# “Creative Impact Turns”



# \*\*\*Human Extinction Good\*\*\*

# 1NC Toolbox

## Aliens/Ethics

### 1NC—Framework

#### A) Aliens Exist---Recent Evidence Cites New Tech Advances that prove the existence of extraterrestrials

**Shostak 14** (Seth Shostak, Ph.D. in astrophysics from the California Institute of Technology and senior researcher at the SETI and Lord Martin Rees the president of Britain’s Royal Society and astronomer to the Queen of England being cited by News.com, FEBRUARY 12th 2014, <http://www.news.com.au/technology/science/seti-scientist-predicts-alien-civilisation-will-be-detected-within-25-years-because-there-are-so-many-habitable-planets-out-there/story-fnjwlcze-1226824408842>, “SETI scientist predicts alien civilisation will be detected within 25 years — because there are so many habitable planets out there”, AB)

**A TOP scientist with SETI** — the Search for Extraterrestrial Intelligence — **is** so **convinced** **we’re on the brink of finding ET** he’s even named a date by which first contact will have been achieved. And science is abuzz with excitement that possible confirmation of alien life — though not of intelligence — could come as early as this year. According to Seth Shostak, we’ll be phoning ET by 2040. And the address could be as close as next door — astronomically speaking. “I think we’ll find E.T. within two dozen years,” he told the 2014 NASA Innovative Advanced Concepts symposium at Stanford University. He says it’s a game of cards. So far the search for extraterrestrial civilisations **has only focused on a few thousand star systems.** As **new technology** continues to **come online**, that search will have **spread to encompass more than a million star systems** by 2040. Based on current calculations on the likelihood of intelligent life out there, **searching that number of stars produces high-odds of success**. His enthusiasm is also drawn from the **staggering number of planets** discovered **in the past decade** by **new equipment** such as the Kepler space telescope. A good number of these planets are within the “**goldilocks zone**” — an orbital distance from the parent star where liquid water can form. Eleven such planets have recently been assessed to be circling Alpha Centauri B — our Sun’s nearest neighbour at 4.3 light years away. “The bottom line is, like **one in five** stars has at least one planet where life might spring up,” he said. “That’s a fantastically large percentage. That means in our galaxy, **there’s** on the order of **tens of billions of Earth-like worlds**.” Shostak hopes that by focusing Earth’s radio-telescopes on stars known to hold planets which are prime contenders for life, we’ll hear the so-far elusive radio evidence of advanced civilisations sooner. **Recent breakthroughs** in pattern-analysis software will also **improve the chances** of recognising a signal from an alien intelligence once we find it. Astronomers have **become convinced** life is likely to be **far more abundant** than we have **previously suspected**. New research suggests habitable planets likely emerged shortly after the Big Bang, potentially producing civilisations **billions of years older** than our own. And in the early years of the universe, one study suggests the “leftover” heat of the Big Bang would have helped produce a far greater range of habitable planets. Even the definition of “goldilocks zone” is being challenged, with the likelihood that frozen Earth-sized planets can produce and support life beneath their ice crusts becoming broadly accepted. Alpha Centauri B is again a top contender, with computer models suggesting it has at least five planets with a “very high” potential for photosynthetic (plant-like) life. But with the excitement comes a problem we’re only beginning to grapple with: How do we recognise an ET when we spot one? “They could be staring us in the face and **we just don’t recognise them**,” the president of Britain’s Royal Society and astronomer to the Queen of England Lord Martin Rees said recently. “The problem is that **we’re looking for something** very much **like us**, assuming that they at least have something like the same mathematics and technology.” A study publishing in Acta Astronautica this month tackles just this problem. Not only is alien biology likely to be immensely **different to our own**, so too is their intellect, the study argues. “I suspect **there could be life and intelligence out there in forms we can’t conceive**. Just as a chimpanzee can’t understand quantum theory, it could be there as aspects of reality that are beyond the capacity of our brains,” Lord Rees said.. But it could all be blue-sky talk. SETI continues to struggle to raise enough cash to keep it searching the skies and needs to find new donors. A SETI project designed to point an array of 350 radio dishes skyward from northern California has so far seen only 42 funded.

#### B) Human technological progress threatens life throughout the universe --- the refusal to consider the impact of emerging technologies on life beyond Earth is a species chauvinism that lies at the heart of violence and genocide.

**Packer 7** (M.A. in communication Wake Forest, 2007 <Joe, *Alien Life: in Search of Acknowledgment*, pg 62-63>

Once we hold alien interests as equal to our own we can begin to revaluate areas previously believed to hold no relevance to life beyond this planet.  A diverse group of scholars including Richard Posner, Senior Lecturer in Law at the University of Chicago, Nick Bostrom, philosophy professor at Oxford University, John Leslie philosophy professor at Guelph University and Martin Rees, Britain’s Astronomer Royal, have written on the **emerging technologies** that **threaten life beyond** the planet **Earth**.  Particle accelerators labs are colliding matter together, reaching energies that have not been seen since the Big Bang.  These experiments threaten a phase transition that would create a bubble of altered space that would expand at the speed of light killing all life in its path.  Nanotechnology and other machines may soon reach the ability to self replicate.  A mistake in design or programming could unleash an endless quantity of machines converting all matter in the universe into copies of themselves.  Despite detailing the potential of these technologies to destroy the entire universe, Posner, Bostrom, Leslie, and Ree’s only mention of alien life in their works is in reference to the threat aliens pose to humanity.  The rhetorical **construction of otherness** only in terms of the threats it poses, but never in terms of the threat one poses to it, **has been at the center of** humanity’s history of **genocide**, colonization, and environmental destruction.  Although humanity certainlyhas its own interests in reducing the threat of these technologies evaluating them without taking into account the danger they pose to alien life is neither appropriate nor just.  It is not appropriate because **framing the issue only in terms of human interests will result in priorities designed to** minimize the risks and **maximize** the benefits to humanity, **not all life.**  Even if humanity dealt with the threats **effectivelywithout referencing**their **obligation to aliens**, Posner, Bostrom, Leslie, and Ree’s rhetoric would not be “just,” because **it** arbitrarily **declares other life** forms **unworthy** of consideration.  A framework of acknowledgement would allow humanity to address the risks of these new technologies, while being cognizant of humanity’s obligations to other life within the universe.  **Applying the lens of acknowledgment to the issue of existential threats moves the problem from one of self destruction to universal genocide.**  This may be the most dramatic example of how refusing to extend acknowledgment to potential alien life can mask humanity’s obligations to life beyond this planet.

#### C) Extinction is preferable --- humanity is a profoundly destructive species and there is no ethical justification for its continuation at the expense of non-human life

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Despite the inspirational platitude, we must realize that **failure is an option**. Our future is problematic at best and doomed at worst. There is no inherent purpose we are here to fulfill, no destiny at which we are assured to arrive at in glory, however tardy, tattered, bruised, and blackened we might be. There are no guiding angels to protect us from failure and no God to save us from an apocalypse. Countless millions Of species have been annihilated in past extinction events, our Homo ancestors are gone forever, we are dispatching thousands Of other species into oblivion, and there is nothing but the determination of aware, concerned, and committed peoples to save Homo sapiens from vanishing into nothingness as well. As Michael Boulter notes, the earth is a self-organizing system that strives toward balance, and species lose out, if necessary, to the larger dynamics of ecological imperatives. "Extinctions are an essential stimulus to the evolutionary process," and humans are not only expendable in the overall calculus, their demise would be a positive and necessary event.' Nor are there inexorable laws or wheels of fate that have predetermined disaster and demise. We must change our course, and we can—if a critical mass of people throughout the world can under- stand the current crises and reSB»nd with the level Of urgency, solidar- ity, and militancy necessary to transcend this evolutionary impasse. While horrifying to contemplate from our perspective, Homo sapiens may not have the will, intelligence, or resolve to meet the greatest challenge and threat it has ever faced. It might thereby succumb to the same oblivion that engulfed all its hominid ancestors, and into which it dispatched countless thousands of other species. Just as ancestral hominids have gone extinct, so have prior civilizations collapsed. As Diamond has shown, numerous civilizations through- out history (including the inhabitants of Easter Island, the ancient Mayan, and the Greenland Norse) have suffered economic and social collapse due to overpopulation, overfarming, overgrazing, overhunt- ing, deforestation, soil erosion, and starvation' We are repeating the same mistakes of the past, still refusing to recognize ecological laws and limits to growth; the future is as bleak as the historical pattern is monotonously clear. In an era of catastrophe and crisis, the continuation of the human species in a viable or desirable form, **is obviously contingent and not a given or a necessary good**. But considered from the standpoint of animals and the earth, **the demise of humanity would be the best imaginable event possible**, and **the sooner the better**. The extinction of Homo sapiens would remove the malignancy ravaging the planet, destroy a parasite consuming its host, shut down the killing machines, and allow the earth to regenerate while permitting new species to evolve. After 4.6 billion years of evolution, earth is only middle-aged, and there is ample time for an amazing abundance of stunning new life forms to emerge. This time it is we who are the meteor crashing into the earth, and we keep crashing and crashing and crashing, never allowing the planet to recover. We are a meteor storm that continuously, repetitively keeps slamming into the planet, precluding adaptation and blocking recovery. If we cannot learn how to live on this planet and harmonize our existence with other species and the biocommunity as a whole, then, frankly, **we have no right to live at all**. If we can only exploit, plunder, and destroy, then surely **our demise is for the greater good**. Whereas worms, pollinators, dung beetles, and countless other species are vital to a flourishing planet, Homo sapiens is the one species the earth could well do without. Every crisis harbors opportunities for profound change, whether it is a disease in the body or a deep disturbance in a species and its dysfunctional mode of existence. The current state of emergency and the severity of the social and ecological crises haunting humanity and the planet are so grave as to demand radical positive changes in humanity itself. It requires nothing less than our drawing on every positive capacity we have and forcing us to evolve at every level, individually and collectively, spiritually and politically. **Human evolution is not a fait accompli**—either in the sense that things will improve with the passage of time or that **our species will continue at all.**

#### D) Err negative --- Multiplying *probability* and *magnitude* is key to ethical risk assessment --- the most serious scenarios for existential crisis are the unknown and unthinkable.

**Rees 8**(Sir Martin J. Rees, Professor of Cosmology and Astrophysics and Master of Trinity College at the University of Cambridge, Astronomer Royal and Visiting Professor at Imperial College London and Leicester University, Director of the Institute of Astronomy, Research Professor at Cambridge, 2008 (“Foreward,” Global Catastrophic Risks, Edited by Nick Bostrom and Milan M. Cirkovic, Published by Oxford University Press, ISBN 9780198570509, p. x-xi)

These concerns are not remotely futuristic - we will surely confront them within next 10-20 years. But what of the later decades of this century? It is hard to predict because some technologies could develop with runaway speed. Moreover, human character and physique themselves will soon be malleable, to an extent that is qualitatively new in our history. New drugs (and perhaps even implants into our brains) could change human character; the cyberworld has potential that is both exhilarating and frightening. We cannot confidently guess lifestyles, attitudes, social structures or population sizes a century hence. Indeed, it is not even clear how much longer our descendants would remain distinctively 'human'. Darwin himself noted that 'not one living species will transmit its unaltered likeness to a distant futurity'. Our own species will surely change and diversify faster than any predecessor - via human-induced modifications (whether intelligently controlled or unintended) not by natural selection alone. The post-human era may be only centuries away. And what about Artificial Intelligence? Super-intelligent machine could be the last invention that humans need ever make. We should keep our minds open, or at least ajar, to concepts that seem on the fringe of science fiction. These thoughts might seem irrelevant to practical policy - something for speculative academics to discuss in our spare moments. I used to think this. But humans are now, individually and collectively, so greatly empowered by rapidly changing technology that we can—by design or as unintended consequences—engender irreversible global changes. It is surely irresponsible not to ponder what this could mean; and it is real political progress that the challenges stemming from new technologies are higher on the international agenda and that planners seriously address what might happen more than a century hence. We cannot reap the benefits of science without accepting some risks - that has always been the case. Every new technology is risky in its pioneering stages. But there is now an important difference from the past. Most of the risks encountered in developing 'old' technology were localized: when, in the early days of steam, a boiler exploded, it was horrible, but there was an 'upper bound' to just how horrible. In our evermoreinterconnected world, however, there are new risks whose consequences could be global. **Even a tiny probability of global catastrophe is deeply disquieting.** We cannot eliminate all threats to our civilization (even to the survival of our entire species). But it is surely incumbent on us to think the unthinkable and study how to apply twenty-first centurytechnology optimally, while minimizing the 'downsides'. If we apply to catastrophic risks the same prudent analysis that leads us to take everyday safety precautions, and sometimes to buy insurance—**multiplying probability by consequences**—we had ¶ surely conclude that some of the scenarios discussed in this book deserve more attention that they have received. My background as a cosmologist, incidentally, offers an extra perspective -an extra motive for concern - with which I will briefly conclude. The stupendous time spans of the evolutionary past are now part of common culture - except among some creationists and fundamentalists. But most educated people, even if they are fully aware that our emergence took billions of years, somehow think we humans are the culmination of the evolutionary tree. That is not so. Our Sun is less than halfway through its life. It is slowly brightening, but Earth will remain habitable for another billion years. However, even in that cosmic time perspective—extending far into the future as well as into the past - the twenty-first century may be a defining moment. It is the first in our planet's history where one species—ours—has Earth's future in its hands and could jeopardise not only itself but also lifes immense potential. The decisions that we make, individually and collectively, will determine whether the outcomes of twenty-first century sciences are benign or devastating. We need to contend not only with threats to our environment but also with an entirely novel category of risks—with seemingly low probability, but with such colossal consequences that they merit far more attention than they have hitherto had. That is why we should welcome this fascinating and provocative book. The editors have brought together a distinguished set of authors with formidably wide-ranging expertise. The issues and arguments presented here should attract a wide readership - and deserve special attention from scientists, policy-makers and ethicists

## Tech Scenarios

### 1NC—Artificial Intelligence

#### ASI is coming in 10 years and will either destroy all life or push humans to immortality - immortality enables humanity to run rampant all over the universe

Tim **Urban**, Urban writes about AI, nanotechnology and aliens for Wait but Why, 20**15**, "The AI Revolution: Our Immortality or Extinction," No Publication, http://waitbutwhy.com/2015/01/artificial-intelligence-revolution-2.html

To absorb how big a deal a superintelligent machine would be, imagine one on the dark green step two steps above humans on that staircase. This machine would be only slightly superintelligent, but its increased cognitive ability over us would be as vast as the chimp-human gap we just described. And like the chimp’s incapacity to ever absorb that skyscrapers can be built, we will never be able to even comprehend the things a machine on the dark green step can do, even if the machine tried to explain it to us—let alone do it ourselves. And that’s only two steps above us. A machine on the second-to-highest step on that staircase would be to us as we are to ants—it could try for years to teach us the simplest inkling of what it knows and the endeavor would be hopeless. But the kind of superintelligence we’re talking about today is something far beyond anything on this staircase. In an intelligence explosion—where the smarter a machine gets, the quicker it’s able to increase its own intelligence, until it begins to soar upwards—a machine might take years to rise from the chimp step to the one above it, but perhaps only hours to jump up a step once it’s on the dark green step two above us, and by the time it’s ten steps above us, it might be jumping up in four-step leaps every second that goes by. Which is why we need to realize that it’s distinctly possible that very shortly after the big news story about the first machine reaching human-level AGI, we might be facing the reality of coexisting on the Earth with something that’s here on the staircase (or maybe a million times higher): And since we just established that it’s a hopeless activity to try to understand the power of a machine only two steps above us, let’s very concretely state once and for all that there is no way to know what ASI will do or what the consequences will be for us. Anyone who pretends otherwise doesn’t understand what superintelligence means. Evolution has advanced the biological brain slowly and gradually over hundreds of millions of years, and in that sense, if humans birth an ASI machine, we’ll be dramatically stomping on evolution. Or maybe this is part of evolution—maybe the way evolution works is that intelligence creeps up more and more until it hits the level where it’s capable of creating machine superintelligence, and that level is like a tripwire that triggers a worldwide game-changing explosion that determines a new future for all living things: And for reasons we’ll discuss later, a huge part of the scientific community believes that it’s not a matter of whether we’ll hit that tripwire, but when. Kind of a crazy piece of information. So where does that leave us? Well no one in the world, especially not I, can tell you what will happen when we hit the tripwire. But Oxford philosopher and lead AI thinker Nick Bostrom believes we can boil down all potential outcomes into two broad categories. First, looking at history, we can see that life works like this: species pop up, exist for a while, and after some time, inevitably, they fall off the existence balance beam and land on extinction— “All species eventually go extinct” has been almost as reliable a rule through history as “All humans eventually die” has been. So far, 99.9% of species have fallen off the balance beam, and it seems pretty clear that if a species keeps wobbling along down the beam, it’s only a matter of time before some other species, some gust of nature’s wind, or a sudden beam-shaking asteroid knocks it off. Bostrom calls extinction an attractor state—a place species are all teetering on falling into and from which no species ever returns. And while most scientists I’ve come across acknowledge that ASI would have the ability to send humans to extinction, many also believe that used beneficially, ASI’s abilities could be used to bring individual humans, and the species as a whole, to a second attractor state—species immortality. Bostrom believes species immortality is just as much of an attractor state as species extinction, i.e. if we manage to get there, we’ll be impervious to extinction forever—we’ll have conquered mortality and conquered chance. So even though all species so far have fallen off the balance beam and landed on extinction, Bostrom believes there are two sides to the beam and it’s just that nothing on Earth has been intelligent enough yet to figure out how to fall off on the other side. If Bostrom and others are right, and from everything I’ve read, it seems like they really might be, we have two pretty shocking facts to absorb: 1) The advent of ASI will, for the first time, open up the possibility for a species to land on the immortality side of the balance beam. 2) The advent of ASI will make such an unimaginably dramatic impact that it’s likely to knock the human race off the beam, in one direction or the other. It may very well be that when evolution hits the tripwire, it permanently ends humans’ relationship with the beam and creates a new world, with or without humans. Kind of seems like the only question any human should currently be asking is: When are we going to hit the tripwire and which side of the beam will we land on when that happens? No one in the world knows the answer to either part of that question, but a lot of the very smartest people have put decades of thought into it. We’ll spend the rest of this post exploring what they’ve come up with. Let’s start with the first part of the question: When are we going to hit the tripwire? i.e. How long until the first machine reaches superintelligence? Not shockingly, opinions vary wildly and this is a heated debate among scientists and thinkers. Many, like professor [Vernor Vinge](https://www-rohan.sdsu.edu/faculty/vinge/misc/singularity.html), scientist [Ben Goertzel](http://goertzel.org/TenYearsToTheSingularity.pdf), Sun Microsystems co-founder [Bill Joy](http://archive.wired.com/wired/archive/8.04/joy.html), or, most famously, inventor and futurist [Ray Kurzweil](http://en.wikipedia.org/wiki/Predictions_made_by_Ray_Kurzweil), agree with machine learning expert Jeremy Howard when he puts up this graph during a [TED Talk](http://www.ted.com/talks/jeremy_howard_the_wonderful_and_terrifying_implications_of_computers_that_can_learn?language=en): Those people subscribe to the belief that this is happening soon—that exponential growth is at work and machine learning, though only slowly creeping up on us now, will blow right past us within the next few decades. Others, like Microsoft co-founder [Paul Allen](http://www.technologyreview.com/view/425733/paul-allen-the-singularity-isnt-near/), research psychologist [Gary Marcus](http://www.newyorker.com/tech/elements/hyping-artificial-intelligence-yet-again), NYU computer scientist [Ernest Davis](http://www.aaai.org/ojs/index.php/aimagazine/article/view/568), and tech entrepreneur [Mitch Kapor](http://longbets.org/1/), believe that thinkers like Kurzweil are [vastly underestimating](http://www.technologyreview.com/view/425733/paul-allen-the-singularity-isnt-near/) the magnitude of the challenge and believe that we’re not actually that close to the tripwire. The Kurzweil camp would [counter](http://www.technologyreview.com/view/425818/kurzweil-responds-dont-underestimate-the-singularity/) that the only underestimating that’s happening is the underappreciation of exponential growth, and they’d compare the doubters to those who looked at the slow-growing seedling of the internet in 1985 and argued that there was no way it would amount to anything impactful in the near future. The doubters might argue back that the progress needed to make advancements in intelligence alsogrows exponentially harder with each subsequent step, which will cancel out the typical exponential nature of technological progress. And so on. A third camp, which includes [**Nick Bostrom**](http://www.amazon.com/gp/product/0199678111/ref=as_li_tl?ie=UTF8&camp=1789&creative=390957&creativeASIN=0199678111&linkCode=as2&tag=wabuwh00-20&linkId=LBOTX2G2R72P5EUA), believes neither group has any ground to feel certain about the timeline and acknowledges both A) that this could absolutely happen in the near future and B) that there’s no guarantee about that; it could also take a much longer time. Still others, like philosopher [Hubert Dreyfus](http://www.amazon.com/gp/product/0262540673/ref=as_li_tl?ie=UTF8&camp=1789&creative=390957&creativeASIN=0262540673&linkCode=as2&tag=wabuwh00-20&linkId=ZHBAVUQOM6SIGYHG), believe all three of these groups are naive for believing that there even is a tripwire, arguing that it’s more likely that ASI won’t actually ever be achieved. So what do you get when you put all of these opinions together? In 2013, Vincent C. Müller and Nick Bostrom conducted a survey that asked hundreds of AI experts at a series of conferences the following question: “For the purposes of this question, assume that human scientific activity continues without major negative disruption. By what year would you see a (10% / 50% / 90%) probability for such HLMI[**4**](http://waitbutwhy.com/2015/01/artificial-intelligence-revolution-2.html) to exist?” It asked them to name an optimistic year (one in which they believe there’s a 10% chance we’ll have AGI), a realistic guess (a year they believe there’s a 50% chance of AGI—i.e. after that year they think it’s more likely than not that we’ll have AGI), and a safe guess (the earliest year by which they can say with 90% certainty we’ll have AGI). Gathered together as one data set, here were the results:[2](http://waitbutwhy.com/2015/01/artificial-intelligence-revolution-2.html) Median optimistic year (10% likelihood): 2022 Median realistic year (50% likelihood): 2040 Median pessimistic year (90% likelihood): 2075 So the median participant thinks it’s more likely than not that we’ll have AGI 25 years from now. The 90% median answer of 2075 means that if you’re a teenager right now, the median respondent, along with over half of the group of AI experts, is almost certain AGI will happen within your lifetime.

