## Util

### 1NC – Util

#### The standard is maximizing expected wellbeing.

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

Blum et al. 18

Kenneth Blum, 1Department of Psychiatry, Boonshoft School of Medicine, Dayton VA Medical Center, Wright State University, Dayton, OH, USA 2Department of Psychiatry, McKnight Brain Institute, University of Florida College of Medicine, Gainesville, FL, USA 3Department of Psychiatry and Behavioral Sciences, Keck Medicine University of Southern California, Los Angeles, CA, USA 4Division of Applied Clinical Research & Education, Dominion Diagnostics, LLC, North Kingstown, RI, USA 5Department of Precision Medicine, Geneus Health LLC, San Antonio, TX, USA 6Department of Addiction Research & Therapy, Nupathways Inc., Innsbrook, MO, USA 7Department of Clinical Neurology, Path Foundation, New York, NY, USA 8Division of Neuroscience-Based Addiction Therapy, The Shores Treatment & Recovery Center, Port Saint Lucie, FL, USA 9Institute of Psychology, Eötvös Loránd University, Budapest, Hungary 10Division of Addiction Research, Dominion Diagnostics, LLC. North Kingston, RI, USA 11Victory Nutrition International, Lederach, PA., USA 12National Human Genome Center at Howard University, Washington, DC., USA, Marjorie Gondré-Lewis, 12National Human Genome Center at Howard University, Washington, DC., USA 13Departments of Anatomy and Psychiatry, Howard University College of Medicine, Washington, DC US, Bruce Steinberg, 4Division of Applied Clinical Research & Education, Dominion Diagnostics, LLC, North Kingstown, RI, USA, Igor Elman, 15Department Psychiatry, Cooper University School of Medicine, Camden, NJ, USA, David Baron, 3Department of Psychiatry and Behavioral Sciences, Keck Medicine University of Southern California, Los Angeles, CA, USA, Edward J Modestino, 14Department of Psychology, Curry College, Milton, MA, USA, Rajendra D Badgaiyan, 15Department Psychiatry, Cooper University School of Medicine, Camden, NJ, USA, Mark S Gold 16Department of Psychiatry, Washington University, St. Louis, MO, USA, “Our evolved unique pleasure circuit makes humans different from apes: Reconsideration of data derived from animal studies”, U.S. Department of Veterans Affairs, 28 February 2018, accessed: 19 August 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6446569/>, R.S.

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

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

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

Evolutionary theories of pleasure: The love connection BO:D

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

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

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

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

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

Finding happiness is different between apes and humans

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

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

Desire and reward centers

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

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

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

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

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

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

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

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

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

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

#### 2 – Actor spec – states can only use util – outweighs since different actors have different obligations. Side-constraints can’t determine when to apply each framework.

#### a) aggregation – all policies benefit some and hurt others.

#### b) collectivism – states are composed of numerous disagreeing actors so unified intent is impossible.

#### 3 – Degrees of wrongness – breaking a promise to take a dying person to the hospital is worse than breaking a promise to show up to a birthday party. Only the consequence of the first explains why it’s worse than the second.

#### 4 – Moral substitutability – every obligation’s endpoint involves intermediary steps that only util explains.

Sinott-Armstrong 92

Walter Sinnott-Armstrong, American philosopher. He specializes in ethics, epistemology, and more recently in neuroethics, the philosophy of law, and the philosophy of cognitive science, "An argument for Consequentialism" PhilPapers, 1992, accessed: 1 May 2020, <https://philpapers.org/rec/SINAAF>, R.S.

* Large chunk of text shrunk to size 4 for ease of reading in-round.

Since general substitutability works for other kinds of reasons for action, we would need a strong argument to deny that it holds also for moral reasons. If moral reasons obeyed different principles, it would be hard to understand why moral reasons are also called 'reasons' and how moral reasons interact with other reasons when they apply to the same action. Nonetheless, this extension has been denied, so we have to look at moral reasons carefully.

I have a moral reason to feed my child tonight, both because I promised my wife to do so, and also because of my special relation to my child along with the fact that she will go hungry if I don't feed her. **I can't feed my child** tonight **without going home** soon, **and going home** soon **will enable me to feed her** tonight. Therefore, there is a moral reason for me to go home soon. It need not be imprudent or ugly or sacrilegious or illegal for me not to feed her, but the requirements of morality give me a moral reason to feed her. This argument assumes a special case of substitutability:

(MS) If there is a moral reason for A to do X, and if A cannot do X without doing Y, and if doing Y will enable A to do X, then there is a moral reason for A to do Y.

I will call this 'the principle of moral substitutability', or just 'moral substitutability'.

This principle is confirmed by moral reasons with negative structures. I have a moral reason to help a friend this afternoon. **I cannot do so if I play golf** this afternoon. Not playing golf this afternoon will enable me to help my friend. So I have a moral reason not to play golf this afternoon. Similarly, I have a moral reason not to endanger other drivers (beyond acceptable limits). I can't drink too much before I drive without endangering other drivers. Not drinking too much will enable me to avoid endangering other drivers. There- fore, I have a moral reason not to drink too much before I drive. The validity of such varied arguments confirms moral substitutability.

We can also extend the above theory of reasons. Since a reason for action is a fact that can affect the rationality of an act, a **moral reason** is a fact that can **affect the morality of an act**, either **by making a**n otherwise **morally neutral act** morally **good or** by making **an** otherwise **immoral act moral.** As above, a moral reason need not be strong enough to make its act moral in every case as long as it has that ability in some cases. For example, if I promised to meet a needy student later this afternoon, it is immoral for me to go home now if I have no morally relevant reason to go. Nonetheless, it is not immoral for me to go home now if this is necessary and enables me to feed my child when I have a moral reason to feed her. Thus, this fact about going home now can make an otherwise immoral act moral, so this fact is a moral reason. This supports moral substitutability. When there is a moral reason for me to feed my child, and going home now is necessary and enables me to feed my child, this fact makes it moral for me to go home now even in a situation where this would otherwise be immoral, so this fact is a moral reason for me to go home now. Thus, the ability to make immoral acts moral transfers from acts to their necessary enablers, just as moral substitutability claims.

Despite these arguments for moral substitutability, critics will raise several objections. I will consider only three kinds of objections, but they set the basic patterns for most others.

The first kind of objection claims that some necessary enablers of what I have a moral reason to do seem morally neutral. For example, I promised, so I have a moral reason to cook dinner. I cannot cook dinner without moving some air molecules, and moving some air molecules does enable me to cook dinner. Moral substitutability warrants the conclusion that there is a moral reason for me to move some air molecules. This seems at least odd.

My response is that this conclusion is still true. Its oddness can be explained by pragmatic principles.6 My moral reason to move some air molecules is very weak and general, since I can move air molecules in many different ways, but only some of these count as cooking dinner. Thus, when one can make the stronger and more specific judgment that I have a moral reason to cook dinner, it is misleading to say only that there is a moral reason to move some air molecules. This weaker judgment suggests that this is all I have a moral reason to do, since, if I have a moral reason to do more, why not say so? Furthermore, if the purpose of the conversation is to direct my action, then it is irrelevant to say that I have a moral reason to move some air molecules, since this judgment fails to tell me how to move them. This judgment also fails to help others determine whether I have done all that I have a moral reason to do, or whether I am blameworthy. The failure to achieve such purposes explains why it is odd to say that I have a moral reason to move some air molecules. But this explanation is purely pragmatic, so it can still be true that I have a moral reason to move some air molecules. And it is true, because my act will move some air molecules if I do what I have a moral reason to do. The truth of this consequence is all that is needed to defend moral substitutability.

The second objection is that some necessary enablers of what I have a moral reason to do are morally wrong. Philippa Foot gives an example:

Suppose, for instance, that some person has an obligation to support a dependent relative, an aged parent perhaps Then it may be that he ought to take a job to get some money ...But what if the only means of getting money is by killing someone? ..Jt is not the case that the son or daughter ought to kill to get the money.7

If we change 'obligation' and 'ought' into 'moral reason', Foot seems to claim that the child does not have any moral reason to kill, even though the child has a moral reason to get the money, the child cannot get the money without killing, and killing would enable the child to get the money. This would refute moral substitutability.

