to an eight-day literal “around the world” orbital flight cruise aboard the ISS. This represents the second phase of the space tourism industry – to deliver space tourists to orbiting modules and stations. We’re there already of course, but these programs are in their infancy. When the ISS goes out of commission, we’ll see private space stations take up the slack – both for NASA’s important work and for wealthy space tourists’ once-in-a-lifetime experiences. Axiom has a leg up on this venture, as it’s planning to attach a module to the ISS for several years before detaching it to form the basis of its own private space station. Orbital Vacations Over time, space station tourists won’t be content to live even for a few days in a lab-like environment – the kind we’re used to seeing on videos from the ISS. Private, orbiting space stations will be upgraded. They won’t be luxurious at first, but they’ll have slightly upgraded sleeping pods and small common areas for lounging instead of working. NASA will still have its labs and astronaut quarters on board. The tourists will need to stay in their own area, although some will want to do more than look out the window for days at a time and will volunteer to participate in research after receiving some on-the-ground training before liftoff. The Next Frontier The next step in the space tourism progression is to break beyond the Earth orbit and place space facilities in other locations – orbiting the Earth’s moon or on the moon itself. We’ll also see space vacations and research destinations in non-planet orbiting space. Supporting Space Commerce Down the road even further, space workers for commercial ventures will become another category of private citizen astronauts. These workers will be hopping from one private space station to the next as space station entrepreneurs place facilities at ever-more distant waypoints in space. Tasks like asteroid mining will be done by robots, of course, but in some cases, human intervention at the mining location may be needed to keep things progressing. These private space stations will serve as staging areas, regional offices, and warehouses. Space Highways It’s not too hard to imagine that eventually, along well-established routes to commercial areas in space and to other planets, we’ll see the emergence of additional space structures – hardly space “stations” anymore – with specific functions. Passing vehicles will dock to resupply, make deliveries, make repairs, refresh crews and passengers, and provide almost the same variety of services you’d expect to see along a U.S. interstate highway. Even further into the future, we’ll see scheduled flights from earth to the larger space communities and then between those locations, similar to the familiar hub and spoke arrangements used by the world’s airlines today. As we scale these operations, space recreation and tourism will be open to far more of Earth’s citizens. These flights will be even more necessary when people (originally workers on those remote outposts) choose to remain in space-based facilities indefinitely, purchasing or renting accommodations – maybe as retirement destinations. Will Space Remain International? At this time, the U.S., China, India, Russia, the UK, Japan, the UAE and maybe a few other nations have or conceivably could develop the capability to push into space for tourism or commerce. But who owns space? Will we see any borders or territorial claims? Back in 1960, the United Nations determined that space was truly wide open. No country could lay claim to any areas or create any borders. Will today and tomorrow’s nations abide by that? This neutrality principle might be tested as structures emerge on the moon and Mars and as we’re able to easily reach areas of space with valuable resource-laden asteroids. We may also come across some entities that come from other parts of the universe who would beg to differ about that jurisdiction of the UN! Baby Steps So Far Are an Exciting Promise of What’s to Come With these kinds of futuristic images in mind, it’s easy to see that what’s happened in the past decade and what will take place in the next few years are important steps, but they’re still just baby steps. What needs to and will happen, though, is that as more and more tourist space flights occur on private vehicles and more and more private residents spend a few days at a time on the ISS and later the private space stations, people and investors will be convinced that futuristic, recreational space travel and residency is no longer science fiction but a legitimate, future personal and business opportunity. The Jetsons won’t seem as far fetched as they did 60 years ago. In 2022, we’ll see a remarkable surge in this direction with more visitors going to space and to the ISS, along with breakthroughs in how to build and integrate structures in space. As long as we don’t see any major catastrophes (unfortunately, they’re almost inevitable and it’s important we keep them in perspective and learn from them when they happen), we’ll see growing confidence in the viability of recreational space travel. Ten years from now, even if you’re not ready to book a hotel stay near Mars, you should buy a ticket for an Earth orbit trip or make reservations for a once-in-a-lifetime space station vacation. That’s where you’re going to see the greatest shows off Earth.

**Space tourism is coming now and creates space hotels that act as labs for physiological research**

**Caplan and Lindsay 17** Nick Caplan and Kirsty Lindsay 7-29-2017 "Space Tourism Could Help Boost Science and Health Research — Here's How"<https://www.space.com/37503-space-tourism-could-help-boost-science-health-research.html> (Nick graduated from the University of Birmingham with a PhD in Biomechanics)//Elmer