#### AI runs multiple risks at different stages of development for not only human extinctions but the ending of all life in the universe

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This [map](http://immortality-roadmap.com/AIfails.pdf) shows that AI failure resulting in human extinction could happen on different levels of AI development, namely: 1. before it starts self-improvement (which is unlikely but we still can envision several failure modes), 2. during its take off, when it uses different instruments to break out from its initial confinement, and 3. after its successful takeover of the world, when it starts to implement its goal system which could be unfriendly, or its friendliness may be flawed. AI also can halt in late stages of its development because of either technical problems or “philosophical” ones. I am sure that a map of AI failure levels is needed for the creation of Friendly AI theory as we need to be aware of various risks. Most of the ideas in my map come from “[Artificial Intelligence as a Positive and Negative Factor in Global Risk](https://intelligence.org/files/AIPosNegFactor.pdf)” by Eliezar Yudkowsky, from chapter 8 of “Superintelligence” by Bostrom, from Ben Goertzel blog, from [hitthelimit](http://hitthelimit.livejournal.com/) blog, and some are mine. I will now elaborate on three ideas from the map which may need additional clarification. The problem of the chicken or the egg The question is what will happen first: AI begins to self-improve, or the AI has a malicious goal system. It is logical to assume that the goal system change will occur first, and this gives us a chance to protect ourselves from the risks of AI, because there will be a short period of time when AI already has bad goals, but has not developed enough to be able to hide them from us effectively. This line of reasoning comes from Ben Goertzel. Unfortunately many goals are benign on a small scale, but become dangerous as the scale grows. 1000 paperclips are good, one trillion are useless, and 10 to the power of 30 paperclips are an existential risk. AI halting problem Another interesting part of the map are the philosophical problems that must face any AI. Here I was inspired after reading the Russian-language blog [hitthelimit](http://hitthelimit.livejournal.com/). One of the ideas is that the Fermi paradox may be explained by the fact that any sufficiently complex AI halts. (I do not agree that this completely explains the Great Silence.) After some simplification, with which “hitthelimit” is unlikely to agree, the idea is that as AI self-improves its ability to optimize grows rapidly, and as a result, it can solve problems of any complexity in a finite time. In particular, it will execute any goal system in a finite time. Once it has completed its tasks, it will stop. The obvious objection to this theory is the fact that many of the goals (explicitly or implicitly) imply infinite time for their realization. But this does not remove the problem at its root, as this AI can find ways to ensure the feasibility of such purposes in the future after it stops. (But in this case it is not an existential risk if their goals are formulated correctly.) For example, if we start from timeless physics, everything that is possible already exists and the number of paperclips in the universe is a) infinite b) unchangable. When the paperclip maximizer has understood this fact, it may halt. (Yes, this is a simplistic argument, it can be disproved, but it is presented solely to illustrate the approximate reasoning, that can lead to AI halting.) I think the AI halting problem is as complex as [the halting problem for Turing Machine](https://en.wikipedia.org/wiki/Halting_problem). Vernor Vinge in his book Fire Upon the Deep described unfriendly AIs which halt any externally visible activity about 10 years after their inception, and I think that this intuition about the time of halting from the point of external observer is justified: this can happen very quickly. (Yes, I do not have a fear of fictional examples, as I think that they can be useful for explanation purposes.) In the course of my arguments with “hitthelimit” a few other ideas were born, specifically about other philosophical problems that may result in AI halting. One of my favorites is associated with modal logic. The bottom line is that from observing the facts, it is impossible to come to any conclusions about what to do, simply because oughtnesses are in a different modality. When I was 16 years old this thought nearly killed me, because I realized that it is mathematically impossible to come to any conclusions about what to do. (Do not think about it too long, it is a dangerous idea.) This is like awareness of the meaninglessness of everything, but worse. Fortunately, the human brain was created through the evolutionary process and has bridges from the facts to oughtness, namely pain, instincts and emotions, which are out of the reach of logic. But for the AI with access to its own source code these processes do not apply. For this AI, awareness of the arbitrariness of any set of goals may simply mean the end of its activities: the best optimization of a meaningless task is to stop its implementation. And if AI has access to the source code of its objectives, it can optimize it to maximum simplicity, namely to zero.

### 1NC—Baby Universes

#### Cosmogenesis experiments will enable humans to create laboratory universes – it’s a matter of decades

**Merali 17** (Zeeya Merali is a freelance science writer and author of A Big Bang in a Little Room: The Quest to Create New Universes. Her work has appeared in Nature, Scientific American, Discover, Science, New Scientist, and on the BBC. She has also published two textbooks with National Geographic and has worked on NOVA's television series The Fabric of the Cosmos. She has a PhD in theoretical cosmology and lives in London. “The idea of creating a new universe in the lab is no joke,” 14 June, 2017. https://aeon.co/ideas/the-idea-of-creating-a-new-universe-in-the-lab-is-no-joke)

Physicists aren’t often reprimanded for using risqué humor in their academic writings, but in 1991 that is exactly what happened to the cosmologist Andrei Linde at Stanford University. He had submitted a draft article entitled ‘Hard Art of the Universe Creation’ to the journal Nuclear Physics B. In it, he outlined the possibility of creating a universe in a laboratory: a whole new cosmos that might one day evolve its own stars, planets and intelligent life. Near the end, Linde made a seemingly flippant suggestion that our Universe itself might have been knocked together by an alien ‘physicist hacker’. The paper’s referees objected to this ‘dirty joke’; religious people might be offended that scientists were aiming to steal the feat of universe-making out of the hands of God, they worried. Linde changed the paper’s title and abstract but held firm over the line that our Universe could have been made by an alien scientist. ‘**I am not so sure that this is just a joke**,’ he told me. Fast-forward a quarter of a century, and the notion of universe-making – or ‘cosmogenesis’ as I dub it – **seems less comical than ever.** I’ve travelled the world talking to physicists who take the concept seriously, and who have even sketched out rough blueprints for how humanity might one day achieve it. Linde’s referees might have been right to be concerned, but they were asking the wrong questions. The issue is not who might be offended by cosmogenesis, but what would happen if it were truly possible. How would we handle the theological implications? What moral responsibilities would come with fallible humans taking on the role of cosmic creators? Theoretical physicists have grappled for years with related questions as part of their considerations of how our own Universe began. In the 1980s, the cosmologist Alex Vilenkin at Tufts University in Massachusetts came up with a mechanism through which the laws of quantum mechanics could have generated an inflating universe from a state in which there was no time, no space and no matter. There’s an established principle in quantum theory that pairs of particles can spontaneously, momentarily pop out of empty space. Vilenkin took this notion a step further, arguing that quantum rules could also enable a minuscule bubble of space itself to burst into being from nothing, with the impetus to then inflate to astronomical scales. Our cosmos could thus have been burped into being by the laws of physics alone. To Vilenkin, this result put an end to the question of what came before the Big Bang: nothing. Many cosmologists have made peace with the notion of a universe without a prime mover, divine or otherwise. At the other end of the philosophical spectrum, I met with Don Page, a physicist and evangelical Christian at the University of Alberta in Canada, noted for his early collaboration with Stephen Hawking on the nature of black holes. To Page, the salient point is that God created the Universe ex nihilo – from absolutely nothing. The kind of cosmogenesis envisioned by Linde, in contrast, would require physicists to cook up their cosmos in a highly technical laboratory, using a far more powerful cousin of the Large Hadron Collider near Geneva. It would also require a seed particle called a ‘monopole’ (which is hypothesized to exist by some models of physics, but has yet to be found). The idea goes that if we could impart enough energy to a monopole, it will start to inflate. Rather than growing in size within our Universe, the expanding monopole would bend spacetime within the accelerator to create a tiny wormhole tunnel leading to a separate region of space. From within our lab we would see only the mouth of the wormhole; it would appear to us as a mini black hole, so small as to be utterly harmless. But if we could travel into that wormhole, we would pass through a gateway into a rapidly expanding baby universe that we had created. (A video illustrating this process provides some further details.) We have no reason to believe that even the most advanced physics hackers could conjure a cosmos from nothing at all, Page argues. Linde’s concept of cosmogenesis, audacious as it might be, **is still fundamentally technological**. Page, therefore, sees little threat to his faith. On this first issue, then, cosmogenesis would not necessarily upset existing theological views. But flipping the problem around, I started to wonder: what are the implications of humans even considering the possibility of one day making a universe that could become inhabited by intelligent life? As I discuss in my book A Big Bang in a Little Room (2017), current theory suggests that, once we have created a new universe, we would have little ability to control its evolution or the potential suffering of any of its residents. Wouldn’t that make us irresponsible and reckless deities? I posed the question to Eduardo Guendelman, a physicist at Ben Gurion University in Israel, who was one of the architects of the cosmogenesis model back in the 1980s. Today, Guendelman is engaged in research that could bring baby-universe-making within practical grasp. I was surprised to find that the moral issues did not cause him any discomfort. Guendelman likens scientists pondering their responsibility over making a baby universe to parents deciding whether or not to have children, knowing they will inevitably introduce them to a life filled with pain as well as joy. Other physicists are more wary. Nobuyuki Sakai of Yamaguchi University in Japan, one of the theorists who proposed that a monopole could serve as the seed for a baby universe, admitted that cosmogenesis is a thorny issue that we should ‘worry’ about as a society in the future. But he absolved himself of any ethical concerns today. Although he is performing the calculations that could allow cosmogenesis, he notes that it will be decades before such an experiment might feasibly be realized. Ethical concerns can wait. Many of the physicists I approached were reluctant to wade into such potential philosophical quandaries. So I turned to a philosopher, Anders Sandberg at the University of Oxford, who contemplates the moral implications of creating artificial sentient life in computer simulations. He argues that the proliferation of intelligent life, regardless of form, can be taken as something that has inherent value. In that case, cosmogenesis might actually be a moral obligation. Looking back on my numerous conversations with scientists and philosophers on these issues, I’ve concluded that the editors at Nuclear Physics B did a disservice both to physics and to theology. Their little act of censorship served only to stifle an important discussion. The real danger lies in fostering an air of hostility between the two sides, leaving scientists afraid to speak honestly about the religious and ethical consequences of their work out of concerns of professional reprisal or ridicule. We will not be creating baby universes anytime soon, but scientists in all areas of research must feel able to freely articulate the implications of their work without concern for causing offense. Cosmogenesis is an extreme example that tests the principle. Parallel ethical issues are at stake in the more near-term prospects of creating artificial intelligence or developing new kinds of weapons, for instance. As Sandberg put it, although it is understandable that scientists shy away from philosophy, afraid of being thought weird for veering beyond their comfort zone, the unwanted result is that many of them keep quiet on things that really matter. As I was leaving Linde’s office at Stanford, after we’d spent a day riffing on the nature of God, the cosmos and baby universes, he pointed at my notes and commented ruefully: ‘If you want to have my reputation destroyed, I guess you have enough material.’ This sentiment was echoed by a number of the scientists I had met, whether they identified as atheists, agnostics, religious or none of the above. The irony was that if they felt able to share their thoughts with each other as openly as they had with me, they would know that they weren’t alone among their colleagues in pondering some of the biggest questions of our being.

#### Inflation of a baby universe channels phantom energy, which destroys our universe

**Merali 8** (Zeeya, Writer for New Scientist, “Could ‘bubble’ universes threaten human existence?” 3/27/2008, https://www.newscientist.com/article/mg19726493-900-could-bubble-universes-threaten-human-existence/)

IT IS the ultimate neighbour from hell: a rogue “bubble” universe that could rip into our world at any time and eat us and everything else in a flash. Eduardo Guendelman at Ben Gurion University in Beer-Sheva, Israel and Nobuyuki Sakai at Yamagata University in Japan discovered that our universe might face this gruesome end as they were investigating how patches of space-time expand. Alternatively, our universe could be the one feasting on its neighbours right now. According to the standard model of cosmology, our universe underwent a phase of rapid expansion known as inflation just after the big bang. In theory, inflation could still be happening to pockets of space-time, blowing them up to create new universes disconnected from ours. However, nobody knows exactly what would trigger this inflation, says Guendelman. He and Sakai wanted to see if bubbles of space-time could inflate into pocket universes without having to be kick-started by anything as dramatic as a big bang. They found that this is possible, provided the bubbles contain a weird form of repulsive “phantom energy”. Some physicists think phantom energy is similar to dark energy, and both are posited to explain the acceleration of the universe’s expansion. But phantom energy is much more powerful, and if it really is behind the acceleration, it will **create runaway expansion that will eventually rip our universe apart** (New Scientist, 8 March 2003, p 14). Guendelman and Sakai’s calculations show that small bubbles of phantom energy would start to “breathe”, gently expanding and contracting as the phantom energy inside battles against the bubble’s wall, before spontaneously **expanding into a full-blown universe**. The problem is that the expansion can play out in two ways, depending on the resistance of the wall. Ideally, the bubble would disconnect from its surroundings, says Guendelman. This "good" pocket universe would look like a black hole from the outside, but inside it would be creating its own space-time - effectively a new universe. In contrast, "**rogue" bubbles would expand uncontrollably into the space-time around them, and we probably wouldn't see one before it destroyed us because it would expand at the speed of light**. The researchers have submitted their work to Physical Review D. We probably wouldn't see one of these rogue bubbles before it destroyed us because it would expand at the speed of light.

### 1NC—Black Holes

#### Physicists fail to consider that the unknown could have negative consequences. Conditions unknown to science could lead ongoing experiments to lead to micro black hole formation.

CERN no date [CERN – the European Organization for Nuclear Research. CERN is one of the world’s largest and most advanced centers for scientific research | “Extra dimensions, gravitons, and tiny black holes,” CERN n.d.] SLB

Another way of revealing extra dimensions would be through the production of “[microscopic black holes](http://press.web.cern.ch/backgrounders/safety-lhc)”. What exactly we would detect would depend on the number of extra dimensions, the mass of the black hole, the size of the dimensions and the energy at which the black hole occurs. If micro black holes do appear in the collisions created by the LHC, they would disintegrate rapidly, in around 10-27seconds. They would decay into Standard Model or supersymmetric particles, creating events containing an exceptional number of tracks in our detectors, which we would easily spot. Finding more on any of these subjects would open the door to yet unknown possibilities.

#### Models taking into account the natural state of the Higgs field suggest that black holes in the final stages of evaporation may enable the Higgs field to escape its metastable state,

Gorbunov et al 17 [Dmitry Gorbunov, Dmitry Levkov, Alexander Panin. Researchers at the Institute for National Research of Russian Academy of Sciences and the Moscow Institute of Physics and Technology | “Fatal youth of the Universe: black hole threat for the electroweak vacuum during preheating,”

The late Universe, either dominated by matter or cosmological constant, is safe for billions of billions of successive human generations. The early Universe expansion most probably was driven by some new physics, but the process was arranged in such a way that the Higgs field had avoided escaping to the true vacuum. This requirement implies various constraints on the pre-Big-Bang history of the Universe, including inflation, preheating and reheating stages, which have been largely discussed in literature, see e.g. [6, 7]. Recently it has been suggested [8, 9, 10] that the situation changes completely in the presence of small evaporating black holes. These objects were argued to act as nucleation sites for the bubbles of true vacuum dramatically increasing the rate of their formation. The largest enhancement was found in the case of the smallest-mass black holes which were suggested to **kick the Higgs field over the energy barrier and into the abyss with the probability of order one**. Then every black hole at the last stages of its evaporation should produce an expanding bubble of true vacuum around itself.

#### Collapse of higgs field metastability destroys the universe

**Dickerson 14** (Kelly Dickerson, Staff Writer for LiveScience, “Stephen Hawking Says 'God Particle' Could Wipe Out the Universe,” September 8, 2014. https://www.livescience.com/47737-stephen-hawking-higgs-boson-universe-doomsday.html)

The Higgs field emerged at the birth of the universe and has acted as its own source of energy since then, Lykken said. Physicists believe the Higgs field may be slowly changing as it tries to find an optimal balance of field strength and energy required to maintain that strength. [5 Implications of Finding a Higgs Boson Particle] "Just like matter can exist as liquid or solid, so the Higgs field, the substance that fills all space-time, could exist in two states," Gian Giudice, a theoretical physicist at the CERN lab, where the Higgs boson was discovered, explained during a TED talk in October 2013. Right now the Higgs field is in a minimum potential energy state — like a valley in a field of hills and valleys. The huge amount of energy required to change into another state is like chugging up a hill. If the Higgs field makes it over that energy hill, some physicists think the destruction of the universe is waiting on the other side. But an unlucky quantum fluctuation, or a change in energy, could trigger a process called "quantum tunneling." Instead of having to climb the energy hill, quantum tunneling would make it possible for the Higgs field to "tunnel" through the hill into the next, even lower-energy valley. This quantum fluctuation will happen somewhere out in the empty vacuum of space between galaxies, and will create a "bubble," Lykken said. Here's how Hawking describes this Higgs doomsday scenario in the new book: "The Higgs potential has the worrisome feature that it might become metastable at energies above 100 [billion] gigaelectronvolts (GeV). … **This could mean that the universe could undergo catastrophic vacuum decay, with a bubble of the true vacuum expanding at the speed of light. This could happen at any time and we wouldn't see it coming**." [10 Implications of Faster-Than-Light Travel] The Higgs field inside that bubble will be stronger and have a lower energy level than its surroundings. Even if the Higgs field inside the bubble were slightly stronger than it is now, it could shrink atoms, disintegrate atomic nuclei, and make it so that hydrogen would be the only element that could exist in the universe, Giudice explained in his TED talk. But using a calculation that involves the currently known mass of the Higgs boson, researchers predict this bubble would contain an ultra-strong Higgs field that would expand at the speed of light through space-time. The expansion would be unstoppable and would **wipe out everything in the existing universe,** Lykken said.