However, the child does have some moral reason to kill This moral reason is vastly overridden by the moral reason not to kill, but, if the child kills, it will not be for no reason at all or for a selfish reason. Moreover, the fact that an act is necessary and enables the child to support the parents can make an otherwise immoral act moral in other cases, even if it is not strong enough to remove the immorality in this case. It still would be odd to say only that the child has a moral reason to kill, but what makes this utterance odd is just that it leaves out some very important information: the reason is vastly overridden. Nonetheless, it is still true that the child has some moral reason to kill, so moral substitutability stands.

Foot does make another suggestion that deserves a response. In place of moral substitutability, she says in effect that there is a moral reason to do what is a necessary means of doing what there is a moral reason to do. This weaker principle is supposed explain the validity of arguments like those above. Foot also claims that this principle does not yield any moral reason to kill in her example, because a means must be possible, but here killing is not a 'moral possibility', because it is wrong. I am not convinced, however, that what is morally impossible in this way cannot be a means More importantly, Foot's principle is too weak to explain the validity of many common arguments. Getting in my car does not seem to be a means of getting my cavity filled, since I do not get my cavity filled by (means of) getting in my car. Other examples are even clearer. Suppose I have a moral reason to go home, but I cannot go home without waking the dog that is sleeping outside my office. Waking the dog does enable me to go home in my sense that it is part of a larger course of action that is sufficient for me to go home, where I can do the rest of what is sufficient. Therefore, I have a moral reason to wake the dog (even if it is odd to describe the reason in this way). However, waking the dog is not a means of going home. Thus, Foot's principle cannot explain why this argument is valid. We need a principle as strong as moral substitutability in order to explain the validity of all of the arguments that are valid.

A final objection asks which reasons are moral. Even if I have a moral reason to feed my child, and even if this gives me a reason to go home, a critic still might deny that my reason to go home is moral in nature. However, my reason to go home seems moral, both because its source is a moral reason, and also because its role is to affect what is moral or immoral. Furthermore, if it is not a moral reason, what kind of reason is it? My reason to go home is derived by substitutability from a moral reason (my reason to feed my child). This chain of reasons need not have any source apart from morality, and, if it does not, my reason to go home is not aesthetic or religious or prudential or legal. Opponents might respond that my reason to go home is a 'practical' or 'instrumental' reason. However, this is just another way of saying that it is derived by substitutability, and this does not show that it is not also a moral reason. Instrumental moral reasons must still count as moral reasons, since otherwise we could not explain how they differ from instrumental religious reasons, instrumental aesthetic reasons, and so on. My reason to go home is stronger and different in character if it derives from a moral reason to feed my child than if it derives from a prudential reason to take a nap. The differences between my reasons to go home in these two cases would be hidden if both reasons were described solely as 'instrumental' without recognizing that the first is moral and the second is prudential. That is why we need to count reasons derived from moral reasons via substitutability as moral reasons themselves. Finally, we can also argue more positively for the moral nature of my reason to go home. This reason meets every necessary condition in every plausible definition of morality. Morality is usually defined by its form, content, or force. Regarding form, my reason to go home is universalizable, since anyone in similar circumstances would also have a reason to go home. My reason to go home also has the content essential to morality, since it concerns social relations and harm to others. Even if morality must be supreme in force (which I doubt), my reason to go home is just as likely to be supreme as my reason to feed my child, since my reason to go home is not overridden in this situation unless my reason to feed my child is also overridden. This leaves no reason to deny that my reason to go home is moral in nature.

There are, of course, many other possible objections to moral sub-stitutability, and I cannot answer all of them here.8 Nonetheless, we already have several arguments for moral substitutability. It is confirmed by numerous and varied examples. It coheres well with a general theory of reasons for action. And the main objections have been met. So I conclude that the principle of moral substitutability is true.

3. Why and How to Explain Substitutability

If moral substitutability is so obvious, why does it need to be explained? The answer lies in its unusual features. Moral substitutability relates a moral operator ('there is a moral reason') to a non-moral operator ('can'). Moreover, the non-moral operator ('can') represents contingent facts and not just necessary relations, such as logical impossibility or act identity. Thus, moral substitutability takes us from a moral judgment about one action to a moral judgment about a different action that is only contingently related.

Similar inferences are not allowed for many other properties. For example, even if I cannot chop vegetables without taking a knife out of a drawer, and even if taking out a knife does enable me to chop vegetables, my taking out a knife still might be quick when my chopping vegetables is slow. Thus, quickness and many other properties of acts do not transfer to necessary enablers of those acts. This makes it odd that moral and other reasons for acts do transfer to necessary enablers of those acts. This oddity creates the need to explain moral substitutability.

How can a moral theory explain moral substitutability? The most direct way is if moral substitutability follows from the substantive principles in the moral theory. Moral theories present basic moral principles about what morally ought or ought not to be done, or about what is morally right or wrong, etc. Regardless of terminology, these substantive principles tell us in effect what moral reasons there are. For example, if the rule 'Keep your promises' or the principle 'You ought to keep your promises' is basic to a moral theory, then the fact that an act is an act of keeping a promise is a moral reason to do that act according to that theory. In such basic rules or principles, each moral theory specifies which properties of acts constitute moral reasons to do or not to do acts with those properties.

Moral theories can then explain moral substitutability by picking out the right kinds of properties as moral reasons. Suppose a moral theory implies that an agent has a moral reason to do act R because act R has a property P. Now suppose that act N is a necessary enabler for act R. Moral substitutability implies that there is also a moral reason to do act N, but the question is: why? If act N also has property P, this makes it clear why there is also a reason to do act N. However, if act N does not have property P, this moral theory does not explain why the agent has any reason to do act N. Schematically,

P? P

I I

N 🡨 R

Thus, a moral theory can explain why moral substitutability holds if its basic substantive principles imply that all moral reasons are or are due to properties such that, if one act has such a property, then any act which is a necessary enabler for the first act also has such a property. Moral substitutability then follows from the substantive principles of the moral theory.

It might seem that this kind of explanation is not needed, because another explanation is readily available.9 Moral substitutability can be derived from general substitutability. Doesn't that explain moral substitutability? Not really. General and moral substitutability set abstract constraints on reasons and moral reasons. We still need to know whether and why these constraints are actually met by the moral reasons picked out by each moral theory. Suppose a substantive moral theory implies that there are moral reasons to do acts of types A, B, C, and D, but no more. Moral substitutability, however, implies that there are also moral reasons to do acts of type E, F, G, and H, since these are necessary enablers for A-D. The substantive moral theory itself can- not explain why there are these additional moral reasons to do E-H. General substitutability still implies moral substitutability, but neither of these principles stands in any explanatory relation to the substantive moral theory itself. We could just add the principle of moral substitutability to the original theory, and the new, extended theory would imply moral reasons to do acts of type E-H. However, the original, substantive principles would still give us no understanding of why the extension is needed The substitutability principles were just tacked on in an ad hoc fashion, so they are still not connected in any significant way to the substantive part of the theory. This lack of coherence and explanatory value makes this extended theory inferior to another moral theory whose substantive moral principles imply and thus explain moral substitutability.

The same burden arises outside morality. General substitutability applies to prudential reasons, aesthetic reasons, etc., so a substantive theory of prudence, aesthetics, etc., also needs to specify the content of its reasons in such a way that we can understand why those reasons obey the constraints of general substitutability. Although this explanatory burden is general, this does not make it any easier to carry. Each theory in each area will lack coherence unless its particular substantive principles bear some explanatory relation to the relevant principles of substitutability. This general requirement has important implications in all of these areas, but I will focus on moral reasons.