Perhaps one day we will see research teams launching groups of participants to spend a few weeks or months aboard a space hotel in order to study medical interventions that would slow the ageing process on Earth, and to help the human species colonise the Moon or even Mars. Research dating back to the early years of the space race has led to technologies that benefit us all. Many scientific discoveries have come since the arrival of inhabitable space stations that act as orbital laboratories. NASA’s first space station Skylab helped understand the effects on the human body of spending months in space and paved the way for the International Space Station. A huge number of research studies have been completed on the ISS since the year 2000 in the areas of human physiology, biology, biotechnology, physical science and earth and space science. These studies have led to discoveries such as enhanced protein crystal growth for drug development, efficient combustion of fuel droplets, and an understanding of the effects of long duration exposure to microgravity on the human body, revealing that spaceflight has effects similar to ageing on Earth. Despite much human physiological research being carried out in space, it has one major limitation – there are simply not enough humans currently going to space to act as research participants, leading to difficulties in research design. In fact, only 550 or so humans have ever been into space since Russian cosmonaut Yuri Gagarin first orbited the Earth in 1961. Human physiological experiments in space tend to have very small participant numbers (for example, the NASA twins study) or they have to take place over many years. Could the boom in commercial human spaceflight accelerate the speed of human physiological discoveries in space? We certainly think so. Commercial spaceflight companies such as SpaceX and Orbital are already launching rockets taking supplies and research equipment to the International Space Station. SpaceX is developing its habitable Dragon capsule to take space tourists around the moon, with ambitions to use its sibling, Red Dragon, to land astronauts on Mars. Others are developing sub-orbital spaceplanes, such as Virgin Galactic's SpaceShipTwo, which will enable passengers to experience microgravity for a number of minutes or travel 30 times faster between cities than passenger airlines. To safely send throngs of space tourists beyond the atmosphere, we need to understand the health implications of just getting these "non-professional" astronauts into space through new medical research, and developing spaceports will provide access to exciting new platforms to expand these frontiers of science. A range of unknown health risks await space tourists, who are expected to be a far more health-diverse group than current astronauts. We will need to determine the effects of high g-forces on people with medical conditions, as well as in adolescents who might want to go on the ultimate school holiday adventure past the Karman line – traditionally taken as the boundary of space. It will be vital that risks to passenger health are reduced through remote physiological monitoring, and new monitoring technologies will need to withstand the high g-forces involved in launching into space. The British government's commitment to become one of the most attractive places in the world for commercial spaceflight will allow space research to boldly go where only limited research has gone before.

**Key to manage new diseases**

**APS 20** 5-21-2020 "How Physiologists Are Helping Patients Recover from COVID-19"<https://ispyphysiology.com/2020/05/21/how-physiologists-are-helping-patients-recover-from-covid-19/> (American Physiology Society)//Elmer

Understanding Physiology Is Critical to Fighting COVID-19 For each of the new treatments and devices created to combat COVID-19, it is critical to make sure they are safe to use in people. This is where understanding of human physiology is very important. For instance, treatment with remdesivir can reduce the amount of the virus in your body and has helped people who are severely ill with COVID-19 recover faster. But the drug is known to damage the liver and the immune system, so it is very important to know how well a patient’s liver and immune system are functioning before using it as a treatment. Even as I write this, there are new findings that COVID-19 directly affects not only the lungs but also the brain, kidneys, blood vessels and blood cells. This makes treatment of COVID-19 very difficult. Scientists and bioengineers need to take into consideration how the different organs of the body coordinate to keep you alive and healthy—the knowledge of how all the organs, tissues and cell work together in health and disease is the basis of physiological study. The trouble with finding the best treatment for COVID-19 is that the symptoms are so different from one person to the next. Children seem to be less vulnerable to COVID-19, older people are more vulnerable and some young adults are dying from strokes caused by the coronavirus rather than respiratory issues. As we find out more about how COVID-19 affects the body, it is clear that there will be more than one best way to fight it. In my eyes, the COVID-19 pandemic has highlighted the value of scientific research, especially research that helps us understand human physiology. In a few short months, scientists have sequenced the genome of the virus, discovered how SARS-CoV-2 infects cells by attaching its “spikes” to a protein on cells and developed new potential treatments. It will be the research physiologist’s job to study and understand how to best use these medicines and devices to treat COVID-19 patients.

**Future pandemics cause extinction**

**Diamandis 21** [Eleftheriosi, biochemist specializing in clinical chemistry, Prof and Head of Clinical Biochemistry in the Dept of Laboratory Medicine and Pathobiology at the University of Toronto] “The Mother of All Battles: Viruses vs Humans. Can Humans Avoid Extinction in 50-100 Years?” Preprints, April 13, 2021,<https://www.preprints.org/manuscript/202104.0397/v1> TG

The recent SARS-CoV-2 pandemic, which is causing COVID 19 disease, has taught us unexpected lessons about the dangers of human extinction through highly contagious and lethal diseases. As the COVID 19 pandemic is now being controlled by various isolation measures, therapeutics and vaccines, it became clear that our current lifestyle and societal functions may not be sustainable in the long term. We now have to start thinking and planning on how to face the next dangerous pandemic, not just overcoming the one that is upon us now. Is there any evidence that even worse pandemics could strike us in the near future and threaten the existence of the human race? The answer is unequivocally yes. It is not necessary to get infected by viruses of bats, pangolins and other exotic animals that live in remote forests in order to be in danger. Creditable scientific evidence indicates that the human gut microbiota harbor billions of viruses which are capable of affecting the function of vital human organs such as the immune system, lung, brain, liver, kidney, heart etc. It is possible that the development of pathogenic variants in the gut can lead to contagious viruses which can cause pandemics, leading to destruction of vital organs, causing death or various debilitating diseases such as blindness, respiratory, liver, heart and kidney failures. These diseases could result in the complete shutdown of our civilization and probably the extinction of human race. In this essay, I will first provide a few independent pieces of scientific facts and then combine this information to come up with some (but certainly not all) hypothetical scenarios that could cause human race misery, even extinction. I hope that these scary scenarios will trigger preventative measures that could reverse or delay the projected adverse outcomes.