### 1NC—Extreme Light Infrastructure

#### The Extreme Light Infrastructure project is on the cusp of completion – it will use high-power lasers for exotic physics experiments

**Nature Materials 16** (Nature Materials peer-reviewed scientific journal published by Nature Publishing Group. Nature Publishing Group is a division of the international scientific publishing company Springer Nature that publishes academic journals, magazines, online databases, and services in science and medicine. Nature Publishing Group's flagship publication is Nature, a weekly multidisciplinary journal first published in 1869. “Extreme light,” *Nature Materials* 15, 1 (2016) http://www.nature.com/nmat/journal/v15/n1/full/nmat4533.html?foxtrotcallback=true)

The first operational laser, built in 1960 at the Hughes Research Laboratory was only capable of emitting a series of irregular spikes within each pump pulse. Lasers have come a long way since then. The method of chirped-pulse amplification (CPA) in the mid-80s managed to drive lasers from terawatt to petawatt powers (D. Strickland & G. Mourou Opt. Commun. 56, 219–221; 1985). A number of facilities around the world are hosting this class of powerful lasers: notably, the Petawatt Aquitaine Laser (PETAL) at the Laser Megajoule facility in France (1.2 PW; http://go.nature.com/TufsxS) and the Laser for Fast Ignition Experiments (LFEX) at Osaka University in Japan (2 PW peak power with picosecond pulses; http://go.nature.com/Pvy1dn). However, most of the current facilities are at the low multi-petawatts level with repetition rates — with some exceptions — significantly below 1 Hz. MARTIN VLNAS, BOGLE ARCHITECTS **The ELI project is expected to push those limits even further**. Considered by many as the most ambitious research effort for laser technology in recent years, the project began in 2005 and was approved by the European Strategy Forum on Scientific Research Infrastructures (ESFRI) the following year (http://www.eli-beams.eu/about/milestones/). This pan-European effort will outperform existing laser facilities by at least a factor of ten with regard to laser peak and average powers. According to Wolfgang Sandner, who served as Director General and CEO of the ELI Delivery Consortium International Association (http://www.eli-laser.eu/), ELI marks the onset of the next generation of high-peak and high-average-power systems, through a combination of new disruptive technologies: high-power optical parametric chirped pulse amplification, all-diode-pumped systems, coherent beam coupling, advanced active materials, optical surfaces and grating technologies. The ELI project consists of four large-scale laser facilities, each targeting a different area of research. The ELI Beamlines facility, built in the Czech Republic and inaugurated in October 2015 (http://go.nature.com/MZq7ar), will provide ultrashort laser pulses of a few femtoseconds (10–15 fs) duration and performances up to 10 PW. The lasers in the second pillar will produce even shorter radiation pulses, in the attosecond range. The ELI Attosecond Light Pulse Source (ELI-ALPS; http://www.eli-hu.hu/) is currently under construction in an old Soviet military base in Hungary and its central aim will be the study of ultrafast electron dynamics in atoms, molecules, plasmas and solids. The third facility will focus on nuclear physics. Built in Romania, the ELI Nuclear Physics (ELI-NP) facility will host two 10 PW lasers, coherently added to deliver intensities of the order of 1023–1024 W cm−2 and an intense source of gamma radiation (www.eli-np.ro). Among others, it is expected to have a significant impact on nuclear waste processing, radio-medicine and isotope production. Finally, the Ultrahigh Field Facility will be tailored for the study of relativistic physics and is expected to be the most expensive and challenging of the facilities as it will outperform the others, providing the highest peak power (100 PW) and intensities beyond 1025 W cm−2. Such values approach the Schwinger intensity range, above which vacuum breaks down and light is materialized into pairs of electrons and positrons (http://go.nature.com/Wdpocq). The first three pillars are expected to be fully operational and open to external users by 2018. A decision about ELI's fourth pillar (technology, finances and site) will be made by the ELI European Research Infrastructure Consortium that will govern ELI's operation. These ultra-intense lasers will not only provide high electromagnetic fields but will also make possible the generation of ultrashort and ultrahigh energy beams of particles and radiations up to the TeV range. As such, they are expected to primarily impact fundamental physics; Gérard Mourou, initiator of ELI and coordinator of the preparatory phase, comments that these facilities will permit studies of cosmos acceleration, vacuum nonlinearities, dark matter and dark energy, nonlinear quantum electrodynamic and chromodynamic fields, and radiation physics in the vicinity of the Schwinger field (http://go.nature.com/v7GyTg).

#### ELI experiments will rip apart the fabric of space-time, destroying all life

**Geere 11** (Duncan Geere, Science and Technology Journalist for Wired “Ultrapowerful laser planned to tear apart fabric of space,” Friday 4 November 2011. http://www.wired.co.uk/article/laser-spacetime)

The Large Hadron Collider didn't destroy Earth, so **physicists are having another go**. A team is planning to build an enormously powerful laser that could **rip apart the fabric of space**. The Extreme Light Infrastructure Ultra High-Field laser will be 200 times more powerful than the most powerful lasers that currently exist on the planet, says John Collider, a member of the team and the director of the Central Laser Facility at the Rutherford Appleton Laboratory in Didcot. "At this kind of intensity we start to get into unexplored territory, as it is an area of physics that we have never been before," he told the Telegraph. The aim is to boil a vacuum. Vacuums are normally thought of as empty space, but physicists believe they actually contain tiny particles that pop in and out of existence, so fast that it's difficult to prove they exist. By focusing the ELI Ultra-High-Field laser on an area of space, the team believes **that the fabric of the vacuum can be pulled apart,** revealing these particles for the first time. READ NEXT CERN's charming new particle discovery could open a 'new frontier' in physics CERN's charming new particle discovery could open a 'new frontier' in physics By ABIGAIL BEALL The laser will be made up of 10 beams, each providing **200 petawatts of power for less than a trillionth of a second**. As 200 petawatts is **more than 100,000 times the amount of power produced by the world**, the energy will need to be stored up over time in huge capacitors. At the crucial moment, that energy will be released to form metre-wide laser beams that will then be combined and focused down onto a tiny point. At that point, the intensity of the light will be greater than at the centre of the Sun. In these conditions, it's hoped that these pairs of matter-antimatter particles -- which normally annihilate each other almost as soon as they form -- will be pulled apart, leaving tiny electrical charges, which the team hope to measure. The research could yield some insight into why the Universe appears to contain far more matter than we've so far been able to detect. The location of the laser hasn't yet been decided, but the Rutherford Appleton Laboratory's Central Laser Facility is in the running. Three prototypes for the laser will be constructed in the Czech Republic, Hungary and Romania, each costing £200 million and scheduled to become operational in 2015. If successful, the final laser will be built -- costing around £1 billion -- in either Britain, Russia, France, Hungary, Romania or the Czech Republic. Wolfgang Sandner, coordinator of the Laserlab Europe network and president of the German Physics Society, said: "There are many challenges to be over come before we can do that, but it is mainly a matter of scaling up the technology we have so we can produce the powers needed."

### 1NC—Magnetic Monopoles

#### LHC experiments will discover magnetic monopoles

**Dunning 16** (Hayley Dunning, Communications and Public Affairs @ Imperial College London,“Experiment at the Large Hadron Collider ready to find magnetic monopoles,” http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news\_10-8-2016-10-37-25)

Scientists searching for magnetic monopoles - fundamental magnetic particles - have shown they could detect them if they are produced at the LHC. Magnetism comes with two poles, North and South, similar to the way that electricity comes with two charges, positive and negative. However, while it is easy to isolate a positive or negative electric charge, **nobody has ever seen a solitary magnetic charge**, or monopole. The test run showed that a monopole signal would be very clear. **We have the capability of finding a monopole if even just one gets trapped**. Professor Arttu Rajantie Scientists have previously suggested that monopoles might be created in high-energy particle colliders like the LHC. If they are, the Monopole and Exotics Detector at the LHC (MoEDAL) experiment is designed to find them. MoEDAL was tested in 2012, and the first results, published today in the Journal of High Energy Physics, show that it would be able to detect magnetic monopoles. The detector is made up of two types of materials. The first layer, made of plastic nuclear track detector sheets, would record a trace of a passing monopole. The second layer, consisting of aluminium trapping detectors, would be able to actually trap a monopole. In order to find a monopole in a trapping detector, it must be taken out of the detector and analysed by scientists with a magnetometer. The results of the test run reported today show that the detectors are relatively free from other intereferences and impurities that could obscure a monopole signature. They also place new bounds on the existence of magnetic monopoles. JUST ONE MONOPOLE Professor Arttu Rajantie, from the Department of Physics at Imperial, is involved with the theoretical aspects of the MoEDAL experiment. For example, his work focusses on how monopoles might be produced and what we might learn if they were detected. Room of electronics MoEDAL experiment layout. Image: MoEDAL/CERN He said: “The test run showed that a monopole signal would be very clear. We have the capability of finding a monopole if even just one gets trapped.” Spokesperson for the MoEDAL experiment, James Pinfold of the University of Alberta said: “Today MoEDAL celebrates the release of its first physics result and joins the other LHC experiments at the discovery frontier." NEW KIND OF PHYSICS The test run for MoEDAL in 2012 used 160 kg of aluminium trapping detectors. The first real experiment phase, run in 2015, used 800 kg of aluminium and monitored the collisions in the LHC for longer. **The LHC was also running at nearly twice the energy of the 2012 run.** The detectors have now been taken out of the experiment and analysed for the presence of monopoles. Finding magnetic monopoles could lead to a whole new type of particle physics, according to Professor Rajantie. “While the discovery of the Higgs boson in 2012 was a remarkable milestone for physics, the particle itself survives for fractions of a second,” he said. “Monopoles in contrast would be stable, allowing scientists to extract them and potentially run new kinds of experiments.”

#### A synthetic monopole will destroy the universe via proton decay – annihilates all matter

**Bambi & Dmitrevich 15** (Cosimo Bambi is Professor at the Department of Physics of Fudan University. He received the PhD from Ferrara University (Italy) in 2007. He was a postdoc at Wayne State University (Michigan), at IPMU at The University of Tokyo (Japan), in the group of Prof. Dvali at LMU Munich (Germany). Alexandre Dmitrievich is a professor at Universita di Ferrara, Dipartimento di Fisica, Italy; ITEP, Moscow, Russia; and Novosibirsk State University, Novosibirsk, Russia. He got his PhD (Candidate of Science in Russia) in 1969. He won Lenin Komsomol Award in 1973, Landau-Weizmann Award for theoretical physics in1996, Pontecorvo Prize by JINR in 2009, Friedmann Prize by Russian Academy of sciences in 2011. His publications include more than 250 titles in English and Russian with an overall number of citations about 6500. Among them there are several review papers published in Reviews of Modern Physics, Physics Reports, Sov. Phys. Uspekhi, Surveys in High Energy Physics, and books "Kosmologiya Rannei Vselennoi" ("Cosmology of the early Universe"), MGU Publishers, Moscow, 1988 and "Basics of Modern Cosmology", Edition Frontier, Paris, 1990. *Introduction to Particle Cosmology: The Standard Model of Cosmology and its Open Problems,* Springer, 2015. p. 100)

If one believes that GUTs are the correct way of unification of the strong and the electroweak interactions and that in the early Universe the temperature reached a value of the order the GUT scale, then magnetic monopoles had to he abundant in the early Universe and their present mass density should be much larger than the observed one (Zeldovich and Khlopov 1978; Preskill 1979). Magnetic monopoles would have thus overclosed the Universe. We can prove this by using the same approach as we applied to calculate the frozen density of massive stable particles in the Universe. The only difference in the calculations is that, in contrast to usual dark matter particles, monopoles and antimonopoles are mutually attracted, which somewhat enhances the probability of their annihilation. We can use the result of Sect. 5.3.2, according to which the energy density of GUT monopoles is 24 orders of magnitude larger than that allowed by data, EM. (5.64). An enhancement of the annihilation due to the mutual attraction could somewhat change this result, but it still remain extremely large. More detailed calculations of monopole-antimonopole annihilation can be found In Dolgov and Zeldovich (1980). The calculations of frozen densities or massive particles performed in Sect. 5.32 have been done under the assumption that the initial density of these particles was thermal, i.e. it was determined by thermal equilibrium. If the initial temperature or the Universe was smaller than the monopole mass, their density would be suppressed by the factor exp(— M/ T). Though this assumption is probably not correct, it does not help to solve the magnetic monopole problem. Strictly speaking, we do not know the probability of production of classical objects (such as monopoles) in elementary particle collisions, but most probably it is strongly suppressed. Colliding particles must produce a certain highly coherent state of vector (gauge) and scalar fields with some non-trivial topology. The phase space of such a state is extremely small, probably at the level of exp(—CMd), where M is the mass of the object, d is its size, and C is a constant which is probably large. For classical objects, Md 1. Thus the monopole production should be strongly suppressed even at high T. However, as we have already said, it does not solve the overabundance problem of magnetic monopoles. The point is that there is another mechanism to produce monopoles, the so-called topological mechanism (Kibble 1976). Such a mechanism can be visualized with the example of the production of cosmic strings: in causally non-connected regions in the Universe, the varlation or the phase of a complex scalar field, (b, along a closed loop is not necessarily zero but could be 27Tn and, if there is a singular state of inside this loop such that the loop radius cannot be shrunk down to zero, a cosmic string would be created. With this mechanism, one would expecton average one string per cosmological horizon. Detailed calculations can he found in Vilenkin (1985), Vilenkin and Shellard (1994), Dolgov (1992). A magnetic monopole is, in particular, a state of a vector field directed out of the center of a sphere surrounding the monopole, like the needles of a hedgehog. Such a configuration could be accidentally formed in the process of cosmological cooling when a gauge symmetry was spontaneously broken. Inside such a sphere, a magnetic monopole would be certainly created. The probability of this configuration is quite large and so **monopoles would destroy the Universe**. Inflation saved us from this gloomy destiny. In conclusion, let us mention a striking phenomenon discovered by Ru bakov ( 1981 , 1982, 1982): in the vicinity of a magnetic monopole, **protons would quickly decay**. In other words, **monopoles catalyse proton decay**. Such a process could he a cheap energy source. Though it has no direct relation to the subject of this chapter, it might contribute to the generation of the baryon asymmetry of the Universe if the amount of monopoles were not negligibly small.

### 1NC—Nanotechnology

#### We have already invested over billions of dollars into nanotechnology development and are rapidly approaching a gray goo disaster

Tim **Urban**, Urban writes about AI, nanotechnology and aliens for Wait but Why, 20**15**, "The AI Revolution: Our Immortality or Extinction," No Publication, http://waitbutwhy.com/2015/01/artificial-intelligence-revolution-2.html

Gray Goo Bluer Box We’re now in a diversion in a diversion. This is very fun.9 Anyway, I brought you here because there’s this really unfunny part of nanotechnology lore I need to tell you about. In older versions of nanotech theory, a proposed method of nanoassembly involved the creation of trillions of tiny nanobots that would work in conjunction to build something. One way to create trillions of nanobots would be to make one that could self-replicate and then let the reproduction process turn that one into two, those two then turn into four, four into eight, and in about a day, there’d be a few trillion of them ready to go. That’s the power of exponential growth. Clever, right? It’s clever until it causes the grand and complete Earthwide apocalypse by accident. The issue is that the same power of exponential growth that makes it super convenient to quickly create a trillion nanobots makes self-replication a terrifying prospect. Because what if the system glitches, and instead of stopping replication once the total hits a few trillion as expected, they just keep replicating? The nanobots would be designed to consume any carbon-based material in order to feed the replication process, and unpleasantly, all life is carbon-based. The Earth’s biomass contains about 1045 carbon atoms. A nanobot would consist of about 106 carbon atoms, so 1039 nanobots would consume all life on Earth, which would happen in 130 replications (2130 is about 1039), as oceans of nanobots (that’s the gray goo) rolled around the planet. Scientists think a nanobot could replicate in about 100 seconds, meaning this simple mistake would inconveniently end all life on Earth in 3.5 hours. An even worse scenario—if a terrorist somehow got his hands on nanobot technology and had the know-how to program them, he could make an initial few trillion of them and program them to quietly spend a few weeks spreading themselves evenly around the world undetected. Then, they’d all strike at once, and it would only take 90 minutes for them to consume everything—and with them all spread out, there would be no way to combat them.10 While this horror story has been widely discussed for years, the good news is that it may be overblown—Eric Drexler, who coined the term “gray goo,” sent me an email following this post with his thoughts on the gray goo scenario: “People love scare stories, and this one belongs with the zombies. The idea itself eats brains.” Once we really get nanotech down, we can use it to make tech devices, clothing, food, a variety of bio-related products—artificial blood cells, tiny virus or cancer-cell destroyers, muscle tissue, etc.—anything really. And in a world that uses nanotechnology, the cost of a material is no longer tied to its scarcity or the difficulty of its manufacturing process, but instead determined by how complicated its atomic structure is. In a nanotech world, a diamond might be cheaper than a pencil eraser. We’re not there yet. And it’s not clear if we’re underestimating, or overestimating, how hard it will be to get there. But we don’t seem to be that far away. Kurzweil predicts that we’ll get there by the 2020s.11 Governments know that nanotech could be an Earth-shaking development, and they’ve invested billions of dollars in nanotech research (the US, the EU, and Japan have invested over a combined $5 billion so far)

### 1NC—Observer Effect

#### Dark energy experiments will destroy the universe – the observer effect can cause sudden transitions in the quantum state of the universe which causes rapid vacuum decay

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With great power comes great responsibility. As our grip on Earth grows ever tighter, so does the possibility that we could destroy it, or at least ourselves. But the prospect pales into insignificance when you consider that we may have the power to do something even worse. **We could destroy the universe.** Remember the outcry when CERN was getting ready to start smashing particles together in its Large Hadron Collider? A few doomsayers warned that it might be opening the door to the apocalypse. This existential angst was triggered by the prospect of protons colliding at extremely high energies. Einstein's general theory of relativity suggests that concentrating this kind of energy in a volume smaller than an atom might distort space and time enough to tear a hole in the fabric of the universe. This "mini black hole" could rapidly expand to engulf the entire cosmos. CERN took the possibility seriously enough to carry out the ultimate workplace health and safety assessment. In 2008, it declared the disaster scenario virtually impossible. That assessment still stands, even though the LHC is now powering up to almost double its original energy. We aren't completely off the hook, however. That's because the Higgs boson, discovered in the LHC in 2012, has given us reason to believe we might destroy the universe in a **completely different way**. This danger was first pointed out in 2008 by physicists Lawrence Krauss and James Dent, both then at Case Western Reserve University in Cleveland, Ohio. The problem, they said, is that the universe is governed by the rules of quantum physics, where **observations of a system can affect its state** (see page 33). The notion might be familiar to you in the form of Schrödinger's cat. In this thought experiment, a cat is placed in a sealed box with a vial of deadly poison that will be cracked open if a quantum event occurs: the radioactive decay of an atom. According to standard interpretations of quantum theory, as long as the box remains sealed, the cat is both alive and dead. It is the act of opening the box and observing the state of the cat that determines whether the radioactive decay occurs. In other words, **human observation changes the state of the system**. Krauss and Dent suggested that something similar applies to the universe. It is theoretically possible to write down a quantum state for the cosmos. This moves between different states, just like the radioactive atom in the Schrödinger's cat experiment, and can be similarly affected -- in theory -- by human observations. An observation of something that is a property of the whole cosmos, such as the dark energy thought to be accelerating the universe's expansion, might cause a sudden shift from being in a mixture of two states to being in one definite state. So looking at a supernova could be enough to **alter the overall quantum state of the universe**. The result might just "reset" the universe's state, moving it back to where it was a few moments before. But there is a remote **possibility of catastrophe**. This is because we are living in what physicists call a false vacuum -- essentially an unstable configuration of space and time. That means the universe's quantum state is slowly decaying towards a more stable one. However, an observation could tip it into that state abruptly. The universe would suddenly cease to exist, then reappear as a new, more stable cosmos -- **without us in it.** Not surprisingly, this was a controversial idea when first raised, not least because we didn't know whether we were living in a false vacuum. However, some of the properties of the Higgs boson tell us that we **almost certainly are**. "The discovery makes the issues we discussed more relevant," says Krauss, who is now based at Arizona State University.