4. Kinds of Moral Reasons

In order to determine which moral theories can explain moral substitut- ability, we need to distinguish two kinds of moral reasons and theories: consequential and deontological. These terms are used in many ways, but one particular distinction will serve my purposes

A moral reason to do an act is consequential if and only if the reason depends only on the consequences of either doing the act or not doing the act. For example, a moral reason not to hit someone is that this will hurt her or him. A moral reason to turn your car to the left might be that, if you do not do so, you will run over and kill someone. A moral reason to feed a starving child is that the child will lose important mental or physical abilities if you do not feed it. All such reasons are consequential reasons.

All other moral reasons are non-consequential. Thus, a moral reason to do an act is non-consequential if and only if the reason depends even partly on some property that the act has independently of its consequences. For example, an act can be a lie regardless of what happens as a result of the lie (since some lies are not believed), and some moral theories claim that that property of being a lie provides a moral reason not to tell a lie regardless of the consequences of this lie. Similarly, the fact that an act fulfills a promise is often seen as a moral reason to do the act, even though the act has that property of fulfilling a promise independently of its consequences. All such moral reasons are non-consequential. In order to avoid so many negations, I will also call them 'deontological'.

This distinction would not make sense if we did not restrict the notion of consequences. If I promise to mow the lawn, then one consequence of my mowing might seem to be that my promise is fulfilled. One way to avoid this problem is to specify that the consequences of an act must be distinct from the act itself. My act of fulfilling my promise and my act of mowing are not distinct, because they are done by the same bodily movements.10 Thus, my fulfilling my promise is not a consequence of my mowing. A consequence of an act need not be later in time than the act, since causation can be simultaneous, but the consequence must at least be different from the act. Even with this clarification, it is still hard to classify some moral reasons as consequential or deontological,11 but I will stick to examples that are clear.

In accordance with this distinction between kinds of moral reasons, I can now distinguish different kinds of moral theories. I will say that a moral theory is consequentialist if and only if it implies that all basic moral reasons are consequential. A moral theory is then non-consequentialist or deontological if it includes any basic moral reasons which are not consequential.

5. Against Deontology

So defined, the class of deontological moral theories is very large and diverse. This makes it hard to say anything in general about it. Nonetheless, I will argue that no deontological moral theory can explain why moral substitutability holds. My argument applies to all deontological theories because it depends only on what is common to them all, namely, the claim that some basic moral reasons are not consequential. Some deontological theories allow very many weighty moral reasons that are consequential, and these theories might be able to explain why moral substitutability holds for some of their moral reasons: the consequential ones. But even these theories cannot explain why moral substitutability holds for all moral reasons, including the non-consequential reasons that make the theory deontological. The **failure** of deontological moral theories **to explain** moral **substitutability** in the very cases that make them deontological **is a reason to reject all deontological** moral **theories.**

I cannot discuss every deontological moral theory, so I will discuss only a few paradigm examples and show why they cannot explain moral substitut- ability. After this, I will argue that similar problems are bound to arise for all other deontological theories by their very nature.

The simplest deontological theory is the pluralistic intuitionism of Prichard and Ross. Ross writes that, when someone promises to do something, 'This we consider obligatory in its own nature, just because it is a fulfillment of a promise, and not because of its consequences.'12 Such deontologists claim in effect that, if I promise to mow the grass, there is a moral reason for me to mow the grass, and this moral reason is constituted by the fact that mowing the grass fulfills my promise. This reason exists regardless of the consequences of mowing the grass, even though it might be overridden by certain bad consequences. However, if this is why I have a moral reason to mow the grass, then, even **if I cannot mow the grass without starting my mower**, and starting the mower would enable me to mow the grass, **it still would not follow that I have** any moral **reason to start my mower, since I did not promise to start my mower**, and starting my mower does not fulfill my promise. Thus, a moral theory cannot explain moral substitutability if it claims that properties like this provide moral reasons.

#### 5 – Key to fairness – it matters – it preserves our value in winning, which demanding the ballot proves we have – the 2NR gets new weighing since the 1AC hasn’t shown its hand. TJFs outweigh on specificity – every framework is a question of how the judge should frame the round – normative warrants can’t explain why judges, specifically, should use them.

## 1

#### Interp: Debaters must disclose tournaments on the 2021-2022 NDCA LD wiki under the actual name of the tournament on tabroom for every round at said tournament. Violation: The names are “Peninsula” and “Apple Valley” on tab

#### See ss from shell below

#### The standard is inclusion - they make debate inaccessible to novices or small schools who compete on the circuit but don’t have access to resources or have knowledge of debate lingo to know the shorthand nicknames for tournaments. Two internal links to accessibility - 1) lets debaters see if you won or lost on tab going for specific strategies or hitting specific strategies, letting debaters adapt around that and b) lets debaters see what speaks judges gave to help them see how good you were at going for x argument. Independently links into reciprocity since if I disclosed one way and you didnt’ you had the advantage in this round. Outweighs - none of their standards matter if debaters can’t access them and means reasonability is uniquely wrong since even a 1 risk of exclusion is bad, you obviously don’t say some level of exclusion is justifie

#### DTD to deter abuse; no rvis – don’t win on being fair and leads to baiting theory

## 2

#### Interpretation: Debaters must disclose all aff positions from each round on the 2021-2022 NDCA LD Wiki at least one hour before the round.

#### Violation – they don’t – insert this screenshot.

#### 

#### Only 1 round from peninsula is disclosed

#### Vote neg:

#### 1 – Research skills – open sourcing allows small schools to research better and get back in the game.

#### 2 – Clash – open source allows substantive engagement of positions through preparation rather than ad-hoc generics – that turns their method because refinement of methods through nuanced clash allows for truth testing their arguments and building advocacy skills that are the portable impact to debate.

#### Drop the debater –

#### 1] It’s the same thing as dropping the argument in this case since the argument is the entire case that wasn’t disclosed

#### 2] It’s not what you do, it’s what you justify—voting for me sets a precedent in favor of a positive model of debate—wins and losses determine the direction of activity

#### 3] Deterrence—Dropping the debater will be best because it shows that they can’t run positions that could spread through the community and harm debate as a whole.

4] Drop the debater specifically for not disclosing because there’s no way to rectify the abuse—going and forcing them to disclose now won’t fix the lack of education we get from this round.

## 3

#### Text: States ought to:

#### • amend the Outer Space Treaty to create a private property regime that grants exclusive rights to private entities to exploit resources within space facilities and a safety zone of 1000 meters if they inhabit, maintain and/or operate said facility for a period of at least one year conditional upon peaceful use of the property;

#### • establish an international space debris organization modelled off the International Civil Aviation Organization that is granted exclusive and mandatory standard-setting authority over space debris;

#### • mandate a transition to zero-emissions modes of transportation;

#### • ban the use of environmentally harmful housecleaning products;

#### • ban ozone-depleting pesticides;

#### • ban nitrous oxide.

#### Plank 1 solves and preserves legal certainty.

Brehm 15 [Andrew R. Brehm, attorney at the law firm Scopelitis Garvin, “Private Property in Outer Space: Establishing a Foundation for Future Exploration,” 2015, *Wisconsin International Law Journal*, Vol. 33, Issue 2, https://repository.law.wisc.edu/s/uwlaw/media/77012, EA]

International agreement is essential to establishing a system of private property rights in outer space for the simple reason that outer space does not belong to one single nation; it is not the prerogative of the US government, or any government, to implement unilateral legislation that would significantly alter outer space and the current space law framework. It would frustrate the common conception of outer space as a free and open place, as well as the current legal framework, to simply enact domestic legislation that allows for the acquisition of private property rights in outer space. A collaborative, international approach is necessary for legal and practical reasons, in order to successfully establish an effective and beneficial system of private property rights in outer space.

Wayne White’s treaty proposal creates a strong foundation for international discussion of the increasingly important issue of private property acquisition in outer space. White’s well-crafted treaty proposal seeks to advance private exploration of outer space within the regulatory framework of the Outer Space Treaty and existing international space law. By creating a system in which private entities can establish real property rights in their space objects and a surrounding safety zone, the proposal incentivizes private investment of large sums into space exploration programs. Provisions which authorize the right to exclude, the right to be free from interference, the exclusive right to appropriate resources within an established safety zone, and the right to sell real property further encourage private space exploration and create strong associated incentives. 107 Private space exploration and resource extraction entities allocate substantial investments in furtherance of their space programs. 108 Allowing such entities to mine valuable platinum group resources, as well as water and hydrogen in celestial bodies that can be used to propel deeper space exploration, not only provides a robust safety net for current space exploration entities, but also creates a system that encourages new entities to enter into the field of private space exploration. Increased space exploration across the board would have nearly unlimited benefits in terms of societal, economical, and technological advancement. 109

Additionally, an international agreement alleviates some of the general concerns associated with establishing private property rights in outer space. Outer space is generally viewed as a place that should be open to all for free and peaceful use. 110 Opponents of private property rights in outer space often cite concerns about over-allocation of property at the exclusion of non-spacefaring nations or entities, and associated concerns. " 1 White’s proposed international agreement alleviates these concerns by placing limitations on which real property rights can be acquired.

First, under the proposal for an international agreement, private entities are entitled to formal recognition of property rights if they “inhabit, maintain and/or operate a space facility for a period of at least one year.” 112 This overcomes the potential issue of modern-day private colonialism where private entities could simply stake their company flags and claim ultimate title to the property. Of course, the duration requirement could be extended and additional requirements for formal recognition of property rights could be attached. Additionally, the property rights under White’s system would only apply to space facilities and a safety zone of either 500 or 1,000 meters surrounding a space facility.113 This limitation avoids concerns of over-allocation of private property in space. Essentially, private entities would not be capable of acquiring private property rights to vast amounts of territory. Also, property rights of private entities would immediately terminate if the property is used for non-peaceful purposes, if it is abandoned for an extended period of time, or if it used to prevent free access to outer space or celestial bodies114 These provisions ensure that outer space will be used for peaceful purposes and will remain open for free exploration.

Ultimately, a well-crafted international agreement similar to White’s proposal creates a system of private property rights in outer space that remains true to the overarching goals of outer-space exploration. Such a system would incentivize private space exploration in a realistic and pragmatic fashion that benefits all mankind. If peaceful and free space exploration is a desirable goal, White’s treaty proposal lays a strong foundation. This foundation has the potential to lead to an effective international system that addresses modem space exploration concerns while facilitating future development in the arena of space exploration.

#### Plank 2 solves debris.

Larsen 18 [Paul B. Larsen, taught air and space law for more than forty years respectively at Southern Methodist University and at Georgetown University, “Solving the Space Debris Crisis,” 2018, *Journal of Air Law and Commerce*, Vol. 83, Issue 3, https://scholar.smu.edu/cgi/viewcontent.cgi?article=4092&context=jalc, EA]

D. OPTION OF AN INTERNATIONAL SPACE DEBRIS ORGANIZATION

1. ICAO Analogy Option

An international space debris organization capable of establishing international mandatory standards for old as well as for new space debris would require new decision-making authority. One model for such an organization could be the ICAO, which is a sub-agency of the United Nations. ICAO’s main purpose is to establish international standards and procedures for air traffic that are mandatory and uniform.153 The authorizing treaty is the 1944 Chicago Convention.154 Its Article 37 establishes ICAO’s standard-setting functions for civil aviation.155 Article 56 provides for the creation of the ICAO Air Navigation Commission, which is a standing commission of nineteen experts.156 Its function is to draft standards and to continuously update existing standards as needed by new developments.157 The technical experts do not represent states and are therefore not beholden to specific states. The Commission has subcommittees on specific subjects. In their examinations, the experts solicit contributions from private operators, users, and air services, as well as from states. The standards are agreed to by the Air Navigation Commission and submitted to the ICAO Council for approval, after which the standards are submitted to the ICAO member states. At that point in time the individual states have the option of filing deviations from the international standards.158 The standards apply only to civil users.159 Military operators tend to observe the civil standards for the sake of uniformity and safety.

a. Strengths

Focusing decision-making on international standards and procedures for all kinds of space debris would remove the decision-making from all the other many issues that are now discussed in COPUOS. If the ICAO model were adopted, then an expert technical commission would be charged with examination of the technical and physical ways of best limiting and removing debris. The commission would not be distracted by political issues as COPUOS is now. The decision-making would take place in a UN forum. It would not be dependent on an outside group like the IADC. The standards and procedures developed by a space debris commission would become mandatory upon approval by a small space debris council and only subject to deviations by individual states for good cause. States would appreciate the safety and navigation advantages of uniform international space debris rules. Decision-making would be expedited because the space debris commission would only be motivated by the urgency of the need for space debris regulation. As in ICAO, the space debris standards and procedures would establish the minimum requirements with states free to create more comprehensive rules. The individual states would implement and enforce the space debris standards and procedures, subject to oversight by a new international space debris organization. It would be a small UN sub-agency with universal participation and decision-making powers, similar to ICAO. The ICAO model has certainly worked for commercial aviation. Applied to space traffic, the aim would be an ICAO-like transparency, certainty, and reliability.

b. Weaknesses

The weakness of adopting the ICAO model would be that it is very difficult for states to adopt a new framework. However, major devastating collisions, like a destructive collision with the International Space Station or cascades of collisions caused by cascades of debris would convince the world of the need for drastic action.160 Such collisions in outer space will happen. The wise choice would be to adopt new regulation before the big collisions happen. Another weakness is that there would be additional costs because the ICAO model would require more technology and operations. Finally, the major problem with this option would be the difficulty of organizing and adopting new international law on space debris regulation. Unfortunately, that may happen after major outer space collisions and the consequent urgency to remedy the debris problem that would follow a disaster.

c. Evaluation: Option of Using the ICAO Model for Space Debris Regulation161

It is generally agreed that the space debris problem is universal. It requires action and decisiveness for its resolution. ICAO is constantly faced with resolving aviation safety issues and regulating air space. ICAO, as a UN sub-agency, is within the UN umbrella of specialized agencies. Space has similarities to air space. Most of air space is not sovereign. Outer space is also not sovereign. ICAO has proven successful in organizing and resolving joint use of air space by all the states. Using the ICAO model to form a similar world safety organization for outer space debris should be considered. ICAO regulations are mandatory and uniform. International space debris regulations also need to be mandatory and uniform. ICAO regulation is accepted and even appreciated by military users as being of a technical nature. A similar arrangement should work for space debris regulation. A commission of space debris experts would be charged with drafting international space debris regulations. The space commission would be able to constantly evaluate the success of existing regulations and be able to make adjustments and improvements as needed. The space debris commission would prepare regulations for generation of new debris. It should also establish acceptable regulations for significant removal of existing debris sufficient to stabilize, if not reduce, the existing debris accumulation.

A small representative space debris council would be formed to approve the draft regulations. The mandatory space debris regulations would be sent to states, who would be able to file necessary individual deviations as occurs with aviation standards and procedures. The council would be guided by long term policies established by an assembly of states. Such an assembly of ICAO member states meets every three years. A similar assembly would establish long term policy for the space debris organization.

For its work on new regulations, a new space navigation commission would need substantial input of information from the users of outer space about their needs, evaluations of regulations that are successful and beneficial, and their negative reaction to regulations that do not work and are too restrictive. Users of outer space should be able to contribute technology, both for mitigation of new debris and for effective ways of removing old debris. The actual implementation of the new regulations would occur through the states themselves. They and their authorized non-governmental users would have to comply with the international regulations. The burden of actual removal of old debris would fall on the states, unless states in the debris organization agree to contract out debris removal to commercial companies. New international law would be established by a diplomatic conference to authorize the space organization and to detail its duties. The organization would be funded by the member states the same way ICAO is presently funded.

#### Planks 3-6 solve ozone – rocket launches not key and every plank is an alt cause

GreenDiary n/d [Environmental News and Blog, “”How to prevent Ozone depletion (and what would happen if we don’t)” https://greendiary.com/5-ways-prevent-ozone-depletion.html]

One of the easiest ways to reduce damages caused to the ozone layer is by limiting the use of vehicles. This is because vehicular emissions eventually result in the release of smog. This in turn also damages the ozone layer causing it to deteriorate. If you are looking for ways on how to prevent ozone depletion, then you do have certain effective option. You can choose to take the public transport or use a bicycle. Another great way to restrict the use of car is by opting for Car Pooling. If you do want to use a vehicle, then it is recommended to switch to an electric or hybrid vehicle. Even better, you can opt for vehicles that run solely on solar power. Scroll to the end of the article for a list of the same.