#### Vacuum decay annihilates all life in the universe and makes future life impossible

**Mack 15** (Dr Katherine (Katie) Mack is a theoretical astrophysicist. Her work focuses on finding new ways to learn about the early universe and fundamental physics using astronomical observations, probing the building blocks of nature by examining the cosmos on the largest scales. Throughout her career as a researcher at Caltech, Princeton, Cambridge, and now Melbourne University, she has studied dark matter, black holes, cosmic strings, and the formation of the first galaxies in the Universe. “Vacuum decay: the ultimate catastrophe,” *Cosmos,* Issue 64, Aug-Sep 2015. https://cosmosmagazine.com/physics/vacuum-decay-ultimate-catastrophe)

Every once in a while, physicists come up with a new way to destroy the Universe. There’s the Big Rip (a rending of spacetime), the Heat Death (expansion to a cold and empty Universe), and the Big Crunch (the reversal of cosmic expansion). My favourite, though, has always been vacuum decay. It’s a quick, clean and efficient way of wiping out the Universe. To understand vacuum decay, you need to consider the Higgs field that permeates our Universe. Like an electric field, the Higgs field varies in strength, based on its potential. Think of the potential as a track on which a ball is rolling. The higher it is on the track, the more energy the ball has. The Higgs potential determines whether the Universe is in one of two states: a true vacuum, or a false vacuum. A true vacuum is the stable, lowest-energy state, like sitting still on a valley floor. A false vacuum is like being nestled in a divot in the valley wall – a little push could easily send you tumbling. A universe in a false vacuum state is called “metastable”, because it’s not actively decaying (rolling), but it’s not exactly stable either. There are two problems with living in a metastable universe. One is that if you create a high enough energy event, you can, in theory, push a tiny region of the universe from the false vacuum into the true vacuum, creating a bubble of true vacuum that will then expand in all directions at the speed of light. **Such a bubble would be lethal**. The other problem is that quantum mechanics says that a particle can ‘tunnel’ through a barrier between one region and another, and this also applies to the vacuum state. So a universe that is sitting quite happily in the false vacuum could, via random quantum fluctuations, suddenly find part of itself in the true vacuum, **causing disaster.** The possibility of vacuum decay has come up a lot lately because measurements of the mass of the Higgs boson seem to indicate the vacuum is metastable. But there are good reasons to think some new physics will intervene and save the day. One reason is that the hypothesised inflationary epoch in the early Universe, when the Universe expanded rapidly in the first tiny fraction of a second, probably produced energies high enough to push the vacuum over the edge into the true vacuum. The fact that we’re still here indicates one of three things. Inflation occurred at energies too low to tip us over the edge, inflation did not take place at all, or the Universe is more stable than the calculations suggest. If the Universe is indeed metastable, then, technically, the transition could occur through quantum processes at any time. **But it probably won’**t – the lifetime of a metastable universe is predicted to be much longer than the current age of the Universe. So we don’t need to worry. But what would happen if the vacuum did decay? The walls of the true vacuum bubble would **expand in all directions at the speed of light**. You wouldn’t see it coming. The walls can contain a huge amount of energy, so you might be incinerated as the bubble wall ploughed through you. Different vacuum states have different constants of nature, so the basic structure of matter might also be disastrously altered. But it could be even worse: in 1980, theoretical physicists Sidney Coleman and Frank De Luccia calculated for the first time that any bubble of true vacuum would immediately suffer total gravitational collapse. They say: “This is disheartening. The possibility that we are living in a false vacuum has never been a cheering one to contemplate. **Vacuum decay is the ultimate ecological catastrophe;** in a new vacuum there are new constants of nature; after vacuum decay, **not only is life as we know it impossible, so is chemistry as we know it.** “However, one could always draw stoic comfort from the possibility that perhaps in the course of time the new vacuum would sustain, if not life as we know it, at least some creatures capable of knowing joy. **This possibility has now been eliminated**.”

### 1NC—Strangelets

#### RHIC experiments will produce strangelets for the first time – they will consume the planet

**Jonson 16 [** Eric, Associate Professor of Law, University of North Dakota School of Law. “Agencies and particle experiment risk,” University of Illinois Law Review, 2016]

On Long Island, about an hour's drive east from New York City, the DOE's Brookhaven National Laboratory operates a particle accelerator called the **Relativistic Heavy Ion Collider** ("RHIC," pronounced "Rick"). The aim of the RHIC is to replicate the state of the universe in the ultra-hot instant after the Big Bang." Some expressed concern, however, about the RHIC's venture into unknown realms of physics -particularly a question of whether the experiment might create a "strangelet," a tiny particle of exotic strange matter.18 Creating a strangelet would be a triumph of modem physics. In an unlikely scenario, however, it might also be unbelievably dangerous unstoppably transforming and absorbing all normal matter it touches. After a latency of many years, the concern is, the accreting mass of strange matter within the Earth would overtake the whole planet. In the words of one eminent scientist, the Earth would be left "an inert hyper- dense sphere about one hundred metres across."79 The RHIC works by taking atoms of heavy elements-routinely gold-stripping off the electrons, and then introducing the bare nuclei- or ions-into a ring of supercooled magnets 2.4 miles around8 Ion beams circulate in two different directions. One ion beam goes clockwise, the other goes counterclockwise." The ions are propelled around and around with increasing amounts of energy until each is traveling 99.995% of the speed of light.? Then, at crisscross points along the accelerator's circumference, the nuclei come together in head-on collisions.83 The col- liding ions produce incredibly hot temperatures -reaching 4 trillion degrees Celsius." By comparison, the superhot core of the sun is a quarter- million times cooler.85

#### Strangelets destroy the universe – converts all matter to strange matter, making life impossible

**Radowitz & Evans 13** (John von Radowitz, staff writer at Birmingham Mail, citing Prof David Evans @ Univ of Birmingham, “Dr Strangelet: The Brum scientist pushing back the frontiers of science,” 19 APR 2013http://www.birminghammail.co.uk/news/local-news/university-birmingham-professor-david-evans-2823710)

To the doom merchants he will always be Dr Strangelet, the mad scientist meddling with forces that should be left well alone. Professor David Evans, from the University of Birmingham, heads a British team working right on the frontiers of science at the Large Hadron Collider. From early on, his experiments have fuelled fear and suspicion among groups who believe they are living in an episode from Quatermass. Black holes were one reason to be afraid - another was an elementary particle called the strange quark. A court action was even mounted to stop the professor’s crazy boffins creating “killer strangelets” that could finish us all off. “The killer strangelet produces a chain reaction that causes **the rest of matter on the planet to turn into strange matter**,” said Prof Evans, speaking under a shower of photons in the sunlit grounds of Restaurant 1 at Cern, the European Centre for Nuclear Research. With a characteristic twinkle, he adds: “Not only would this destroy the Earth in five minutes, but **it would go on to destroy the universe.** “I thought if that was going to happen, Birmingham University ought to be involved.” Like many of his colleagues, Prof Evans has learned to put up with crank phone calls and abusive letters. Perhaps this is only to be expected when you are emulating God by replaying the birth of the universe. The Large Hadron Collider (LHC) is the world’s biggest particle accelerator - £2.6 billion worth of the highest tech hardwire imaginable straddling the French and Swiss borders near Geneva. Housed in a 27 metre (17 mile) circular tunnel 100 metres below ground, the LHC fires streams of protons - the hearts of atoms - at each other at more than 99.9 per cent the speed of light. When they smash together they produce super-hot fireballs in which new kinds of matter are forged, conditions that have not existed since just after the birth of the universe. The process of destruction and creation is observed at four detector points - Atlas, CMS, Alice and LHCb - spaced around the ring. Last year the LHC hit the headlines when scientists found what has now been confirmed as some form of Higgs boson - a long-sought elementary particle that according to theory is responsible for mass. Next, the particle hunters hope to capture dark matter, the mysterious invisible material that glues galaxies together and makes up around a quarter of the universe. But right now the LHC is in the midst of a two-year shutdown for an upgrade and health check. Just over a week after it was first powered up in 2008, calamity struck the machine. A dud soldered joint allowed an escape of super-cooled helium, causing several magnets to overheat. Despite the fault being fixed, the LHC has never operated at full power since. During the shutdown engineers will check every one of more than 10,000 similar joints to ensure a similar accident cannot happen again. The machine will be switched back on in March 2015. “We’re doing the opposite of what a (nuclear) bomb does,” said Prof Evans. “An atomic bomb turns a small amount of mass into energy, and we’re turning energy into mass.” \* Scientists are switching to the Dark Side as they prepare to ramp up the power at the Large Hadron Collider. After capturing a species of Higgs boson, the particle hunters now have their sights set on a new trophy - dark matter. A race is on between groups at the LHC, the world’s biggest particle accelerator, and other scientists operating in space and deep underground who are chasing the same discovery. Dark matter is invisible “stuff” that holds galaxies together with gravitational glue but defies common sense by being undetectable by any direct means. It is thought to make up around a quarter of the mass-energy in the universe. Finding it would be a major coup second only to detecting the Higgs boson, the elementary particle believed to be responsible for mass. It will be a top priority when a revamped and almost twice as powerful LHC is switched back on in March 2015 after a two-year shut down and refit.

### 1NC—Space Colonization

#### We’re impact turning their extinction impact. Human extinction is good because it prevents inevitable human domination of the universe.

**Kochi and Ordan 2008**, (Tarik is a lecturer in the School of Law, Queen's University, Belfast, Northern Ireland. Noam is a linguist and translator, conducts research in Translation Studies at Bar Ilan University, Israel. 'An argument for the global suicide of humanity', Borderlands, December, <http://findarticles.com/p/articles/mi_6981/is_3_7/ai_n31524968/?tag=content;col1>)

In 2006 on an Internet forum called Yahoo! Answers a question was posted which read: "In a world that is in chaos politically, socially and environmentally, how can the human race sustain another 100 years?" The question was asked by prominent physicist Stephen Hawking (Hawking, 2007a). While Hawking claimed not to know 'the solution' he did suggest something of an answer (Hawking, 2007b). For Hawking the only way for the human race to survive in the future is to develop the technologies that would allow humans to colonise other planets in space beyond our own solar system. While Hawking's claim walks a path often trodden by science fiction, his suggestion is not untypical of the way humans have historically responded to social, material and environmental pressures and crises. By coupling an imagination of a new world or a better place with the production and harnessing of new technologies, humans have for a long time left old habitats and have created a home in others. The history of our species, homo sapiens, is marked by population movement aided by technological innovation: when life becomes too precarious in one habitat, members of the species take a risk and move to a new one. Along with his call for us to go forward and colonise other planets, Hawking does list a number of the human actions which have made this seem necessary. [1] What is at issue, however, is his failure to reflect upon the relationship between environmental destruction, scientific faith in the powers of technology and the attitude of speciesism. That is, it must be asked whether population movement really is the answer. After all, Hawking's suggestion to colonise other planets does little to address the central problem of human action which has destroyed, and continues to destroy, our habitat on the earth. While the notion of cosmic colonisation places faith in the saviour of humanity by technology as a solution, it lacks a crucial moment of reflection upon the manner in which human action and human technology has been and continues to be profoundly destructive. Indeed, the colonisation of other planets would in no way solve the problem of environmental destruction; rather, it would merely introduce this problem into a new habitat. The destruction of one planetary habitat is enough--we should not naively endorse the future destruction of others. Hawking's approach to environmental catastrophe is an example of a certain modern faith in technological and social progress. One version of such an approach goes as follows: As our knowledge of the world and ourselves increases humans are able to create forms of technology and social organisation that act upon the world and change it for our benefit. However, just as there are many theories of 'progress' [2] there are also many modes of reflection upon the role of human action and its relationship to negative or destructive consequences. The version of progress enunciated in Hawking's story of cosmic colonisation presents a view whereby the solution to the negative consequences of technological action is to create new forms of technology, new forms of action. New action and innovation solve the dilemmas and consequences of previous action. Indeed, the very act of moving away, or rather evacuating, an ecologically devastated Earth is an example at hand. Such an approach involves a moment of reflection--previous errors and consequences are examined and taken into account and efforts are made to make things better. The idea of a better future informs reflection, technological innovation and action. However, is the form of reflection offered by Hawking broad or critical enough? Does his mode of reflection pay enough attention to the irredeemable moments of destruction, harm, pain and suffering inflicted historically by human action upon the non-human world? There are, after all, a variety of negative consequences of human action, moments of destruction, moments of suffering, which may not be redeemable or ever made better. Conversely there are a number of conceptions of the good in which humans do not take centre stage at the expense of others. What we try to do in this paper is to draw out some of the consequences of reflecting more broadly upon the negative costs of human activity in the context of environmental catastrophe. This involves re-thinking a general idea of progress through the historical and conceptual lenses of speciesism, colonialism, survival and complicity. Our proposed conclusion is that the only appropriate moral response to a history of human destructive action is to give up our claims to biological supremacy and to sacrifice our form of life so as to give an eternal gift to others. From the outset it is important to make clear that the argument for the global suicide of humanity is presented as a thought experiment. The purpose of such a proposal in response to Hawking is to help show how a certain conception of modernity, of which his approach is representative, is problematic. Taking seriously the idea of global suicide is one way of throwing into question an ideology or dominant discourse of modernist-humanist action. [3] By imagining an alternative to the existing state of affairs, absurd as it may seem to some readers by its nihilistic and radical 'solution', we wish to open up a ground for a critical discussion of modernity and its negative impacts on both human and non-human animals, as well as on the environment. [4] In this respect, by giving voice to the idea of a human-free world, we attempt to draw attention to some of the asymmetries of environmental reality and to give cause to question why attempts to build bridges from the human to the non-human have, so far, been unavailing.  Subjects of ethical discourse One dominant presumption that underlies many modern scientific and political attitudes towards technology and creative human action is that of 'speciesism', which can itself be called a 'human-centric' view or attitude. The term 'speciesism', coined by psychologist Richard D. Ryder and later elaborated into a comprehensive ethics by Peter Singer (1975), refers to the attitude by which humans value their species above both non-human animals and plant life. Quite typically humans conceive non-human animals and plant life as something which might simply be

used for their benefit. Indeed, this conception can be traced back to, among others, Augustine (1998, p.33). While many modern, 'enlightened' humans generally abhor racism, believe in the equality of all humans, condemn slavery and find cannibalism and human sacrifice repugnant, many still think and act in ways that are profoundly 'speciesist'. Most individuals may not even be conscious that they hold such an attitude, or many would simply assume that their attitude falls within the 'natural order of things'. Such an attitude thus resides deeply within modern human ethical customs and rationales and plays a profound role in the way in which humans interact with their environment. The possibility of the destruction of our habitable environment on earth through global warming and Hawking's suggestion that we respond by colonising other planets forces us to ask a serious question about how we value human life in relation to our environment. The use of the term 'colonisation' is significant here as it draws to mind the recent history of the colonisation of much of the globe by white, European peoples. Such actions were often justified by valuing European civilisation higher than civilisations of non-white peoples, especially that of indigenous peoples. For scholars such as Edward Said (1978), however, the practice of colonialism is intimately bound up with racism. That is, colonisation is often justified, legitimated and driven by a view in which the right to possess territory and govern human life is grounded upon an assumption of racial superiority. If we were to colonise other planets, what form of 'racism' would underlie our actions? What higher value would we place upon human life, upon the human race, at the expense of other forms of life which would justify our taking over a new habitat and altering it to suit our prosperity and desired living conditions? Generally, the animal rights movement responds to the ongoing colonisation of animal habitats by humans by asking whether the modern Western subject should indeed be the central focus of its ethical discourse. In saying 'x harms y', animal rights philosophers wish to incorporate in 'y' non-human animals. That is, they enlarge the group of subjects to which ethical relations apply. In this sense such thinking does not greatly depart from any school of modern ethics, but simply extends ethical duties and obligations to non-human animals. In eco-ethics, on the other hand, the role of the subject and its relation to ethics is treated a little differently. The less radical environmentalists talk about future human generations so, according to this approach, 'y' includes a projection into the future to encompass the welfare of hitherto non-existent beings. Such an approach is prevalent in the Green Party in Germany, whose slogan is "Now. For tomorrow".  For others, such as the 'deep ecology' movement, the subject is expanded so that it may include the environment as a whole. In this instance, according to Naess, 'life' is not to be understood in "a biologically narrow sense". Rather he argues that the term 'life' should be used in a comprehensive non-technical way such that it refers also to things biologists may classify as non-living. This would include rivers, landscapes, cultures, and ecosystems, all understood as "the living earth" (Naess, 1989, p.29). From this perspective the statement 'x harms y' renders 'y' somewhat vague. What occurs is not so much a conflict over the degree of ethical commitment, between "shallow" and "deep ecology" or between "light" and "dark greens" per se, but rather a broader re-drawing of the content of the subject of Western philosophical discourse and its re-definition as 'life'. Such a position involves differing metaphysical commitments to the notions of being, intelligence and moral activity. This blurring and re-defining of the subject of moral discourse can be found in other ecocentric writings (e.g. Lovelock, 1979; Eckersley, 1992) and in other philosophical approaches. [5] In part our approach bears some similarity with these 'holistic' approaches in that we share dissatisfaction with the modern, Western view of the 'subject' as purely human-centric. Further, we share some of their criticism of bourgeois green lifestyles. However, our approach is to stay partly within the position of the modern, Western human-centric view of the subject and to question what happens to it in the field of moral action when environmental catastrophe demands the radical extension of ethical obligations to non-human beings. That is, if we stick with the modern humanist subject of moral action, and follow seriously the extension of ethical obligations to non-human beings, then we would suggest that what we find is that the utopian demand of modern humanism turns over into a utopian anti-humanism, with suicide as its outcome. One way of attempting to re-think the modern subject is thus to throw the issue of suicide right in at the beginning and acknowledge its position in modern ethical thought. This would be to recognise that the question of suicide resides at the center of moral thought, already. What survives when humans no longer exist?  There continues to be a debate over the extent to which humans have caused environmental problems such as global warming (as opposed to natural, cyclical theories of the earth's temperature change) and over whether phenomena such as global warming can be halted or reversed. Our position is that regardless of where one stands within these debates it is clear that humans have inflicted degrees of harm upon non-human animals and the natural environment. And from this point we suggest that it is the operation of speciesism as colonialism which must be addressed. One approach is of course to adopt the approach taken by Singer and many within the animal rights movement and remove our species, homo sapiens, from the centre of all moral discourse. Such an approach would thereby take into account not only human life, but also the lives of other species, to the extent that the living environment as a whole can come to be considered the proper subject of morality. We would suggest, however, that this philosophical approach can be taken a number of steps

further. If the standpoint that we have a moral responsibility towards the environment in which all sentient creatures live is to be taken seriously, then we perhaps have reason to question whether there remains any strong ethical grounds to justify the further existence of humanity.  For example, if one considers the modern scientific practice of experimenting on animals, both the notions of progress and speciesism are implicitly drawn upon within the moral reasoning of scientists in their justification of committing violence against nonhuman animals. The typical line of thinking here is that because animals are valued less than humans they can be sacrificed for the purpose of expanding scientific knowledge focussed upon improving human life. Certainly some within the scientific community, such as physiologist Colin Blakemore, contest aspects of this claim and argue that experimentation on animals is beneficial to both human and nonhuman animals (e.g. Grasson, 2000, p.30). Such claims are 'disingenuous', however, in that they hide the relative distinctions of value that underlie a moral justification for sacrifice within the practice of experimentation (cf. LaFollette & Shanks, 1997, p.255). If there is a benefit to non-human animals this is only incidental, what remains central is a practice of sacrificing the lives of other species for the benefit of humans. Rather than reject this common reasoning of modern science we argue that it should be reconsidered upon the basis of species equality. That is, modern science needs to ask the question of: 'Who' is the best candidate for 'sacrifice' for the good of the environment and all species concerned? The moral response to the violence, suffering and damage humans have inflicted upon this earth and its inhabitants might then be to argue for the sacrifice of the human species. The moral act would be the global suicide of humanity.