2. Use eco-friendly household cleaning products

Usage of eco-friendly and natural cleaning products for household chores is a great way to prevent ozone depletion. This is because many of these cleaning agents contain toxic chemicals that interfere with the ozone layer. A lot of supermarkets and health stores sell cleaning products that are toxic-free and made out of natural ingredients.

3. Avoid using pesticides and prevent ozone depletion

Overuse-of-pesticides

Pesticides may be an easy solution for getting rid of weed, but are harmful for the ozone layer. The best solution for this would be to try using natural remedies, rather than heading out for pesticides. You can perhaps try to weed manually or mow your garden consistently so as to avoid weed-growth. Or else, try Urban Aerofarming, which requires less water, less space and little to no amount of pesticides. To know more about Urban Aerofarms, scroll down. You can check out the different DIY ideas to make your own eco-friendly pesticides at home to prevent ozone depletion.

4. Developing stringent regulations for rocket launches

The world is progressing at a drastic pace. As we progress on various scientific discoveries, the need of the hour also requires people to travel out of space. The number of rocket launches has increased drastically. This in turn is equally damaging the ozone layer in many ways. A study shows that the harm caused by rocket launches would outpace the harm caused due to CFCs.

At present, the global rocket launches do not contribute hugely to ozone layer depletion. Due to the advancement of the space industry, it will become a major contributor to ozone depletion. All types of rocket engines result in combustion by products that are ozone-destroying compounds that are expelled directly in the middle and upper stratosphere layer – near the ozone layer.

5. Banning the use of dangerous nitrous oxide

Ozone-Layer-DepletionIn the late 70’s the world was taken by surprise with a study that triggered a red alert pertaining to the destruction caused to the ozone layer. It had all the necessary information that helped us to understand what exactly was going on. Even the facts and figures mentioned in the study clearly pointed out towards the alarming rate of how the ozone layer was being depleted.

Nations around the globe got together in 1989 and formed the Montreal Protocol. The main aim behind this was to stop the usage of CFCs. However, the protocol did not include nitrous oxide which is the most fatal chemical that can destroy the ozone layer and is still in use. Governments across the world should take a strong stand for banning the use of this harmful compound to save the ozone layer.

6. Avoiding Ozonolysis Purifiers

Air-Purifier

Are we risking our health and environment with the development of new technology? We believe that air purifiers are an effective way to fight air pollutants but they can actually have the harmful effects, which we are not aware of.

## New technology has allowed companies to make products which can “freshen” air by producing ozone which is not healthy to humans in large quantities. These ozone layers can actually react with existing particles in the air and make them more dangerous.

## 4

#### LEO is uniquely accessible to African industry due to cheaper launch and production costs – that solves Earth Observation, internet, national security, and spills over to enrich the economy

Samanga 21 Ruvimbo Samanga, Zimbabwean scholar and lawyer working with the Space Law & Policy, holds a BA Law (cum laude), an LLB and an LLM in International Trade and Investment Law from the University of Pretoria. "Why Africa Should Expand its Mega-Satellite Constellation Capacity." Space Legal Issues, 3 May. 2021, www.spacelegalissues.com/why-africa-should-expand-its-mega-satellite-constellation-capacity.

Since 1988, Africa has spent approx. USD$4 billion towards the launch of 41 satellites (excluding the cost of the RASCOM-QAF 1R replacement). 30 of these satellites fall into the Small Satellite market. The majority of satellites owned by African institutions typically involves satellites with less than 600kgs in fueled mass and 24 of these satellites have less than 200kg fueled mass. The reason for the interest in the miniaturized satellites? In a nutshell, they offer cheaper design alternatives, coupled with the ease of mass production. They are also significantly more versatile in certain applications, owing to their reduced size. For example, they are the satellite of choice for low data rate communications, being launched in large multi-coverage constellations in Low Earth Orbit (LEO). It comes as no surprise then that small satellites are growing increasingly popular amongst developing countries, no less within the region, for the accessibility. The growth of the small satellite industry is evident in commercial as well as large programs which exhibit steady growth. In 2019, 5 African countries launched 8 satellites, 6 of which were small satellites. It is expected that by the year 2024, 19 African countries would have launched additional satellites into space. These small, sometimes called nano-satellites, are really driving the African space program, especially in line with the African Union’s (AU) science and technology ambitions which are expected to reap huge benefits for the continent. Most importantly through the AU Science, Technology and Innovation Science Strategy for Africa – 2024 (STISA-2024). Small satellites are categorized as space systems of up to 600 kg (falling into the categories of Minisatellites, Microsatellite, Nanosatellite, Picosatellite, and Femto Satellites). They range across different applications (Satellite Communications, Imaging & Earth Observations, Space Situational Awareness, and Technology Development), and have different end users (Government & Defense, and Civil & Commercial). Of the 8 satellites launched in 2019, 6 were small satellites (3 Nanosatellites, 2 Microsatellites, and 1 Picosatellite). Satellite communications mega-constellations are on the rise, however this growing interest is not without its challenges and uncertainties. The biggest risks in the small sat interest in the coming years are mostly ascribed to investor’s rick assessment & funding availability; Securing customers & Return on Investment (ROI); Stronger regulations; Competition from heavier satellite, and reliability. This is also further compounded by the fact that establishing a satellite service industry which is sustainable requires adequate funding. Skillset deficit is also a prominent challenge. Even though Africa has and will in future have the largest population of young people, the youth are generally not interested in pursuing careers in STEM (science, technology, engineering and mathematics). You can expect more satellites to be launched despite these crises. As regards the African Small Sat market, the growth perspectives seem to point towards predominant university projects which demonstrates a capacity to operate Smallsats, also attesting to the affordability of the systems. This is also a sign of government effort to support the growth of this industry, and the contributions of the youth in satellite development. Indeed the manufacturing ability is extremely important, but also the service capability and development prospects. Despite these positive steps there is still quite a need for funding in this area. Of the overall revenue and results, Earth Observation is the most predominant small sat use, however it is expected in the next few years this may shift to internet broadband, but ultimately, creating value for users and enabling services that drive industry development will be the ultimate determining factor. Internet coverage allows people to create capacity and this might undoubtedly be Africa’s most prolific use of small satellite solutions. CubeSats which are around 50 kg, are the most popular and are only getting bigger because of the interest for carrying larger payloads. But in future it may become less stringent to use the restricted platform, but the threshold is bound to switch to a smaller regular platform. These services are enabled through satellite mega-constellations. Satellite mega-constellations operate in the Lower Earth Orbit which is described as the orbit located no more than 2,000 kilometers from the Earth’s surface. There is room for LEO regarding low-latency connectivity. But this does not mean that the Geostationary Orbit will become redundant, rather, and on the other hand GEO will remain an asset for broadband, because of its efficiency and coverage as well as less-sophisticated ground segments. Nevertheless, the LEO offers the most advantageous orbital resource to come and deserves much policy intervention to regulate, owing to the fact that it is a finite, scare resource. At the end of the day, whether Smallsats are launched in a constellation or as individual space systems, they offer a cost-effective alternative to traditional space objects, and would allow Africa the opportunity to release its potential in various areas of interest including but not limited to communications, global positioning and navigation, and Earth observation. Africa would be enriched by the ability to use this new technology to enable users through diverse services, to protect assets within the value chain, or simply to monitor areas of national security such as the environment and borders. These are all aspects which will have a substantial developmental impact in the African economy, and is well aligned to the African space policy which speaks towards increase of space and satellite capacity in an affordable and beneficial manner.

#### LEO Earth Science Observation Satellites uniquely solve a host of environmental threats – pollution, climate change, biod, defo, soil erosion

Ustin and Middleton 20 Ustin, S.L. [John Muir Institute of the Environment, University of California, Davis] , Middleton, E.M [NASA/Goddard Space Flight Center (Emerita)]. Current and near-term advances in Earth observation for ecological applications. Ecol Process 10, 1 (2021). https://doi.org/10.1186/s13717-020-00255-4

There is an unprecedented array of new satellite technologies with capabilities for advancing our understanding of ecological processes and the changing composition of the Earth’s biosphere at scales from local plots to the whole planet. We identified 48 instruments and 13 platforms with multiple instruments that are of broad interest to the environmental sciences that either collected data in the 2000s, were recently launched, or are planned for launch in this decade. We have restricted our review to instruments that primarily observe terrestrial landscapes or coastal margins and are available under free and open data policies. We focused on imagers that passively measure wavelengths in the reflected solar and emitted thermal spectrum. The suite of instruments we describe measure land surface characteristics, including land cover, but provide a more detailed monitoring of ecosystems, plant communities, and even some species then possible from historic sensors. The newer instruments have potential to greatly improve our understanding of ecosystem functional relationships among plant traits like leaf mass area (LMA), total nitrogen content, and leaf area index (LAI). They provide new information on physiological processes related to photosynthesis, transpiration and respiration, and stress detection, including capabilities to measure key plant and soil biophysical properties. These include canopy and soil temperature and emissivity, chlorophyll fluorescence, and biogeochemical contents like photosynthetic pigments (e.g., chlorophylls, carotenoids, and phycobiliproteins from cyanobacteria), water, cellulose, lignin, and nitrogen in foliar proteins. These data will enable us to quantify and characterize various soil properties such as iron content, several types of soil clays, organic matter, and other components. Most of these satellites are in low Earth orbit (LEO), but we include a few in geostationary orbit (GEO) because of their potential to measure plant physiological traits over diurnal periods, improving estimates of water and carbon budgets. We also include a few spaceborne active LiDAR and radar imagers designed for quantifying surface topography, changes in surface structure, and 3-dimensional canopy properties such as height, area, vertical profiles, and gap structure. We provide a description of each instrument and tables to summarize their characteristics. Lastly, we suggest instrument synergies that are likely to yield improved results when data are combined. Background Many environmental scientists have concluded that the Earth is at or near one or more perilous climate tipping points (Krieger et al. 2009; Lenton, 2011, Lenton and Williams 2013; Brook et al. 2013; Hickman et al., 2019). Climate change interacts with and exacerbates many other environmental and societal problems. These include air and water pollution that compound health issues (Harlan and Ruddell 2011; Kan et al. 2012), especially in poor communities (Schlosberg and Colins 2014; Hallegatte and Rozenberg 2017), widespread and/or frequent droughts linked to extensive fires (Amiro et al. 2001; Littell et al. 2016), diminished resources for drinking water and irrigation (Jackson et al. 2001; Oki and Kanae 2006), and large-scale biodiversity losses (Lindenmayer and Likens 2011; Pires et al. 2018) , including species extinctions (Cahill et al. 2013). Related factors include deforestation (Green and Sussman 1990) and soil erosion (Hill et al., 2009, consequences of over-exploitation of resources (Giri et al. 2007) due to massive global conversion of natural resources for human uses (Seto et al. 2002. Documentation of all of these problems and many others are of interest to the broader ecological community at scales from local to global. This can only realistically be accomplished with satellite observations in combination with process and statistical models to reveal patterns and trends that enlighten understanding about how current conditions have developed from past environmental drivers in order to predict future conditions.

#### Warming causes extinction

David **Spratt 19**, Research Director for Breakthrough National Centre for Climate Restoration, Ian Dunlop, member of the Club of Rome, formerly an international oil, gas and coal industry executive, chairman of the Australian Coal Association, May 2019, “Existential climate-related security risk: A scenario approach,” https://docs.wixstatic.com/ugd/148cb0\_b2c0c79dc4344b279bcf2365336ff23b.pdf

An existential risk to civilisation is one posing **permanent large negative consequences** to humanity which may never be undone, either **annihilating intelligent life** or permanently and drastically curtailing its potential.

With the commitments by nations to the 2015 **Paris** Agreement, the current path of warming is 3°C or more by 2100. But this figure does not include “long-term” **carbon-cycle feedbacks**, which are materially relevant now and in the near future due to the **unprecedented** **rate** at which human activity is perturbing the climate system. Taking these into account, the Paris path would lead to around 5°C of warming by 2100.

Scientists warn that warming of 4°C is incompatible with an organised global community, is **devastating** to the **majority of** **ecosystems**, and has a **high probability** of not being stable. The World Bank says it may be “**beyond adaptation**”. But an existential threat may also exist for many peoples and regions at a significantly lower level of warming. In 2017, 3°C of warming was categorised as “catastrophic” with a warning that, on a path of unchecked emissions, low-probability, high-impact warming could be catastrophic by 2050.

The Emeritus Director of the Potsdam Institute, Prof. Hans Joachim Schellnhuber, warns that “climate change is now reaching the **end-game**, where very soon humanity must choose between **taking** **unprecedented action**, or accepting that it has been left too late and **bear** **the consequences**.” He says that if we continue down the present path “there is a very big risk that we will just **end** **our** **civilisation**. The human species will survive somehow but we will destroy almost everything we have built up over the last two thousand years.”11

Unfortunately, conventional risk and probability analysis becomes useless in these circumstances because it excludes the full implications of outlier events and possibilities lurking at the fringes.12

Prudent risk-management means a tough, objective look at the real risks to which we are exposed, especially at those **“fat-tail” events**, which may have consequences that are damaging beyond quantification, and **threaten** **the** **survival** **of human** **civilisation**.

Global warming projections display a “fat-tailed” distribution with a **greater likelihood** of warming that is well in **excess of** **the** **average amount** **of warming** **predicted by** **climate** **models**, and are of a higher probability than would be expected under typical statistical assumptions. More importantly, the risk lies disproportionately in the “fat-tail” outcomes, as illustrated in Figure 1.

.

## 5

Text: States except for Africa ought to prohibit the appropriation of Low Earth Orbit by private entities

* Solves the net benefits of the plan because they don’t specify that African satellites are bad
* Solves net benefit of the disad too

## Case

#### Property rights are a natural extension of the concept of self-ownership- these rights are pre-political

Smith, 15 -- formerly Senior Research Fellow for the Institute for Humane Studies, a lecturer on American History for Cato Summer Seminars, and Executive Editor of Knowledge Products

[George H., "John Locke: The Justification of Private Property," Libertarianism.org, 10-19-15, https://www.libertarianism.org/columns/john-locke-justification-private-property, accessed 6-25-21]

My last essay discussed John Locke’s theory of a negative commons. This was the moral status of natural resources prior to the emergence of private property, a situation in which every person had an equal right to use unowned land and other natural goods. I included this topic in my lengthy series on “Freethought and Freedom” because it was germane to understanding how natural‐​law philosophers during the seventeenth century moved from the traditional Christian doctrine of private property to a more secular approach. But it would be an unwarranted stretch to include additional essays on Locke within my series on freethought, so I hereby begin a new series devoted to Locke’s ideas. This series will discuss not only Locke’s theory of property in more detail but also other features of his political theory, such as his theory of government and his defense of the rights of resistance and revolution against established governments.

The most important source for understanding Locke’s justification of private property is the celebrated chapter “Of Property,” which comprises Chapter V of The Second Treatise of Government. But we also find significant remarks about property in Chapter IV (“Of Adam’s Title to Sovereignty by Donation”) of the First Treatise. Although most of my discussion is based on Locke’s treatment in the Second Treatise, I may occasionally draw upon his comments in the First Treatise.