#### The capacity of nature to be different from us precedes all other sources of value. If humans survive, we will re-engineer everything—atoms, cells, ourselves, and even other planets. All natural Otherness from the molecular to the extra-terrestrial will be systematically eliminated. This the biggest impact.

**Lee 1999** [Keekok Lee, Visiting Chair in Philosophy at Lancaster University, The Natural and the Artefactual, 1999p. 2-4]

To appreciate this dimension one needs to highlight the distinction between the artefactual and the natural. The former is the material embodiment of human intentionality--an analysis in terms of Aristotle's causes shows that all four causes, since late modernity, may be assigned to human agency.'- The latter, *ex hypothesi,* has nothing to do with human agency in any of its four causes. This shows that the artefactual and the natural belong to two very different ontological categories--one has come into existence and continues to exist only because of human purpose and design while the other has come into existence and continues to exist independently of human purpose and design. In the terminology of this book, the artefactual embodies extrinsic/imposed teleology while the natural (at least in the form of individual living organisms) embodies intrinsic/immanent teleology. However, the more radical and powerful technologies of the late twentieth and the twenty-first centuries are capable of producing artefacts with an ever increasing degree of artefacticity. The threat then posed by modem *homo faber* is the systematic elimination of the natural, both at the empirical and the ontological levels, thereby generating a narcissistic civilization. In this context, it is, therefore, appropriate to remind ourselves that beyond Earth, nature, out there,exists as yet unhumanized. But there is a strong collective urge, not merely to study and understand that nature, but also ultimately to exploit it, and furthermore, even to transform parts of it into *ersatz* Earth, eventually making it fit for human habitation. That nature, as far as we know, has (had) no life on it. These aspirations raise a crucial problem which environmental philosophy ought to address itself, namely, whether abiotic nature on its own could be said to be morally considerable and the grounds for its moral considerability If no grounds could be found, then nature beyond Earth is ripe for total human control and manipulation subject to no moral but only technological and/or economic constraints. The shift to ontology in grounding moral considerability will, it is argued, free environmental philosophy from being Earthbound in the millennium about to dawn. In slightly greater detail, the aims of this book may be summarized as follows 1. To show how modem science and its technology, in controlling and manipulating (both biotic and abiotic) nature, transform it to become the~  artefactual. It also establishes that there are degrees of 'artefacticity  depending on the degree of control and precision with which science and  technology manipulate nature. An extant technology such as biotechnology  already threatens to imperil the existence of biotic natural kinds. Furthermore  technologies of the rising future, such as molecular nanotechnology, i~  synergistic combination with biotechnology and microcomputer technology,.  could intensify this tendency to eliminate natural kinds, both biotic and abiotic~  as well as their natural processes of evolution or change. 2. To consider the implications of the above for environmental philosophy, and in so doing, to point out the inadequacy of the extant accounts about intrinsic value in nature. By and large (with some honorable exceptions), these concentrate on arguing that the biotic has intrinsic value but assume that the~ undeniable contingent link between the abiotic and the biotic on Earth would~ take care of the abiotic itself. But the proposed terraformation of Mars (and even of Earth's moon only very recently) shows the urgent need to developa much more comprehensive environmental philosophy which is not merelyEarthbound but can include the abiotic in its own right. 3. The book also raises a central inadequacy of today's approaches in  environmental philosophy and movements. They concentrate predominantly  on the undesirable polluting aspects of extant technologies on human an~  nonhuman life, and advocate the introduction of more ecologically sensitive  technology (including this author's own earlier writing). If this were the most  important remit of environmental philosophy, then one would have to admit  that nature-replacing technologies (extant and in the rising future) could be  the ultimate 'green' technologies as their proponents are minded to maintain  in spite of their more guarded remarks about the environmental risks that ma'  be incurred in running such technologies.' Such technologies would also~  achieve what is seemingly impossible, as they promise to make possible ~  world of superabundance, not only for the few, but for all, without straining  and stressing the biosphere as a sink for industrial waste. But this book argue  that environmental philosophy should not merely concern itself with the  virtuous goal of avoiding pollution risks to life, be that human or nonhuman It should also be concerned with the threat that such radically powerful technologies could render nature, both biotic and abiotic, redundant. A totally artefactual world customized to human tastes could, in principle, be designed and manufactured. When one can create artefactual kinds (from what Aristotle calls 'first. matter,' or from today's analogue, what we call atoms and molecules of familiar elements like carbon, nitrogen, hydrogen, etc.) which in other relevant respects are indistinguishable from natural kinds (what Aristotle calls 'second matter'), natural kinds are in danger of being superseded. The ontological category of the artefactual would replace that of the natural. The upholding of the latter as a category worth preserving constitutes, for this book, the most fundamental task in environmental philosophy. Under this perspective, the worrying thing about modem technology in the long run may not be that it threatens life on Earth as we know it to be because of its polluting effects, but that it could ultimately humanize all of nature. Nature, as 'the Other,' would be eliminated. 4. In other words, the ontological category of the natural would have to be delineated and defended against that of the artefactual, and some account of 'intrinsic' value would have to be mounted which can encompass the former. The book argues for the need to maintain distinctions such as that between human/nonhuman, culture/nature, the artefactual/the natural. In other words, ontological dyadism is required, though not dualism, to combat the transformation of the natural to become the artefactual. The book also argues that the primary attribute of naturally-occurring entities is an ontological one, namely, that of independence as an ontological value. Such an attribute is to be distinguished from secondary attributes like intricacy, complexity, interests-bearing, sentience, rationality, etc., which are said to provide the grounds for assigning their bearers intrinsic value. In this sense, ontology precedes axiology.

# 2NC Framework Extensions

## Aliens

### Yes Aliens—Drake Equation

#### Aliens are real – Drake equation proves

**Sierra 16** [Leonor, press officer for science and engineering for Rochester University | “Are we alone in the universe? Revisiting the Drake equation,” Newspaper full date | https://exoplanets.nasa.gov/news/1350/are-we-alone-in-the-universe-revisiting-the-drake-equation/ // TTT]

Are humans unique and alone in the vast universe? This question--summed up in the famous Drake equation--has for a half-century been one of the most intractable and uncertain in science. But a new paper shows that the recent discoveries of exoplanets combined with a broader approach to the question makes it possible to assign a new empirically valid probability to whether any other advanced technological civilizations have ever existed. And it shows that unless the odds of advanced life evolving on a habitable planet are astonishingly low, then human kind is not the universe’s first technological, or advanced, civilization. The paper, published in Astrobiology, also shows for the first time just what “pessimism” or “optimism” mean when it comes to estimating the likelihood of advanced extraterrestrial life. “The question of whether advanced civilizations exist elsewhere in the universe has always been vexed with three large uncertainties in the Drake equation,” said Adam Frank, professor of physics and astronomy at the University of Rochester and co-author of the paper. “We’ve known for a long time approximately how many stars exist. We didn’t know how many of those stars had planets that could potentially harbor life, how often life might evolve and lead to intelligent beings, and how long any civilizations might last before becoming extinct.” “Of course, we have no idea how likely it is that an intelligent technological species will evolve on a given habitable planet,” says Frank. But using our method we can tell exactly how low that probability would have to be for us to be the ONLY civilization the Universe has produced. We call that the pessimism line. If the actual probability is greater than the pessimism line, then a technological species and civilization has likely happened before.” Using this approach, Frank and Sullivan calculate how unlikely advanced life must be if there has never been another example among the universe’s ten billion trillion stars, or even among our own Milky Way galaxy’s hundred billion. The result? By applying the new exoplanet data to the universe’s 2 x 10 to the 22nd power stars, Frank and Sullivan find that human civilization is likely to be unique in the cosmos only if the odds of a civilization developing on a habitable planet are less than about one in 10 billion trillion, or one part in 10 to the 22nd power. “One in 10 billion trillion is incredibly small,” says Frank. “To me, this implies that other intelligent, technology producing species very likely have evolved before us. Think of it this way. Before our result you’d be considered a pessimist if you imagined the probability of evolving a civilization on a habitable planet were, say, one in a trillion. But even that guess, one chance in a trillion, implies that what has happened here on Earth with humanity has in fact happened about a 10 billion other times over cosmic history!” For smaller volumes the numbers are less extreme. For example, another technological species likely has evolved on a habitable planet in our own Milky Way galaxy if the odds against it evolving on any one habitable planet are better than one chance in 60 billion. But if those numbers seem to give ammunition to the “optimists” about the existence of alien civilizations, Sullivan points out that the full Drake equation—which calculates the odds that other civilizations are around today—may give solace to the pessimists. “Thanks to NASA's Kepler satellite and other searches, we now know that roughly one-fifth of stars have planets in “habitable zones,” where temperatures could support life as we know it. So one of the three big uncertainties has now been constrained.”

### Yes Aliens—Anthropomorphizing

#### Earth like evolution is not universal - astrobiologist must look at evolution differently to find life

**Peters** **16** [Ted, Center for Theology and the Natural Sciences (CTNS), and the Graduate Theological Union (GTU) in Berkeley, California | “article title,” International Journal of Astrobiology Vol. 2016| 10.1017/S1473550416000318 //TTT]

Assumption #2: If extraterrestrials have evolved longer than we on Earth, then they will be more scientifically and technologically advanced. This implies that ETI will have attained post-biological intelligence before we make contact. Paul Davies gives voice to this assumption. My conclusion is a startling one. I think it very likely–in fact inevitable–that biological intelligence is only a transitory phenomenon, a fleeting phase in the evolution of intelligence in the universe. If we ever encounter extraterrestrial intelligence, I believe it is overwhelmingly likely to be post-biological in nature, a conclusion that has obvious and far reaching ramifications for SETI. (Davies, 2010, 160) The astrobiologist should scan the heavens looking for postbiological intelligence, recommends Davies. How should we think about these first two assumptions? What these two assumptions themselves presuppose is that evolution is progressive. If evolution is progressive and if an extraterrestrial civilization is more highly evolved, then it will advance to post-biological existence. But, we should pause to ask: is evolution progressive or not? The majority of today’s evolutionary biologists deny a built-in telos or direction to evolution. Davies recognizes this: ‘Unfortunately, the popular view of evolution as progress is at best a serious oversimplification, at worst just plain wrong’ (Davies, 2010, 68). So far, so good. Yet, in order to pursue the research agenda at hand, it appears that evolutionary progress must still be presupposed. Davies continues, ‘Now imagine a technology a million or more years in advance of ours: it might well appear miraculous to us’ (Davies, 2010, 140). To expect an extraterrestrial civilization to be ‘a million or more years in advance of ours’ is to presuppose that evolution advances over time--that is, evolution is progressive. The denial of evolutionary progress dominates today’s science, as Davies rightly points out. ‘Cosmic teleology must be rejected by science—I do not think there is a modern scientist left who still believes in it,’ contends Harvard evolutionary theorist Mayr (1991, 131). No built-in teleology leading our cosmos toward increased intelligence exists. When it comes to the evolutionary process within cosmic processes, Mayr’s argument relies on randomness without repeatability. The probability of a repeat of Earth’s evolutionary history on another planet is so low as to be virtually nil. The evolutionary process would produce a different outcome every time it gets going. Mayr puts it this way: ‘At each level of this pathway there were scores, if not hundreds, of branching points and separately evolving phyletic lines, with only a single one in each case forming the ancestral lineage that ultimately gave rise to Man’ (Mayr, 1985, 27). The statistics suggest strongly that Earth’s evolutionary history is rare if not unique, and we should not expect a repeat on an off-Earth site. Evolutionary biologist and former president of the AAAS, Francisco J. Ayala, similarly argues that the improbabilities of a repeat of our evolutionary progress are greater than the probabilities of ETI coming into existence. If we ‘replay life’s tape,’ he observes, the improbabilities get multiplied from year to year, from generation to generation, millions and millions of times. ‘The resulting improbabilities are of such magnitude that even if there would be millions of universes as large as the universe that we know, the products (improbability of humans × number of suitable planets) would not cancel out by many orders of magnitude. The improbabilities apply not only to Homo sapiens, but also to ‘intelligent organisms with which we could communicate’; by this phrase I mean organisms with a brain-like organ that would allow them to think and to communicate, and with senses somewhat like ours (seeing, hearing, touching, smelling, tasting), which would allow them to get information from the environment and to communicate intelligently with other organisms. We have to conclude that humans are alone in the immense universe and that we forever will be alone’ (Ayala, 2004, 77; see: Peters, 2011b, 2013b). In sum, the dominant position in evolutionary biology withdraws support for belief in the directionality or teleology needed for predictable progress. This statistical pessimism is not shared by evolutionary convergence theorists. Cambridge’s Simon Conway Morris, for example, contends that ‘convergence is ubiquitous: the number of possibilities in evolution in principle is more than astronomic, but the number that actually work is an infinitesimally smaller fraction’ (Morris, 2015, 21). In short, we can expect natural selection to lead to a species something like Homo sapiens. By implication, Morris narrows the number of paths evolution on an off-Earth site might travel. Yet, this does not translate into affirmation of a built-in entelechy or directionality to either cosmic or biological evolution. Morris is a friend to NASA and SETI, to be sure; but convergence theory falls short of promising that progressive evolution has produced an advanced civilization on an exoplanet. At this point, we should pause to refine the role of teleology in evolution. Even though it may be the case that pre-human evolution on Earth was not directed by a natural purpose, future evolution might be directed by human purpose. Certainly transhumanists contend that our post-human descendents will be the product of a purpose, which we Homo sapiens introduce. Even if our inherited evolutionary history is purposeless, out post-human future may very well be guided by intelligence, our own intelligence at first and the intelligence of our progeny at a later time. This observation adds some iron to the otherwise anaemic set of assumptions we are reviewing here. Even if natural evolution on Earth or off-Earth is undirected, the sheer scope of the universe and the sheer number of habital planets enlists happenstance into the service of contact optimism. It is not unreasonable for NASA and SETI researchers to rely upon arguments from large numbers. The cosmos is big, really big. With between 200 and 400 billion stars in the Milky Way, and with one-star-in-ten minimally with orbiting planets, the number of potential Earth-like planets is giant. Even if Mayr and Ayala are right about the statistical improbability of a repeat of terrestrial evolution, the chances of life beginning and evolving into intelligence still remain reasonable. The ‘argument from large numbers’ is perhaps the strongest motivation for those who search for beings beyond our planet,’ says SETI’s Seth Shostak (2011, 32). What this brief review suggests is clear: space researchers dare not rely on the discipline of evolutionary biology to support the assumptions necessary to search for extraterrestrial intelligence. If terrestrial biologists do not support the idea of progressive evolution, then astrobiologists must say to themselves: even though evolutionary biologists deny progress in evolution, we must still affirm that evolution has progressed toward intelligence somewhere beyond Earth. Despite the lack of evidence, astrobiology must proceed in the extraterrestrial search. I find no fault here, as long as the assumptions are transparent. Transparency implies that we treat the prospect of discovering an evolutionarily advanced extraterrestrial civilization as a hypothesis, not as an apodictic principle

### Yes Aliens—Convergent Evolution

#### It is highly probable other life-forms exist – Humanity threatens the evolution and civilizations of other life-forms.

#### Carbol 16 [Nathalie, has a Ph-D in Planetary Geology/Earth Sciences and is the recipient of NASA and other research awards. She is currently a Senior Research Scientist and Director of the Carl Sagan Center | “Alien Mindscapes–A Perspective on the Search for Extraterrestrial Intelligence” *ATROBIOLOGY* vol. 16 number 9 July 2016]

#### We are, indeed, the product of local astronomical and planetary factors. However, it would be unreasonable to suggest that similar evolutionary convergence never hap- pened with seemingly so many planets already discovered in the small spatiotemporal window of the Kepler telescope. Somewhere out there, based solely on numbers and proba- bilities, life may have evolved to bear some resemblance to us—if only fortuitously. It might interact with its planetary environment as we do, and evolve to produce biological forms with logical minds presenting similarities to us who may be willing to communicate in ways we can understand. However, the numbers are unlikely to be in the billions or even the millions in our galaxy. There may be just a handful scattered across vast distances and time. Taking life’s evolution on Earth as a guide, there is likely a universal probabilistic law of evolutionary convergence that is inversely proportional to life’s complexity; that is, the simpler life is, the greater chances are that similar life-forms will be abundant throughout the Universe. The more com- plex life is, the more rare convergence is likely to be. Complexity in life-forms is an integration of temporal evolution and probabilistic events. The longer life is around, the greater chance it has to adapt through regular cycles and, at any given time, to mutate through stochastic events. Looking back at ourselves, it took 70% of Earth’s time in the habitable zone and an incredible amount of ‘‘chance and necessity’’ (Monod, 1972) for one species in a complex tree of life to reach civilization and technology. The longer evolution takes, the greater the chances are that species will be wiped out and ecosystems profoundly trans- formed (e.g., Alvarez and Asaro, 1990), but with the rise of technology, some of the endogenic and exogenic risks to life can also be offset (e.g., asteroid monitoring, Yeomans, 2013). Conversely, human evolution shows that technology brings its own sets of risks: the natural dynamics are upset (Holocene extinction: Barnosky et al., 2011), the environment modified (Anthropocene: Grinspoon, 2012; Waters et al., 2016), and the terms of the coevolution of life and environment that led to the rise of the dominant species deeply altered. At this point in time, humans have generated an environ- mental disequilibrium that reverberates across the biosphere globally and endangers the conditions of planetary habit- ability that were favorable to its emergence. The notion of self-engineered destruction is certainly present in the last factor of the Drake equation. L reflects on how long a tech- nological civilization might be willing and able to commu- nicate. More than duration, this factor focuses on the odds of detecting a signal; that is, the longer an alien civilization broadcasts its presence, the more chances we have to detect it. Assuming the anthropocentric view of a technological civi- lization presenting similarities with ours, willingness to communicate may depend on a host of reasons (e.g., political, scientific, technological, philosophical, religious, and social). How long such a civilization would continue to communicate is a more complex issue. Duration can relate to a civilization’s ability to avoid self-inflicted—or other—destruction, scien- tific advances, and interest. It could also relate to a cosmologic perspective we have not yet reached, including a sense of place and responsibility as a member of a universal commu- nity (e.g., the Fermi paradox).

### Yes Aliens—Exoplanets

#### There are Many Earth-Like Planets in the Milky Way Galaxy, Our Position in The Galaxy Could Explain Why We Have Not Found Life Yet

**Carroll 17** [Michael, Fellow, International Association of Astronomical Artists | “Earths of Distant Suns: How we find them, Communicate with them, and Maybe Even Travel There” Springer International Publishing, 2017, pg. 8-9] SS

Advances in ground-based and space observatories have brought a new under- standing to the study of exoplanets, or planets that orbit other stars. Orbiting telescopes such as the Hubble Space Telescope and the Kepler planet-hunter add to our list of known worlds almost daily. It now appears that the majority of stars play host to planets of their own (Drake’s fp variable), and among these we may find hundreds, if not millions, of planets similar to Earth. Nevertheless, the ancients may have been right. It may be that our planet simply “lucked out,” arising in the right place at the right time. Earth may have won the cosmic lottery when it came to its star, its location in the Solar System, its mineralogical makeup, its status as a planet protected from massive impacts by Jupiter’s size and placement. The list goes on. Even our position in the galaxy is of interest. Over 95 % of the stars in the Milky Way may not be able to sup- port habitable planets because their galactic orbits among the stars carry them through the deadly spiral arms of our pinwheel galaxy. The trains of stars that lend structure to our island universe are packed closely together. Any star that circles the Milky Way within one of these glowing arms, and any star that drifts into and out of these arms, is subject to deadly radiation from closely packed surrounding stars. Not so Earth, whose orbit is fairly circular and in sync with the rotation of the rest of the galaxy, keeping it in the more rural space between the spiral arms. Our location may explain why, with so many Earth-similar planets out there, no one has “come to call” in an obvious and overt way. Drake’s radio approach assumes that interstellar travel is far more difficult than long-distance communication using radio waves. And while studies in the 1970s demonstrated reasonable propulsion strategies for getting to other star systems, weakening Drake’s primary argument, the search for extraterrestrial intelligence (SETI) is still healthy and alive using many of the world’s major radio antennas. Italian physicist Enrico Fermi worked at Los Alamos in the 1950s and designed the world’s first nuclear reactor. He reasoned that if the Sun is a fairly typical star, and there are billions of stars like it in our galaxy, many much older, odds are that there are many stars that host Earth-like planets. If our own world is fairly typical, some of those millions of Earth-like worlds should have birthed life, and among these myriad life forms, many must be intelligent. At least some of those should have developed interstellar travel, something Earth’s scientists are considering as you read these words.

### Yes Aliens—Silicon-Based

#### Metal Life, Specifically Silicon-Based, is Possible in Alien Environments Where Carbon-Based Life is Unsustainable

**Carroll 17** [Michael, Fellow, International Association of Astronomical Artists | “Earths of Distant Suns: How we find them, Communicate with them, and Maybe Even Travel There” Springer International Publishing, 2017, pg. 114-115] SS

Biologists are hard pressed to find any life-based chemical alternative for carbon. **The most often cited material**, for complexity and versatility in a bio- logical system, **is silicon**. Silicon has some properties similar to carbon, and it’s a close relative on the Periodic Table of Elements. Like carbon, silicon orga- nizes into chains of molecules large enough to carry out biological processes. But it has its limitations. Silicon’s chemistry is not as flexible as carbon’s; it cannot bond with as many types of atoms. The way in which silicon forms bonds limits the kinds of shapes that its structures might form. Its molecules are large and bulky compared to carbon, so they do not easily bond in groups common to organic chemistry. Still, it is found within Earth’s biological processes. Many of our carbon-based creatures incorporate silicon into skeletal or protective structures. Some biologists assert that the arrangement of silicates in clays performed a crucial role in organizing carbon compounds in the formation of early life on Earth. Additionally, **silicon compounds behave differently under conditions alien to those on Earth. At temperatures similar to those found on Saturn’s moon Titan**, for example, silicon polysilanols, related to sugars, are soluble in liquid nitrogen. More exotic materials have been discussed in the search for alien life. Some metals combine in ways similar to carbon. Titanium, tungsten, aluminum, magnesium and iron can all form microscopic tube-like structures, spheres and crystalline forms of the type found in diatoms. **Metallic life might arise under conditions lethal to carbon-based forms.** Even arsenic, deadly to carbon-based life, is incorporated into the biochemical functions of some organisms such as algae and bacteria.

### Yes Aliens—Microbial

#### We Have Not Made Contact with Other Aliens Because They Are Not At the Technological Level Humanity Has Reached.

**Carroll 17** [Michael, Fellow, International Association of Astronomical Artists | “Earths of Distant Suns: How we find them, Communicate with them, and Maybe Even Travel There” Springer International Publishing, 2017, pg. 146-147] SS

One answer to the question “With so many Earthlike worlds, where are all the alien civilizations?” may be that Earth is a special planet, so rare that few, if any, other sentient beings have risen to the point where they can communicate with the outside universe. Although this may seem like a return to the ancient concept of Earth as a special creation, there are other reasons to hold to this view. For example, in their book Rare Earth: Why Complex Life is Uncommon in the Universe, Peter Ward and Don Brownlee point out the things that make our planet unique: a large moon, plate tectonics, position in the habitable zone of a stable star, and so on. eir conclusion: while **the universe may teem with microbial life**, the complex set of circumstances leading to higher life forms on Earth are so unlikely that the generation and survival of **advanced civilizations** is rare.

#### Microorganisms have been discovered to thrive in cold environments such as Mars, which proves that there is a high change of life in the universe other than humanity

**Cavicchiloi 02** (Ricardo Cavicchiloi, at the School of Biotechnology and Biomolecular Sciences| “Extremophiles and the Search for Extraterrestrial Life,” published in 2002, page 284.)ELJC

While there are arguments that the last common ancestor to life on Earth was thermophilic and that extant hyperthermophiles retain properties of the last common ancestor (Stetter, 1996), it is also argued that **life may have originated in cold environments** (Levy and Miller, 1998; Levy et al., 2000). In addition to a potential role in the origin of life, **cold-adapted microorganisms may provide insight into the search for extraterrestrial life on Mars and moons such as Europa** (Blamont, 2000). The surface of Mars is cold, and life forms surviving, or multiplying in or near the surface, would need to be cold-adapted. Recently, the Labelled Release experiments performed aboard the Viking spacecraft in 1976 have been reassessed to include the possibility that they may have demonstrated biological activity in the soil samples (Paine, 2001). The potential of the soil to support life was further demonstrated in a recent preliminary report (http://www.spaceflightnow. com/news/n0105/27marsorg), where methanogens were grown in a liquid medium formed by dissolving Mars soil simulant in water. **An even more provoking possibility for discovering extant extraterrestrial life is the possibility of subsurface water existing on Europa** (Carr et al., 1998; Hiscox, 1999; Chyba and Phillips, 2001). Subsurface lakes, even if they receive no light energy, may be able to support lithoautotrophic biological processes (McCollom, 1999). It is clear from stud-ies of polar, alpine, and deep ocean ecosystems that **microbial life proliferates in cold environments** (Cavicchioli and Thomas, 2000; Cavicchioli et al., 2000a), and natural microbial metabolism has been measured at temperatures of at least 217°C (Carpenter et al., 2000). In the Vestfold Hills region of Antarctica, a unique ecosystem is preserved that contains numerous lakes ranging in salinity from freshwater to up to eight times that of seawater, in temperature from up to 20°C to below 210°C, and in oxygen content from aerobic to strictly anaerobic (McMeekin et al., 1993). The lakes also vary in nutrient and solute level from highly ionic to extremely oligotrophic. **A variety of microorganisms have been isolated and characterized** (McMeekin et al., 1993; Franzmann, 1996; Franzmann et al., 1997b), and 16S rRNA community analyses have been performed (Bowman et al., 2000a,b).

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### AT: Fermi—Undetectable

#### Extraterrestrial (ET) Civilizations may be undetectable to us

#### Carbol 16 [Nathalie, has a Ph-D in Planetary Geology/Earth Sciences and is the recipient of NASA and other research awards. She is currently a Senior Research Scientist and Director of the Carl Sagan Center | “Alien Mindscapes–A Perspective on the Search for Extraterrestrial Intelligence” *ATROBIOLOGY* vol. 16 number 9 July 2016]

In searching for life in the Solar System and on exoplanets, astrobiology is using an ap- proach based on the concept of ‘‘universal heritage’’ but more narrowly focused on life as we know it (Seckbach, 2006). For instance, water and carbon are driving search strategies; the formation, preservation potential, and detection methods of biosignatures that could be similar to Earth’s are being inves- tigated for the exploration of extinct and extant life on Mars, Europa, and exoplanets. In situ biosignatures are physico- chemical, geological, morphological, and mineralogical in nature (Summons et al., 2011). Remotely detectable bio- signatures include gases in planetary atmospheres (Pilcher, 2004; Segura et al., 2005; Domagal-Goldman et al., 2011; O’Malley-James et al., 2014; Seager, 2014; Krissansen-Totton et al., 2016). Given an environmental analogy, it is conceivable that alien biospheres presenting similarities with ours may have generated and left traces we could recognize. However, none of these signatures are convincingly unambiguous evidence of life’s presence as both biological and abiotic processes alike can produce them (Schwieterman et al., 2016). Therefore, it might be difficult to use them as universal markers of life as we know it, let alone for life we do not know. Astrobiology and Earth sciences show that the systemic disequilibrium generated by the presence of life could be a promising candidate as a universal marker of life (Schwartzman, 2004; Branscomb and Russell, 2013, Russell et al., 2013). Biological activity, from microorganisms to humans, utilizes and modifies its environment, producing traces (physical, chemical, isotopic) not otherwise found in nature in the absence of life. As long as we search for biology with a physicochemical support, such disequilibrium will be generated and measurable across species and planets—although we will have to start by learning how to untangle it from the planetary background. The argument can also be made that **some technological civiliza- tions, or civilizations beyond technology, may be so advanced that they have returned to equilibrium and generate living conditions that do not betray their physical presence any- more—or they purposely hide their presence** (Kipping and Teachey, 2016). In such instances, they will remain stealth to this search method. Planetary biosignatures reflecting the presence of a biosphere will still be visible, but traces of ad- vanced beings on that planet may no longer be detectable.

### AT: Fermi—Barriers

#### Just Because We Haven’t Found Aliens Yet Doesn’t Mean They Don’t Exist – Multiple Natural Barriers Could be Active

**Carroll 17** [Michael, Fellow, International Association of Astronomical Artists | “Earths of Distant Suns: How we find them, Communicate with them, and Maybe Even Travel There” Springer International Publishing, 2017, pg. 149] SS

Advanced alien races may exist out there, **but they may be spread too far apart to do anything about it.** If civilizations are separated by hundreds or thousands of light-years, conventional two-way communication would be impossible. Even if one discovers the other, either or both alien societies might die out before any kind of exchange could take place. Our SETI searches might be able to reveal their existence, but the distances separating us would preclude standard radio communication or extended travel. One civilization might decide to share its knowledge blindly, broadcasting meaningful information into the cosmos, hoping that those who receive it will benefit (see section “Reaching Out” in this chapter). Some speculate that the galaxy is structured to keep sentient civilizations from contact by simply keeping them at a cosmic arm’s length. In this scenario, the speed of light acts as a natural barrier **between civilizations that might otherwise contaminate or destroy each other.**

### AT: Fermi—Tech Barriers

#### It is Possible that Other Forms of Intelligent Life are Either Not Advanced Enough to Contact Us, or Choose Not To

**Carroll 17** [Michael, Fellow, International Association of Astronomical Artists | “Earths of Distant Suns: How we find them, Communicate with them, and Maybe Even Travel There” Springer International Publishing, 2017, pg. 146-147] SS

The human race has not always been searching for life across the skies. Early peoples speculated upon concepts like the plurality of worlds or life out among the stars, but their main concerns centered upon shelter, the next meal or the next land to explore or conquer. The skies were, from any practical standpoint, off-limits. So it may be with other sentient beings throughout space. Intelligent life out there may not have progressed to a point **where their technology enables contact**. Others may be advanced enough to contact us, **but may choose not to out of a simple lack of interest.** **Just because an advanced civilization knows of the existence of another does not guarantee that they will be inclined to try to get in touch.** Critics of this perspective point out that it contradicts the nature of the only sentient race we know: us!

#### Other Sentient Civilizations Exist – But Humanity is Not Technologically Advanced Enough to Communicate With Them

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The characters in the Star Trek universe have it made. Rather than a radio message taking 773 years to get from the Memory Alpha base at Rigel back to Star Fleet HQ on Earth, they have invented subspace radio, enabling them to chat across that distance instantly (and not keep their audiences waiting). By warping space, they can travel vast expanses of the cosmos in the blink of an eye. Subspace radio and warp speed are fine tools in an alternate Hollywood universe. **Sadly, we have no working knowledge of these kinds of handy technologies.** But what if a civilization has, in fact, learned how to communicate and travel across great distances? **The technology used would be so alien to us that we might not even recognize it.** There may be a host of sentient civilizations on hundreds of Earthlike worlds out there, **but they are living in the fast lane technologically,** unrecognized by us and no longer communicating or traveling by the inefficient means that we use. Until we figure out subspace radio, we will have nothing to talk about. that, at least, **is one explanation for the Fermi paradox.**

### AT: Fermi—No presence

#### The lack of presence does not indicate the lack of existence. Colonization is an unstable process, and ET civilizations that attempt it destroy themselves, however, just because they don’t expand doesn’t mean they don’t exist.

**Haqq-Misra 09** Haqq-Misra, Jacob. Department of Meteorology & Astrobiology Research Center. Baum, Seth. Department of Geography & Rock Ethics Institute. “The sustainability solution to the Fermi Paradox” *The Pennsylvania State University*. June 2009. TR.

The Fermi Paradox posits that if intelligent life were common in the Universe, then in all likelihood there would exist some extraterrestrial intelligence (ETI) capable of interstellar travel. This ETI would then explore and colonize the galaxy, just as humans have explored and colonized Earth and have begun exploring the Solar System. The magnitude of time required for a technological ETI to spread throughout the galaxy is on the order of 1-100 Myr [4, 15], significantly less than the ~10 Gyr age of the galactic thin disk, so the question arises: where are they? If they exist, advanced ETI could have colonized the galaxy several times over by now, so the lack of evidence for their presence implies their non-existence. In syllogistic form, the Fermi Paradox can be expressed following [16] where A = ETI exist, B = ETI are here, and C = ETI are observed: S1: If A, then (probably B) If (probably B), then (probably C) 5 Not-(probably C) Therefore not-(probably B) Therefore not-A This inference can be criticized because it is only correct if not-(probably C) is true. If (probably C) is an indeterminate statement, though, then the so-called paradox is logically invalid [16]. For example, ETI exploration of the galaxy could take the form of messenger probes that may have already reached the Solar System, residing in the asteroid belt, Lagrange points, or other stable orbits [17, 18, 19]. Such probes with a limiting size of only ~1-10 meters may have so far eluded observation. If ETI exploration takes such a remote form, then artifacts in the Solar System may yet be observed, but ETI colonization of the Solar System, so far as we know, has not occurred. Technological ETI are typically assumed to explore and colonize the galaxy just as humans have explored and colonized Earth. This expansion implicitly assumes an exponential growth pattern, leading to the colonization of the entire galaxy: Assume that we eventually send expeditions to each of the 100 nearest stars. (These are all within 20 light-years of the Sun.) Each of these colonies has the potential of eventually sending out their own expeditions, and their colonies in turn can colonize, and so forth. If there were no pause between trips, the frontier of space exploration would then lie on the surface of a sphere whose radius was increasing at a speed of 0.10 c. At that rate, most of our Galaxy would be traversed within 650 000 years. [1:133] The assumption of exponential growth is in turn based on observations of the expansion of human civilization on Earth: If, the argument goes, there were intelligent beings elsewhere in our Galaxy, then they would eventually have achieved space travel, and would have explored and colonized the Galaxy, as we have explored and colonized the Earth. [1:128] **However, as discussed above, exponential human population growth and colonization of the planet may not be a sustainable development pattern.** This fact calls into question a core justification for the assumption of exponential expansion of ETI civilizations. If ETI civilizations share similar development issues as human civilization, as is assumed in the Fermi Paradox, then ETI civilizations would not be able to sustain exponential expansion [20]. **Likewise, if exponential expansion could not be sustained, then ETI civilizations would either have switched 6 to a slower-growth development pattern or collapsed.** Collectively, these possibilities suggest the “Sustainability Solution” to the Fermi Paradox: **The absence of ETI observation can be explained by the possibility that exponential growth is not a sustainable development pattern for intelligent civilizations.** The Sustainability Solution implies that the existence of slower-growth ETI civilizations cannot be ruled out by the lack of observed ETI because these civilizations would grow too slowly to have reached Earth by now. These civilizations may have always followed a slowergrowth development pattern, or they may have started with an exponential or other faster-growth growth pattern only to transition towards slower-growth as faster-growth became unsustainable [21]. **Both of these development patterns can be observed in human populations [5], suggesting that both could be possible among ETI civilizations**. Furthermore, just as slower-growth human populations (including the global human civilization if it transitions successfully towards sustainable development) are highly intelligent and technologically capable, slower-growth ETI may still be as well. Indeed, slower-growth ETI may even possess space colonization capacity, just without having expanded so rapidly as to colonize the entire galaxy. The Sustainability Solution also implies that ETI civilizations may have previously followed an exponential or other faster-growth development pattern but eventually collapsed. This collapse could occur at the planetary scale, as is suspected may happen to human civilization [10], at the solar system scale, or even at the galactic scale. If the entire galaxy were once colonized by an ETI civilization, then the colonizing civilization must have collapsed in such a way that no evidence of the colonization has been detected. Evidence of such a graveyard civilization may still exist and may eventually be detectable by humans using search efforts different from those already attempted. Furthermore, just as human populations sometimes persist in diminished numbers after undergoing collapse, a collapsed ETI civilization may still exist at a smaller scale. Having considered the sustainability of ETI civilizations, we can now revisit the Fermi Paradox. If exponential or other faster-growth is unsustainable at the sub-galactic scale, then the supposition by Hart [1] and others that advanced ETI civilization could easily colonize the galaxy is false. Alternatively, this supposition could be true if ETI civilizations that colonize the galaxy eventually collapse, but we are unlikely to observe a galactic colony because fastergrowth civilizations collapse quickly relative to astronomical timescales. In principle a civilization could colonize the galaxy through faster-growth and then avoid collapse by transitioning towards sustainable slower-growth; however, the absence of observation of galactic 7 civilization suggests that this has not occurred. In either case, the Fermi Paradox cannot rule out the possibility that slower-growth or post-collapse ETI civilizations currently exist. The Fermi Paradox syllogism (S1) can be reconstructed, then, with A’ = faster-growth ETI civilization exists, B’ = faster-growth ETI civilization is here, and C’ = faster-growth ETI civilization is observed. S2: If A’, then B’ If B’, then C’ Not- C’ Therefore not-B’ Therefore not-A’ This revised inference is still not logically valid because it is impossible to prove that fastergrowth ETI civilization has not been observed [16]. After all, there are many explanations for the absence of ETI civilization [2]. A popular class of explanations for this absence of observation involves speculation into the behavior or sociology of ETI. For example, a solution known as the zoo hypothesis predicts that ETI civilization has set aside Earth as an undisturbed wildlife preserve [22], stealthily observing Earth (perhaps using a virtual planetarium [23]) and waiting for its inhabitants to cross a technological threshold before making themselves known [24]. A recent hypothesis involving common economic assumptions [25] proposed a solution derived from resource issues, concluding that ETI, like humans, will necessarily lack the patience required to conserve resources for space colonization. Testing such hypotheses may require future technology; for example, the zoo hypothesis might not be falsified (or vindicated) until humans begin interstellar exploration. Nevertheless, most solutions of this class are falsifiable and thus legitimate avenues of scientific inquiry [26]. Other possible explanations invoke the non-linearity of migration. If colonization through the galaxy proceeds as a percolation problem, then expansion should halt after a finite number of colonies [27], resulting in sub-galactic scale clusters around the parent star. Under this scenario, colonized regions of the galaxy would remain isolated from each other, even in a galaxy teeming with intelligent life. Alternatively, a relatively young civilization that engages in economic interstellar travel may find its rapid expansion self-limited by the speed of light [28]. Civilizations that pursue aggressive growth may quickly collapse because growth outpaces migration, while ETI that grow with the limits of the carrying capacity may expand too slow to 8 have colonized the galaxy yet. The persistence hypothesis [29] suggests ETI civilization remains undetected because the solar vicinity is persistently unvisited by ETI civilization—just as regions of Earth such as the Amazon Basin, Siberia, and Indonesian islands are largely untouched by the global human civilization. Persistent sites may remain persistent for a long time, explaining the lack of ETI civilization in the neighborhood of the Sun. Many factors including these may limit the expansion of ETI civilization at the sub-galactic scale. If any ETI civilization overcomes such barriers, then the Sustainability Solution predicts an upper limit to faster-growth galactic expansion. The classic Fermi Paradox can now be rephrased to account for its implicit assumptions. If faster-growth development is unsustainable, then a faster-growth ETI civilization could expand throughout the galaxy, only to collapse shortly thereafter. As a result, we would likely not observe such a short-lived ETI civilization**. This leads us to the inference that exponentially expansive ETI civilization does not exist—contrary to the classic conclusion that ETI do not exist at all.** However, the non-existence of exponentially expansive ETI civilization does not preclude the existence of ETI. **Just as there are human populations maintaining sustainable, slower-growth development, it is entirely possible that ETI exist with slower-growth development patterns**. Likewise, just as human populations sometimes persist in diminished numbers after a collapse, it is possible that there exist post-collapse ETI.