According to Locke, in the “natural state”—that original condition in which every person had an equal right to use natural resources provided by the “spontaneous hand of Nature”—no one had “a private Dominion, exclusive of the rest of Mankind,” over those resources. But such resources would have been useless for human survival and well‐​being unless they could be appropriated by individuals for their personal use. So how can a transition from unowned resources to private ownership be morally justified? How can one person legitimately claim an exclusive right to use a resource that, in its natural state, could be used by anyone? Locke’s treatment of this problem remains highly controversial among scholars. His theory has been used to justify everything from laissez‐​faire to the welfare state to full‐​blown socialism. Which of these conflicting interpretations should be covered in my survey of Locke’s political ideas is a judgment call, and I frankly remain uncertain about my final decision. I fear that many of my readers will have little if any interest in the fine points of Lockean scholarship, however much those points may interest specialists. Fortunately perhaps, I can delay my decision until a later time. Before we can appreciate the ambiguity in some of Locke’s statements about property, we must first understand his overall approach. Hence the purpose of this essay (and probably the next installment as well) is to provide a barebones account of how John Locke justified private property, while postponing a consideration of the more controversial features until a later time.

There is another reason why an overview is desirable before I delve into more technical matters. Only a relative handful of my readers are likely to have actually read Locke’s Two Treatises of Government. The status of John Locke in the modern libertarian movement is rather like that of Adam Smith. Both figures are widely known to nonacademic libertarians, as are their leading ideas, but it is a safe guess that the major works of these philosophers remain largely unread. This is understandable. The workaday libertarian is more interested in ideas that he can use in the struggle to establish a free society than he is in arcane historical theories and controversies. And if this libertarian believes that he can find adequate justifications of private property in the writings of modern libertarian philosophers, such as Rothbard, Hayek, and Rand, then why should he spend his time reading earlier and quite possibly less satisfactory accounts?

As I have attempted to demonstrate throughout my many Lib​er​tar​i​an​ism​.org essays, the issues discussed by early classical liberals are essential to understanding the origin and evolution of modern libertarian ideas. In addition, many of the internecine controversies among early classical liberals may be found, alive and kicking, in the modern libertarian movement. The fundamental problems attending an adequate defense of individual freedom are perennial; they arise again and again from one generation of libertarians to the next, however much the particular contexts may differ. There is much to be learned from reading the books of John Locke, Adam Smith, and other intellectual giants in the history of freedom—knowledge that is directly relevant to the problems confronted by modern libertarians.

Having presented my preliminary case for the relevance of John Locke, I shall now explain the basic principles that underlay his case for private property.

The key to Locke’s moral transition from common dominion to private ownership was his conception of self‐​ownership, or property in one’s person. As Locke put it in what was destined to become one of the most influential passages in the history of political thought:

Though the Earth, and all inferior Creatures be common to all Men, yet every Man has a Property in his own Person. This no Body has any Right to but himself. The Labour of his Body, and the Work of his Hands, we may say are properly his. Whatsoever then he removes out of the State that Nature hath provided, and left it in, he hath mixed his Labour with, and joined to it something that is his own, and thereby makes it his Property. It being by him removed from the common state nature placed it, it hath by his labour something annexed to it, that excludes the common right of other Men. For this Labour being the unquestionable Property of the Labourer, no Man but he can have a right to what that is once joined to, at least where there is enough, and as good left in common for others.

Locke continued:

He that is nourished by the Acorns he pickt up under an Oak, or the Apples he gathered from the Trees in the Wood, has certainly appropriated them to himself. No Body can deny but the nourishment is his. I ask then, When did they begin to be his? When he digested? Or when he eat? Or when he boiled? Or when he brought them home? Or when he pickt them up?

Locke answered these questions by selecting the last of these options. The acorns became the private property of the owner when he picked them up, for it was in the gathering that labor was first expended. “That labour put a distinction between them and common. That added something to them more than Nature, the common Mother of all, had done, and so they became his private right.” But this raises a crucial question: “Was it a Robbery thus to assume to himself what belonged to all in Common?” Locke replied that to require universal consent would lead to universal starvation. More is involved here than the practical problem of obtaining the permission of every person on earth. Morally speaking, such consent is not required because, according to both reason and revelation, humans “have a right to their Preservation.” Thus if even the right to eat acorns and other natural goods could not be morally justified without first obtaining the consent of every commoner, “Man had starved, notwithstanding the Plenty God had given him.” (It should be noted that self‐​preservation had long been defended as a fundamental right—indeed, as a duty—by natural‐​law philosophers. In the thirteenth century, for example, Thomas Aquinas maintained that “whatever is a means of preserving human life belongs to the natural law, and whatever impedes it is contrary to it.”)

When Locke wrote that “every Man has a Property in his own Person,” he was using “property” in its older meaning to signify rightful dominion over something. (See my discussion in The Philosophy of the Declaration of Independence: Part 2.) Hence it was quite common during the seventeenth and eighteenth centuries to speak of property in one’s conscience, property in one’s freedom, property in one’s labor, property in one’s happiness, and even (as we find with James Madison) property in one’s time. Whereas we might say that “this computer is my property,” earlier philosophers might have said, “I have a property in this computer.” Locke included life, liberty, and estate (i.e., external goods) in his generic conception of property, so when he argued that the primary purpose of government is to protect property rights, he was not merely referring to material objects. Rather, he meant that a government should protect those fundamental rights (including the right to enjoy the fruits of our labor) that are essential to self‐​preservation and happiness.

Locke stressed labor as the foundation of private property because some form of labor is the basic method by which we sustain ourselves, even if that labor consists of nothing more than picking up acorns off the ground. Humans cannot survive without labor, so coercively to expropriate the fruits of another man’s labor is to violate his fundamental right of self‐​preservation. Labor is involved in every life‐​sustaining activity.

#### The only legitimate purpose of a state is to protect property rights

Tuckness, 18 -- Associate Professor of Political Science, Director of the Public Policy and Administration Program, Iowa State University

[Alex, "Locke's Political Philosophy", The Stanford Encyclopedia of Philosophy, Summer 2018 Edition, Edward N. Zalta (ed.), https://plato.stanford.edu/archives/sum2018/entries/locke-political/, accessed 6-24-21]

John Locke (1632–1704) is among the most influential political philosophers of the modern period. In the Two Treatises of Government, he defended the claim that men are by nature free and equal against claims that God had made all people naturally subject to a monarch. He argued that people have rights, such as the right to life, liberty, and property, that have a foundation independent of the laws of any particular society. Locke used the claim that men are naturally free and equal as part of the justification for understanding legitimate political government as the result of a social contract where people in the state of nature conditionally transfer some of their rights to the government in order to better ensure the stable, comfortable enjoyment of their lives, liberty, and property. Since governments exist by the consent of the people in order to protect the rights of the people and promote the public good, governments that fail to do so can be resisted and replaced with new governments. Locke is thus also important for his defense of the right of revolution. Locke also defends the principle of majority rule and the separation of legislative and executive powers. In the Letter Concerning Toleration, Locke denied that coercion should be used to bring people to (what the ruler believes is) the true religion and also denied that churches should have any coercive power over their members. Locke elaborated on these themes in his later political writings, such as the Second Letter on Toleration and Third Letter on Toleration.

#### Consistency with Lockean property rights negates

#### First, there is no morally relevant difference between space and Earth

Baca, 93 -- Associate at Gallop, Johnson & Neuman, St Louis, Missouri

[Kurt Anderson, Property Rights in Outer Space, 58 J. Air L. & Com. 1041, 1993, <https://scholar.smu.edu/jalc/vol58/iss4/4>, accessed 6-24-21]

The powers necessary to constitute an efficient system of property rights on Earth have been found, by deduction from first principles by political philosophers influential in the development of the Western institutions and from history and practice in the courts, to be the power to exclude, to use, and to dispose. 98 The resulting system is also inherently equitable as it benefits society as a whole and as it protects investments and expectations. This system would remain equitable so long as the initial allocation of any new resource was, and is, not based on mere usurpation of unclaimed property, but is based on investment in the property that adds to its value. 99

This system of property rights relies on the provision of powers to the holder of the property. The source of the power is ultimately in the state that enforces the liabilities of parties corresponding to the powers of owners: the liability to exclusion, the liability for interference with use, and the liability to respect contracts and to refrain from hindering disposition. °0 This implies that sovereign power is essential to any functioning system of property rights, and in the absence of a general sovereign body, sovereignty is to be found in the nation-state.