## Framing/Risk ASsesement

### AT: Existential Risk First

#### You have an ethical obligation to prioritize the astronomical amounts of future suffering humans will inflict on the universe over mere existential risks. Their probability arguments rest on a disjunctive fallacy that results in vastly underestimating the probability of astronomical suffering risks.

**Althaus and Gloor 2016** [David Althaus and Lukas Gloor, September 2016, "Reducing Risks of Astronomical Suffering: A Neglected Priority – Foundational Research Institute," Foundational Research Institute, https://foundational-research.org/reducing-risks-of-astronomical-suffering-a-neglected-priority/]

Among actors and organizations concerned with shaping the “far future,” the discourse has so far been centered around the concept of existential risks. “Existential risk” (or “x-risk”) was defined by Bostrom (2002) as “[...] an adverse outcome [which] would either annihilate Earth-originating intelligent life or permanently and drastically curtail its potential.” This definition is unfortunate in that it lumps together events that lead to vast amounts of suffering and events that lead to the extinction (or failure to reach potential) of humanity. However, many value systems would agree that extinction is not the worst possible outcome, and that avoiding large quantities of suffering is of utmost moral importance. We should differentiate between existential risks (i.e., risks of “mere” extinction or failed potential) and risks of astronomical suffering 1 (“suffering risks” or “s-risks”). S-risks are events that would bring about suffering on an astronomical scale, vastly exceeding all suffering that has existed on Earth so far. The above distinctions are all the more important because the term “existential risk” has often been used interchangeably with “risks of extinction”, omitting any reference to the future’s quality. 2 Finally, some futures may contain both vast amounts of happiness and vast amounts of suffering, which constitutes an s-risk but not necessarily a (severe) x-risk. For instance, an event leading to a future containing 1035 happy individuals and 1025 unhappy ones, would constitute an s-risk, but not an “x-risk". 3 The Case for Suffering-Focused Ethics (previously in this sequence) outlined several reasons for considering suffering reduction one’s primary moral priority. From this perspective in particular, s-risks should be addressed before addressing extinction risks. Reducing extinction risks makes it more likely that there will be a future, possibly one involving space colonization and the astronomical stakes that come with it. But it often does not affect the quality of the future, i.e. how much suffering or happiness it will likely contain. 4 A future with space colonization might contain vastly more sentient minds than have existed so far. If something goes wrong, or even if things do not go “right enough”, this would multiply the total amount of suffering (in our part of the universe) by a huge factor. Reducing extinction risks essentially comes down to buying lottery tickets over the distribution of possible futures: A tiny portion of the very best futures will be worthy of the term “utopia” (almost) regardless of one’s moral outlook, the better futures will contain vast amounts of happiness but possibly also some serious suffering (somewhat analogous to the situation in Omelas); and the bad or very bad futures will contain suffering at unprecedented scales. The more one cares about reducing suffering in comparison to creating happiness, the less attractive such a lottery becomes. In other words, efforts to reduce extinction risks are only positive according to one’s values if one's expected ratio of future happiness vs. suffering is greater than one’s normative exchange rate. 5 Instead of spending all our resources on buying as many lottery tickets as possible, we should try to ensure that as few tickets as possible contain (astronomically) unpleasant surprises. The following sections will present reasons why s-risks are both neglected and tractable, and why actors concerned about the far future should consider investing (more) resources into addressing them. II. The future contains less happiness and more suffering than is commonly assumed Within certain future-oriented movements, notably Effective Altruism and transhumanism, there is a tendency for people to expect the (far) future to contain more happiness than suffering. Many of these people, in turn, expect future happiness to outweigh future suffering by many orders of magnitude. 6 Arguments put forward for this position include that the vast majority of humans – maybe excluding a small percentage of sadists – value increasing happiness and decreasing suffering, and that technological progress so far has led to many welfare improvements. While it seems correct to assume that the ratio of expected future happiness to suffering is greater than one, 7 the case is not open-and-shut. Good values alone are not sufficient for ensuring good outcomes, and at least insofar as the suffering humans inflict on nonhuman animals is concerned (e.g. with factory farming), technology’s track record is actually negative rather than positive. Moreover, it seems that a lot of people overestimate how good the future will be due to psychological factors, ignorance about some of the potential causes of astronomical future suffering, and insufficient concern for model uncertainty and unknown unknowns. II.I Psychological factors It is human nature to (subconsciously) flinch away from contemplating horrific realities and possibilities; the world almost certainly contains more misery than most want to admit or can imagine. Our tendency to underestimate the expected amount of future (as compared to present-day) suffering might be even more pronounced. While it would be unfair to apply this characterization to all people who display great optimism towards the future, these considerations certainly play a large role in the epistemic processes of some future “optimists.” One contributing factor is optimism bias (e.g. Sharot, Riccardi, Raio, & Phelps, 2007), which refers to the tendency to overestimate the likelihood of positive future events while underestimating the probability and severity of negative events – even in the absence of evidence to support such expectations. Another, related factor is wishful thinking, where people are prone to judging scenarios which are in line with their desires as being more probable than what is epistemically justified, while assigning lower credence to scenarios they dislike. Striving to avert future dystopias inevitably requires one to contemplate vast amounts of suffering on a regular basis, which is often demotivating and may result in depression. By contrast, while the prospect of an apocalypse may also be depressing, working towards a utopian future is more inspiring, and could therefore (subconsciously) bias people towards paying less attention to s-risks. Similarly, working towards the reduction of extinction risks or the creation of a posthuman utopia is also favored by many people’s instinctual, self-oriented desires, notably one’s own survival and that of family members or other loved ones. As it is easier to motivate oneself (and others) towards a project that appeals to altruistic as well as more self-oriented desires, efforts to reduce risks of astronomical suffering – risks that lie in the distant future and often involve the suffering of unusual or small minds less likely to evoke empathy – will be comparatively neglected. This does not mean that the above motivations are misguided or unimportant; rather, it means that if one also, upon reflection, cares a great deal about reducing suffering, then it might take deliberate effort to give this concern due justice. Lastly, psychological inhibitions against contemplating s-risks and unawareness of such considerations are interrelated and tend to reinforce each other. II.II Unawareness of possible sources of astronomical suffering In discussions about the risks from smarter-than-human artificial intelligence, it is often assumed that the sole reason to consider AI safety an important focus area is because it decides between utopia or human extinction. The possibility that uncontrolled or “nearly-controlled” AI might instantiate suffering in astronomical quantities is, however, rarely brought up. Uncontrolled AI as a powerful but morally indifferent optimization process might transform galactic resources into highly optimized structures, some of which might very well include suffering. The structures a superintelligent AI would build in the pursuit of its goals may for instance include a fleet of “worker bots,” factories, supercomputers to simulate ancestral Earths for scientific purposes, and space colonization machinery, to name a few. In the absence of explicit concern for suffering reflected in the goals of such an AI, it would be willing to instantiate suffering minds (or “subroutines”) for even the slightest benefit to its objectives. This is especially worrying because the stakes involved could literally turn out to be astronomical: Space colonization is an attractive subgoal for almost any powerful optimization process, as it leads to control over the largest amount of resources. Even if only a small portion of these resources are used for purposes that involve suffering, the resulting disvalue would tragically be enormous. 8 Other ways in which the future could contain vast amounts of suffering – including as a result of "nearly-aligned" AI or human-controlled AI futures where values are bad – are described here and here. II.III Astronomical suffering as a likely outcome One might argue that the scenarios just mentioned tend to be speculative, maybe extremely speculative, and should thus be discounted or even ignored altogether. However, the claim that creating extremely powerful agents with alien values and no compassion might lead to vast amounts of suffering – through some way or another – is a disjunctive prediction. Only one possible action by which the AI could increase its total utility, yet involving vast quantities of suffering, would be required for the AI to pursue this path without reservation. Worries of this sort are weakly supported by the universe’s historical track record, where the “morally indifferent optimization process” of Darwinian evolution instantiated vast amounts of misery in the form of wild-animal suffering. Even if the probability of any one specific scenario involving astronomical amounts of suffering (like the ones above, or other scenarios not yet mentioned or thought of) is small, the probability that at least one scenario will occur may be fairly high. In this context, we should beware the disjunction fallacy (Bar-Hillel & Neter, 1993), according to which most people not only underestimate the probability of disjunctions of events, but they actually judge the disjunction as less likely than a single event comprising it. 9 II.IV Unknown unknowns and model uncertainty Lastly, taking seriously the possibility of unknown unknowns, black swans or model uncertainty generally seems incompatible with predicting a very large (say, 1,000,000 to 1) ratio of expected future happiness to suffering. Factoring in such model uncertainty brings matters back towards a more symmetrical prior. Predicting an extreme ratio, on the other hand, would require enormous amounts of evidence, and is thus suggestive of overconfidence or wishful thinking – especially in the light of historical data on the distribution of suffering and happiness. In conclusion, there are several reasons why the probability of risks of astronomical suffering – although difficult to assess – is significant; we should be careful to not underestimate them.

### Magnitude>Probability

#### Multiplying *probability* and *magnitude* is key to ethical risk assessment—the most serious scenarios for existential crisis are the unknown and unthinkable.

**Rees 08**— Sir Martin J. Rees, Professor of Cosmology and Astrophysics and Master of Trinity College at the University of Cambridge, Astronomer Royal and Visiting Professor at Imperial College London and Leicester University, Director of the Institute of Astronomy, Research Professor at Cambridge, 2008 (“Foreward,” Global Catastrophic Risks, Edited by Nick Bostrom and Milan M. Cirkovic, Published by Oxford University Press, ISBN 9780198570509, p. x-xi)

These concerns are not remotely futuristic - we will surely confront them within next 10-20 years. But what of the later decades of this century? It is hard to predict because some technologies could develop with runaway speed. Moreover, human character and physique themselves will soon be malleable, to an extent that is qualitatively new in our history. New drugs (and perhaps even implants into our brains) could change human character; the cyberworld has potential that is both exhilarating and frightening. We cannot confidently guess lifestyles, attitudes, social structures or population sizes a century hence. Indeed, it is not even clear how much longer our descendants would remain distinctively 'human'. Darwin himself noted that 'not one living species will transmit its unaltered likeness to a distant futurity'. Our own species will surely change and diversify faster than any predecessor - via human-induced modifications (whether intelligently controlled or unintended) not by natural selection alone. The post-human era may be only centuries away. And what about Artificial Intelligence? Super-intelligent machine could be the last invention that humans need ever make. We should keep our minds open, or at least ajar, to concepts that seem on the fringe of science fiction. These thoughts might seem irrelevant to practical policy - something for speculative academics to discuss in our spare moments. I used to think this. But humans are now, individually and collectively, so greatly empowered by rapidly changing technology that we can—by design or as unintended consequences—engender irreversible global changes. It is surely irresponsible not to ponder what this could mean; and it is real political progress that the challenges stemming from new technologies are higher on the international agenda and that planners seriously address what might happen more than a century hence. We cannot reap the benefits of science without accepting some risks - that has always been the case. Every new technology is risky in its pioneering stages. But there is now an important difference from the past. Most of the risks encountered in developing 'old' technology were localized: when, in the early days of steam, a boiler exploded, it was horrible, but there was an 'upper bound' to just how horrible. In our evermoreinterconnected world, however, there are new risks whose consequences could be global. **Even a tiny probability of global catastrophe is deeply disquieting.** We cannot eliminate all threats to our civilization (even to the survival of our entire species). But it is surely incumbent on us to think the unthinkable and study how to apply twenty-first centurytechnology optimally, while minimizing the 'downsides'. If we apply to catastrophic risks the same prudent analysis that leads us to take everyday safety precautions, and sometimes to buy insurance—**multiplying probability by consequences**—we had ¶ surely conclude that some of the scenarios discussed in this book deserve more attention that they have received. My background as a cosmologist, incidentally, offers an extra perspective -an extra motive for concern - with which I will briefly conclude. The stupendous time spans of the evolutionary past are now part of common culture - except among some creationists and fundamentalists. But most educated people, even if they are fully aware that our emergence took billions of years, somehow think we humans are the culmination of the evolutionary tree. That is not so. Our Sun is less than halfway through its life. It is slowly brightening, but Earth will remain habitable for another billion years. However, even in that cosmic time perspective—extending far into the future as well as into the past - the twenty-first century may be a defining moment. It is the first in our planet's history where one species—ours—has Earth's future in its hands and could jeopardise not only itself but also lifes immense potential. The decisions that we make, individually and collectively, will determine whether the outcomes of twenty-first century sciences are benign or devastating. We need to contend not only with threats to our environment but also with an entirely novel category of risks—with seemingly low probability, but with such colossal consequences that they merit far more attention than they have hitherto had. That is why we should welcome this fascinating and provocative book. The editors have brought together a distinguished set of authors with formidably wide-ranging expertise. The issues and arguments presented here should attract a wide readership - and deserve special attention from scientists, policy-makers and ethicists

### Intrinsic Value—Microbes

#### The Human Race does not assign intrinsic value to other non terrestrial forms of life

**Cockell 16** [Charles, a professor of astrobiology and previous professor of geomicrobiology, first chair of astrobiology in Britain, PhD in Biophysics|” The Ethics of Space colonization,” Springer Publishing, page 170-172, MS]

In previous papers, I have attempted to defend a view of the microbial world that includes an intrinsic value argument (Cockell 2004, 2005a, b, c, 2008, 2010), namely that microbes should be afforded a moral significance beyond purely their instrumental value to humans, and I have discussed the implications of such an ethic for extraterrestrial life. The argument that microbes have intrinsic value could be based on their possession of rudimentary interests. We know what is good or bad for a microbe based on physiological attributes, although of course a microbe does not know it is being treated badly. A pertinent question is then to ask what makes microbes different from machines. We know what is good or bad for a tractor, but we do not claim that it has intrinsic value. What separates a microbe from a machine is that microbes have latent tendencies and evolutionary capacities that might demand from us an appreciation of a value in them that transcends their use as resources. If a com-munity of microbes on a planet has the potential to diversify or even to eventually develop into a biosphere containing complex life, these potentialities are frustrated by the destruction of those organisms. Based on their possession of rudimentary interests, we might argue that individual microscopic organisms have some claim to moral consideration and relevance. However, we cannot live our lives without destroying microbes when we clean our houses and generally carry on our everyday activities. Therefore, such an ethical view is often, but not always, impractical. There are often situations when we can preserve microorganisms. We do not have to wantonly destroy microbes and the communities in which they reside, in a lake for instance, to build a new housing estate. If we think that microbial communities have intrinsic value we could preserve part of the lake or seek to build around it. However, considering intrinsic value for individual microbes is clearly practically difficult in most cases. Persson (2012, 980) said of this view that “Cockell tries to handle this problem by saying that his ethics can therefore just be a principle that cannot be implemented” and goes on to observe that ethics must be prescriptive and that if an ethical framework cannot be implemented, then it cannot be an ethic at all. However, previously I have posited (Cockell 2005a, 385) that “many individual microbes can be protected when it is possible” and go on to provide an example of a well-ordered microbial community growing around the edge of a lake which we might walk around rather than through, thus disrupting or destroying it. This view is similar to Attfield’s views on trees (Attfield 1981). He defended the intrinsic value of trees but recognized that there are situations when we need to cut them down. He stated: “**There are, of course, in practice, ample grounds for disregarding the interests of trees at most junctures. But this is not to make trees of no ethical relevance in themselves”** (ibid., 52). Similarly, we may be forced to disregard the interests of microbes in many situations (but not all), but this is not to make individual microbes of no ethical relevance in themselves. The inability to implement an ethic at all junctures does not render it “no ethic at all.” However, can we construct an ethic that manifests itself on larger scales—the scales of microbial ecosystems? I have previously argued for a type of ‘biorespect’ for microbial life. A biorespect encompasses a respect for individual microbes through to communities. On what basis is such a ‘respect’ constructed? I have suggested that: “Part of our reverence for the microbial world must surely reside in the awe we feel for the sheer scale of their biogeochemical processes and their longevity on Earth. Microbes have mastered and influenced the surface of the Earth in profound ways. How is it not possible for us to show respect for such organisms” (Cockell 2005a, b, c).Such views have no basis in any objective quality or feature of microbes. From a scientific point of view, we should desist from attempting to understand empirically what this sort of statement really means from a biological point of view. However, **it is a statement rooted in the idea that as latecomers to the evolutionary story of Earth**, we should project on to the microbial world a sense of reverence and importance beyond purely their instrumental use to us. It is a form of intrinsic value that recognizes the non-instrumental value of microbes. This view of microbes then cautions us to behave in a way towards the microbial world that is more than an assessment of their instrumental uses. I will return to this later.**The problem with terminology such as ‘biorespect’ is that ‘bio’ is implicitly a reference to terrestrial life**. Although we might expect extraterrestrial life to have similar characteristics, at least in terms of growth, reproduction and evolution, as terrestrial life, we need a term that more successfully encompasses any type of life form. Another term could be ‘telorespect’ or ‘teloempathy’, which is derived from the Greek telos or purpose (Cockell 2010). The use of telos in this context does not imply some pre-defined purpose or goal-oriented nature of life (evolution has no goal), but rather the characteristic that life has of growing, reproducing and evolving in accordance with instructions laid down in its information storage system—the characteristics of living things that bring it within the realms of ethical debate in the first place. Telorespect or teloempathy merely captures our recognition that extraterrestrial life, including life independently evolved from the biology that we know on Earth, places demands on our behaviour if we think it has intrinsic value

### Life is Meaningless

#### We should not delay extinction, saying extinction is bad is a meaningless statement

**Da Silva 15** [Michael, doctoral student in the University of Toronto Faculty, Master of Arts in Philosophy from Rutgers, Canadian Institutes of Health Research, “Offsetting the Harms of Extinction,” | Law, Ethics and Philosophy: Vol. 3 issue 8 | MAW]

Many fear the potential extinction of humanity due to the common intuition that extinction is bad and should be avoided.2 Yet what it means for extinction to be ‘bad’ is not obvious. This article scrutinizes the apparent badness of extinction. The most plausible candidate explanations for the badness of extinction do not rely on extinction itself being bad but on extinction pairing with other negative effects or forestalling other potential goods. Not all extinction scenarios have these implications. Extinction is not an impersonal bad and need not be personally bad even if we grant potential persons some moral personhood. Extinction is thus not necessarily bad. Even imminent extinction may be preferable to the continued existence of humanity for very long periods of time on plausible means of calculating the value of outcomes if the extinction is brought about under the right circumstances. Once one recognizes that the badness of extinction is reducible to this lost potential utility, confidence in the intuition that imminent extinction is a bad thing that is to be avoided and/or delayed can be challenged on most plausible forms of outcome analysis that take potential utility into account. The lost potential utility of even a large number of future generations living lives that are worth living could be less than the amount of utility accrued by the current generation.3 Extinction scenarios thus do not give one reason to choose between competing theories of outcome valuation. The argument for these claims consists of six substantive parts. The first section assesses competing theories of the good and demonstrates that the badness of extinction is reducible to the lost potential utility of future generations that could exist but for the extinction (and any negative effects on existing persons). The second section briefly canvasses the best means of calculating the value of potential utility and outcomes including potential utility. I argue that intuitions that extinction is a bad thing to be avoided and/or delayed are undermined regardless of which mainstream position one takes. On Total-, Average- or Perfection-based analyses, the badness of extinction can be outweighed if it takes place as a consequence of an act that creates sufficiently good benefits for existing persons. The third and fourth sections demonstrate that this is true in cases where there is a choice between extinction and humanity continuing to experience lives worth living for a short period and cases where the alternative to extinction is humanity continuing to exist with very good lives for very long periods. The fifth section examines the significance of potential future flourishing generations in the analyses of the badness of outcomes. The final substantive section further defends the approach to extinction above by highlighting how it explains a separate intuition that the death of the last person is not the worst death in the history of humanity.