How does the extension of man's activities into space and onto the celestial bodies change the basic necessities of an efficient and equitable property rights system? The movement of activities into space affects only the place of activities. The nature of those activities and of the actor remain unchanged. The nature of efficiency and equity are likewise unchanged, and the need for certain securities and guarantees to foster productive activity by man is unchanged. The same property rights system that is most beneficial on Earth will be most beneficial on the celestial bodies.

The principles of the Outer Space Treaty do not necessarily contradict these property concepts. It has already been shown that the notion of property rights, including the power to use and dispose, are not incompatible with the general principles of the Outer Space Treaty.20 ' The principle of access in space is also appropriate when properly interpreted. ° But, in regulating access, governing bodies must make proper account for the use of various portions of space and of the rights of the user to be free of harmful interference. 3 Although the provision of Article II against national appropriation contradicts these property concepts, it is inconsistent with the notions of jurisdiction and ownership found elsewhere in the treaty.2 0 4 This provision should therefore be modified and replaced with a concept of reasonable use or investment.20 5 Such a provision should provide for initial allocation of unclaimed property only upon productive use or investment. This would allow for the security of national sovereignty while preventing the non-productive reservation of vast resources by non-users.20 6

#### Second, appropriation of outer space is consistent with the doctrine of res nullius

Butler, 17 -- Staff Attorney with the State of Montana

[Dennison A., Who Owns the Moon, Mars, and Other Celestial Bodies: Lunar Jurisprudence in Corpus Juris Spatialis, 82 J. Air L. & Com. 505, 2017, <https://scholar.smu.edu/jalc/vol82/iss3/3>, accessed 6-24-21]

However, the doctrine of res nullius could apply. Res nullius, or terra nullius, is an international law principle used to describe land or territory that has not yet been subject to the sovereignty of any state or for which a prior sovereignty has relinquished sovereignty over the area.55 Australia was claimed by the British settlement in Cooper v. Stuart56 under the doctrine of terra nullius. Other areas claimed under terra nullius include the Western Sahara,57 Svalbard,58 Greenland,59 Antarctica,60 Scarborough Shoal,61 New Zealand,62 and Guano Islands.63

The doctrine of discovery is another theory implicated regarding property rights on celestial bodies and terra nullis. The doctrine of discovery is an international law principle under which European countries, colonists, and settlers made legal claims against the lands of indigenous peoples all over the world from the fifteenth through the twentieth century.64 Even today, the doctrine of discovery is applied in New Zealand,65 Canada,66 and Australia.67 Examples also include China, which invoked this doctrine in 2010 when it planted its flag to claim sovereignty over the bed of the South China Sea.68 In 2007, Russia also used this doctrine when it laid claim to the Arctic Ocean seabed.69 Similarly, Canada and Denmark each claimed sovereignty over an island off the west coast of Greenland in 2005.70 In fact, the Supreme Court of the United States of America cited the doctrine of discovery as a basis for property ownership as recently as 2005.71 Traditionally, discovery created an:

inchoate title to a territory that must be perfected by its effective occupation. . . . To turn a first discovery into a complete title, a European country had to actually occupy and possess the newly found lands. This was usually done by building forts or settlements. This physical possession had to be accomplished within a reasonable amount of time after the first discovery to create a complete title.72

For an interesting case study, the Scarborough Shoal was claimed by China under the principles of discovery in the thirteenth century, whereas the Philippines claimed the Shoal under the theory of terra nullius. 73

Furthermore, the international doctrine of discovery is consistent with John Locke’s labor theory of property. Locke’s theory famously posits that before government existed, all men had common access to Earth’s resources as given by God.74 In order to survive, individuals had to appropriate resources for themselves.75 Through their own labor and effort, men were able to gain private property rights if they did not waste the resources they claimed.76

The labor of his body, and the work of his hands, we may say are properly his. Whatsoever then he removes out of the state that nature hath provided, and left it in, he hath mixed his labor with, and joyned [sic] to it something that is his own, and thereby makes it his property. It being by him removed from the common state nature placed it in, it hath by his labor something annexed to it, that excludes the common right of other men . . . at least where there is enough, and as good, left in common for others.77

The United States prides itself in and was established under the idea that “all men are created equal.”78 The spirit of entrepreneurship has not only had an influence on America’s economic system but has also directly impacted every aspect of our lives.79 Adam Smith declared, “[l]ittle else is requisite to carry a state to the highest degree of opulence from the lowest barbarism but peace, easy taxes and a tolerable administration of justice.”80 To justify his position he went on to say:

As every individual . . . endeavours [sic] . . . to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value, every individual necessarily labours [sic] to render the annual revenue of the society as great as he can . . . . [While] he intends only his own gain . . . he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention.81

The ability to profit through ones own work has been one of the leading contributors to economic wealth not only in the United States, but also in free trade zones such as Hong Kong.82 This allows individuals to profit from the work of their own labor and to subsequently enjoy the benefits or suffer the losses from those risks.83

One of the best examples that can be analogized to territory in space is the Homestead Act of 1862.84 President Abraham Lincoln signed the bill into law, allowing individuals to acquire a freehold title in fee simple to 160 acres of land if they: (1) filed an application; (2) improved the land; and (3) filed for a deed.85 This right was limited to individuals who were over twenty-one years old or the head of a family and had lived on the land for at least five years.86 Nonetheless, the Homestead Act of 1862 gave individuals a chance to directly enjoy the fruits of their labor. Allowing individuals to profit or suffer from their own sweat is an exemplification John Locke’s labor theory.87 The Homestead Act of 1862 was also imitated, with some modification, by Canada88 in 1872 and by several Australian colonies89 in the 1860s.

Allowing people the ability to profit or loss from their own risk in working land directly allowed the settlement and cultivation of most of the land west of the Mississippi River. Between 1862 and 1938, “almost 1.5 million households were given title to 246 million acres of land.”90 That area is approximately the acreage of California and Texas combined.91 Some have estimated that even today $46.3 billion is generated every year directly because of the industrious pioneers.92

Structuring property ownership laws on the Moon, Mars, and other celestial bodies after the Homestead Act of 1862 would allow companies, individuals, and even countries to claim property if they “improve[ ] the land”93 in some way. This would prevent entities from claiming extraterrestrial property without having first demonstrated a proper use for it.94 On top of that, entities would have an incentive to profit from their own effort. Like President Lincoln encouraging Americans to settle the West, incentivizing entities to claim extraterrestrial property on the Moon and Mars would accelerate space colonization and promote utilization of resources already available.

The desire and profit is great for entities to explore the Moon and outer space. However, the treaties that currently exist, forbidding country and private ownership, destroy any incentive to use the resources found thereon. If the laws allowed people, companies, or countries to claim ownership to what they could manage, it would create significant incentive for both private and government groups to invest the resources necessary to establish ownership and control over the property on Mars, the Moon, and other celestial bodies.95 Furthermore, allowing entities to claim property rights over only what they can manage would pave the way for everyone to profit as lunar exploration and colonization become more feasible and affordable

#### Concede 1 and 2

Presumption negates – time skew doesn’t apply because we have to respond to your args in our 7 min speech also and you get more speaches – vote neg on presumption because we spend prep time creating our nc while your nc is probably made befrore hand; aff isn’r reactive bc you can save all your prep time for your rebuttle speeches

Consequences: a. judge actions after gives most benefit b. no infinite consequenes due to calculus it becomes rlly small . probability solves bc we know what happened in the past – every action would be done assuming what could happen c. not infinitely divisible bc limit to how much you can divide. D. you are still held accountable for individual actions or lack of actions e. way to measure is through body count f. aggregate thru body count

Rob should not be truth testing – allows for frivolous argumetns like resolved means vote aff or other random tricks that aren’t rlly debatable or educational - time suck for the neg – you can still read your ground under comparative worlds

b. constitutivism isn’t true – other ways to determine thru body count

#### 