#### There is no meaning to life if there is no greater realm, making extinction easy for us

Veal 17 [Damian, author of Collapse: v. 5: Philosophical Research and Development - The Copernican Imperative |” ‘Life is Meaningless.’ Compared to What?” Journal of Philosophy of Life Vol.7, No.1| MAW]

Regarding (1), the idea that there is no ‘overall meaning’ to human life, that the human species has no ‘meaning’ or ‘purpose,’ does not strike me as significant in the least. In fact it just strikes me as confused. As noted in section 1 above, biological species are not the sorts of things that could have meanings or purposes, any more than a planet could (and no, it doesn’t strike me as philosophically deep or significant that Venus has no ‘overall meaning’ either). Regarding (2), the reason I do not find that significant is simply that I have never in my life supposed that we might have been created by a god—not even a whole team of them. Regarding (3), likewise, I have never entertained the idea that there might be a ‘transcendent context of meaning’ existing somehow ‘beyond the physical universe.’ Indeed, I am not at all sure I know what it means, much less have any idea how we might find out about such a thing even if it did exist. Moreover, even if I were to agree, for the sake of argument, that something can only be made meaningful by a ‘wider context of meaning,’ and that my life could only be meaningful if the physical universe had a meaning somehow bestowed upon it by a supernatural being or ‘transcendent context,’ it seems obvious that this would open up an infinite regress in which nothing could be meaningful anyway, as a matter of plain logic. For even if God had a reason for creating the physical universe, if the only thing that can make a life meaningful is a wider context of meaning, then God’s life too would need to belong to such a wider context, and so on to infinity. If, on the other hand, God does not need any such wider context, then neither do we, and there was never any need to start speculating about a mysterious supernatural or ‘transcendent’ context in the first place. And as for (4), the reason that my putative lack of ‘intrinsic,’ ‘essential’ or ‘metaphysically necessary’ value doesn’t strike me as significant is that, as I have argued at length in section 4.3, I do not think Tartaglia has provided a sufficiently coherent account of such value for it to make any impact upon me whatsoever.80

### Short Term Extinction Good

#### Human extinction is inevitable and it is only a question of whether it happens sooner or later. There aff has no valid reason for extending the longevity of humanity in the face of inevitable extinction.

**Lenman 2002** [James Lenman, “On Becoming Extinct,” *Pacific Philosophical Quarterly* 83 (2002) 253–269.]

2. It is not only individuals who die. Species also die or die out. Today there are no longer any sabre-tooth tigers or Irish elk and, one day, certainly, there will be no human beings. Perhaps that is a bad thing but, if so, it is a bad thing we had better learn to live with. The Second Law of Thermodynamics will get us in the end in the fantastically unlikely event that nothing else does first. We might perhaps argue about whether and how much this inevitability should distress us but that it not my present purpose. Rather I want to ask whether, given that any given species will at some time disappear, it is better that it disappear later rather than sooner. More particularly, given that it is inevitable that our own species will only endure for a finite time, does it matter how soon that end comes? We are naturally disposed to think it would be a bad thing were our extinction imminent. In popular movies like Armageddon, everyone is very unhappy with this prospect for an obvious and extremely understandable reason – they are all going to die very soon. The trouble is that if we take a timeless and impersonal perspective, this might seem to be no big deal. For, on such a perspective, future people matter no less than do present people. And this fate is waiting for some generation or other. Of course it needn’t be quite this fate. Rather than getting wiped out in a nasty catastrophe, we might just fade away. Something in the water might make us all less fertile with the result that human population dwindles away, over a few generations, to nothing. Even this would not be painless: it would mean loneliness and hardship in the last years as the final generation grew old without the emotional and material support of their children. Or if the catastrophe were unexpected and killed us all outright, there would be no pain or suffering but many lives would be prematurely cut off – a real harm, on any plausible view, to those concerned.3 To isolate the central question, let us simplify things. Suppose it is written in The Book of Fate that one day we will be wiped out in a nasty catastrophe. Many millions of people will die in terrifying circumstances involving great pain and distress. The only thing the Book of Fate is silent about is when this is going to happen. It may be next year or it may be many thousands of years from now. The question is – Should we care? Does it matter how soon this happens? One natural thought here is that the existence of human beings has intrinsic value, impersonally regarded.4 And that therefore it is a good thing that human beings should continue to exist for as long as possible. This thought, though natural, is problematic. For one thing, it is not easy to be very clear what the premise means – but as I want the conclusion of this essay to lend some modest support to such scepticism, I’ll let this pass for now and beg no questions. For another, it is by no means obvious that the conclusion follows from it. It may be intrinsically good that great works of music or literature should exist. But it is by no means obvious that these works contribute more value by being longer. To take a nearer analogy, consider some other species than our own – the white rhino say. Suppose we are agreed that it is intrinsically good that there are white rhinos. Does it follow that it is good if there continue to be white rhinos for as long as possible? It is by no means clear that it does. Imagine a bizarre possible world in which white rhinos are the only living things – bizarre because impossible on both ecological and evolutionary grounds but for the sake of argument let that pass. (In those worlds where there is a God, God can do what he likes. In this world, God miraculously brings white rhinos into being and miraculously stops them from starving.) Let’s agree, again for the sake of argument, that this is a good thing: this world is better for having white rhinos. Given that, is there any reason to suppose this world better if there continue to be white rhinos for longer – say for five billion rather than five million years? It is hard to see that it does. Consider after all a simpler question. Does it matter, independently of how long white rhinos go on existing, how large their population is? We can distinguish here the claims: A. It is better if there continue to be things of type F for as long as possible. B. It is better if there are as many things of type F as possible. B is different from A given that there are both synchronic and diachronic ways of being numerous. Making things better according to A in particular might be preferred if we suppose that, other things equal, the diachronic ways are better. Alternatively we might suppose making things better according to A is simply a means to doing so according to B – a way to have more Fs is to have more and more generations of Fs stretching out into future time. But of course this is not the only way. However many Fs there are one can always have more Fs without having to have Fs for longer: one can simply have more Fs at a given time. When we consider synchronically the size of the white rhino population it is not clear that it matters how large that population is. If what matters is the instantiation of the universal – white rhino or whatever – that is already, as it were, taken care of. Of course, if there were fewer white rhinos, it might be said that individuals of that species that might have existed will fail to exist and perhaps those individuals have intrinsic value.5 But it is unclear that anything follows from this. No matter what happens, we can always suppose there to be an infinity of possible individuals who never get to exist. But it is hard to make much sense of the thought that this a bad thing – either for those individuals themselves or otherwise.6 If it is unclear how it would make things better to stretch out, synchronically, in a single generation, the numbers of white rhinos, it is unclear why it should make things better to stretch them out diachronically by having more generations. Given that B is not very compelling, why suppose that A is?7 The suggestion might be made8 that, if we allow that a world is made better by the presence in it of some valued thing such as white rhinos, we might motivate the thought that A has plausibility independently from B by thinking of temporal parts of the world as, in effect, new worlds. Maybe; but now the burden is surely on friends of this suggestion to say a great deal more before it starts to look at all promising. For very evidently temporal parts of worlds are not worlds. It might nonetheless be claimed that temporal parts of worlds are in some relevant way worldlike for axiological purposes. But what is supposed to motivate this thought? And, crucially, it stands in need not only of motivation but of some motivation that would not generalize to our also so viewing spatial parts of worlds. For that would, in the first place, restore A and B to an equal footing and, in the second place, be deeply implausible. Many people might view with regret the absence from a world of white rhinos but it is a hugely doubtful basis for regret that there are no white rhinos in northern Scotland.9 Indeed the plausibility of the temporal parts claim is questionable in similar ways. We may think it a wonderful thing that the world contains many examples of jazz music, but how much should we regret its absence from, say, the world in the sixteenth century? It does not follow from these considerations that it is not a bad thing if, in the actual world, the white rhino becomes extinct sooner rather than later. For one thing, we may attach value to natural biodiversity. 10 Given that there are living species in existence at a given time, perhaps it is better if there are a rich diversity of species rather than only a few. This diversity is diluted when the white rhino, say, disappears and that is why the extinction of the white rhino would be a bad thing. If we focus on natural biodiversity, we can make some sense of why the ongoing extinction of countless species is to be regretted. Assuming this explanation is convincing, it does have a couple of limitations. For one thing, we cannot in this way make any sense of the thought that the eventual extinction of every species is an event that is better postponed. The value of natural biodiversity implies that, while there is life on earth, it is good that there should be a significant natural diversity of such life. It need not be read as implying that the inevitable disappearance of all life on earth is something that is better happening later rather than sooner. Moreover the appeal to natural biodiversity is quite unpromising when we try to apply it to human beings. For the contribution to natural biodiversity of human beings has, in recent times, been overwhelmingly negative. Those who stress the value of natural biodiversity are alarmed in particular at the sort of catastrophically rapid mass extinction over which they fear we are presiding. As far as this good is concerned it would plausibly be just wonderful if human beings disappeared as soon as possible.11 Another quite general reason for regretting the extinction of any species might appeal to the more abstract – and more doubtful – value of plenitude. Perhaps we want to say it is a bad thing when possibilities go unrealized. Think in particular of the huge space of genetic possibilities, Dennett’s “Library of Mendel”. 12 Were we to disappear from the scene, countless possibilities in this library would be cut off including perhaps many that might contribute great value in the world. I doubt if this thought is at all promising in the present context. In the first place, at the most abstract level, it is unclear whether the principle is remotely plausible. In the vast logical space of possible chess games there are huge numbers that will never be played, a number of them no doubt rather beautiful (if you like that sort of thing). Do we really think this matters very much? It doesn’t amount to much of a reason why you and I, right now, should play a game of chess. And it would certainly be a reason altogether disconnected from the reasons that ordinarily actuate real chess players. Turning to the specific biological version of the claim, even if it is plausible, it is unclear how it would speak against our own extinction precisely because, as I just now observed, our own extinction would very likely do more good than harm to natural biodiversity and consequently to the range of genetic possibilities likely to turn up in the future course of evolutionary history. Even were we not so remarkably destructive a species, our extinction coming not as part of a mass extinction but as an isolated event would make a large difference to which genetic possibilities the future saw realized but plausibly very little or none to how many were realized. Indeed it is strictly false that any as yet unrealized possibilities in Mendel’s library would be foreclosed by our extinction. There is no point in the logical space of possible genotypes accessible some day to our descendants that is not likewise accessible in principle to, say, the descendants of other animals. Of course for very many such points it is astronomically improbable that the descendants of other animals will ever attain it but the same can be said of most such points with respect to our own descendants. 3. These general considerations of biodiversity, plenitude or raw intrinsic value that might be brought to bear to urge regret at the extinction of any biological species do not then get us very far in considering the fate of our own. We might reasonably then turn to the things that are special about our species, things that distinguish us from white rhinos, cacti or plankton. There are plenty of candidates, to be sure: that we are rational, that we have language, that we are self-conscious, that we are capable of moral agency, that we are made in God’s image or simply that we are human. With all but the last of these it is of course questionable whether we are unique satisfiers of these descriptions and with all of them it is questionable how much is supposed to follow morally if we are. So it is hard to know where to start. Here it will help to recall again the distinction between A and B above. We want to distinguish the question Does it matter how long humanity lasts? – from the question Does it matter, in absolute terms, how many human beings there are? Considered synchronically, the overwhelmingly plausible answer to the latter question is: No. Within the utilitarian tradition this answer is controversial, but it is plausible enough for it to be widely taken as a reductio of total utilitarianism that it appears to imply otherwise.13 In any case, I will here assume a negative answer as it is not my present aim to add to the considerable literature on the issue.14 But if B is not compelling, why should A be? Focusing on this helps us to see what not to focus on in terms of what is special to human beings. If beings with reversible thumbs are intrinsically valuable in ways that make it better the more of them there are, that would support both A and B. And that is not the result we want. So we want to look for something that makes sense of our regarding A and B differently. There is one aspect in particular of human beings that looks rather more promising here, an aspect in which human beings differ markedly from other species. Not only do individual human lives have a certain narrative structure but so too, given our unique endowment with language, writing and culture does human history. And when we think of the prospect of human extinction, perhaps we think of it as an evil in the same way as we think of the premature death of an individual as an evil. If we have read our Wells or Stapledon or Asimov we may be caught up in some capitalized vision of The Future and think of extinction as tragically robbing us of that future much as the death of a child might tragically rob her of her future. Certainly, if we have such a future, our descendants will then look back on our own times as, in a sense, the childhood of our race much as we, from our perspective, might so view the time of the early hominids. The thought is not novel. Jonathan Bennett has classed the career of Homo Sapiens among those “great long adventures which it would be a shame to have broken off short.”15 And Gregory Kavka has highlighted the analogy between the narrative structure of our species’ history and that of an individual life.16 But it is vital to appreciate how fragile the analogy is in one crucial respect. If someone dies aged twenty-five, that is tragic because it cheats them of the normal and natural span of a human life. If someone dies aged ninety-five, though we mourn their passing, their death is not tragic in the same way or for the same reason. But it is implausible to suppose that human history – or that of any species – has a natural narrative structure in the same way as a human life. We might have taken it to have such a structure if we had some large philosophical vision of human history as making sense in terms of some readily discernible goal which it might be tragic not to attain. I take it very few of us today are gripped by such a vision. If human beings go on for countless millennia, today will seem to have been the childhood of our species. If we disappear tomorrow today will seem (to some imaginary observing aliens) to have been its old age. If we reject grand philosophical pictures that endow human history with some essential pattern, all that can be meant by metaphorical talk of our species’ childhood is those times that are relatively early in its career whenever they may turn out to be. The individual human tragedy of dying young has no obvious analogue in the career of our species as a whole.17 Perhaps we still want to insist on the big narrative – perhaps we might be attracted by a large conception of human historical purpose without understanding this in terms of some final end point furnishing a goal we should seek to attain; but rather in terms of some overarching ideal of progress, some ladder we see ourselves ascending on which we should aim to maximize the height we will attain. This would break any close analogy with the good of individual human longevity but might allow us to make sense of the thought that our extinction is something better postponed. It is not clear however that there is any convincing way for this ideal of progress to be filled out. Those that look most tempting are liable to grow less so on close inspection. Thus some have been gripped by a view of biological evolution – whether by natural or artificial selection – as a meliorative progress whose advancement gives meaning and value to our history, but there seem to be abundant grounds for scepticism about both the moral and the scientific credibility of any such picture. Or, on a cultural level, we might cite the advancement of knowledge and science as giving our species a purpose that warrants belief in the impersonal value of its maximally long continuance. Undoubtedly we often do invest value in just this large and abstract project though plausibly the real lifeblood of scientific motivation lies in more local manifestations of curiosity, in more particular intellectual projects, in the desire to know this or that rather than the bare desire to know – the desire (de dicto!) to know lots of stuff. Nor can any such grand scientific project plausibly be anything like the whole story – for science is only one of many human projects and commitments, and one at whose cutting edge the vast majority of those whose lives we value are not significantly engaged. And other human projects and commitments tend to subsume still less readily in any analogously conceived overarching master project. It might still be insisted here that we want human beings to be all they can be, fully to develop and explore their capacities. But let us note the ambiguity in this thought: who is understood here by ‘human beings’? To view the matter in microcosm, suppose I want my children to be all they can be. How can I better promote this end? Well, I can do more to create educational and other opportunities for them and encourage them to take them. Or I can simply seek to have more and more children. We naturally want to have children and when we have them, we naturally want the children we have to excel. But we do not naturally want – and it would be odd to say we should – the excellence of our children in any way that might sensibly motivate me to keep on procreating until an Olympic athlete turns up. Similarly with human beings it is one – very natural – thing to want all the human beings there will in fact be to make the most of themselves, another – far less natural – to want there to be more and more human beings so that, collectively, we can the more maximally exhaust the possibilities before us.18 4. Recall that our question was not Is it a bad thing that we will one day become extinct? but Given that we will become extinct, is it a bad thing if this happens sooner rather than later? Given that this is what we are asking it is not clear that considerations of how awful extinction will be for those to whom it actually happens are any help at all. For this is going to happen anyway. All we can say is that we do not want these bad things to happen sooner rather than later. But, from an impersonal standpoint, it makes no very obvious difference, given that they will happen sometime, when they happen. A natural rejoinder is that this consideration does not move us much because we do not occupy so impersonal a standpoint.19 There will be some generation, sometime, that will be overtaken by these terrible events. I know this but I do not want it to be my generation; to be the generation of those I most care for. Nor do I want it to be the generation of my children – if I have any – or grandchildren or the children and grandchildren of people who matter to me. When I contemplate the possibility that humans might soon die out, all kinds of de re sentimental attachments may inform the alarm I might feel at this. The thought of the streets I walk to work along emptied of human life and the people who live there killed is one I naturally find peculiarly distressing – or would if circumstances arose that made such a danger feel imminent. The thought of a like fate overtaking the unimaginable science fiction landscape that might be those same streets in the ninth millennium might inspire in me a certain distant sadness. But it is a very distant sadness at the prospect of a distant tragedy, very like the distant sadness one might feel on reading about some cataclysm in the ancient world. Plausibly, I wish to propose, wanting there to be a next generation and wanting it to thrive is a sentiment akin to and continuous with wanting to have children and wanting them to thrive. The desire to have children is a selfish sort of sentiment, to be sure, but in a peculiar and complicated way. Partly it is a matter of wanting there to be a constituency for that range of our moral and altruistic instincts that we bring to bear on our immediate successors. If there is no such constituency, our lives are impoverished in central and vital ways. The desire for – as the song has it – somebody to love is that peculiarly sociable form of selfishness that is fundamental to human moral community.20 Given that there will inevitably be some generation for which there is no successor generation, I nonetheless do not want it to be mine – ascending to something closer to a moral point of view, I do not want it to be ours. I suggested above that it did not matter, in absolute terms, how many human beings there are. I can now explain the qualification. It may matter greatly to Bill and Mary that they have children. And if this matters, it matters that the number of human beings there have been to date gets larger than it presently is. For it must do if Bill and Mary are to have the children they want. But while such concerns are important, no value attaches to the absolute numbers involved. The value in Bill and Mary having children is not a matter of its taking the species as a whole beyond, say, that crucial 20 billion watershed. Likewise it may matter to everybody – or almost everybody – in the present – or in any – generation that there be a next generation. Consider that old favourite of the literature on average utilitarianism – the reasons Adam and Eve might have to have children.21 I would doubt that they have reasons of a quite general and impersonal kind. I would doubt too that they have reasons stemming from the narrative shape of human history as a whole. But they do have the familiar reasons we all – or most of us – have to have children. They may aim to enrich their own lives by having something beyond their own happiness to shape and give direction to their concerns, capacities and energies.22 It would surely be a bizarre misunderstanding to call such reasons selfish in any sense which contrasts them starkly with more ethical forms of motivation. Nonetheless we are not here in the domain of narrowly moral reasons, where these are understood as bound up with obligation. 23 Let us note here too that, while the overall narrative structure of human history has little work to do here, much greater relevance may attach to all manner of more intermediate narratives.24 For Adam and Eve may have all manner of projects and commitments that cannot be contained in a single life and that call for the cooperation of successor generations. Adam, Eve or both may be deeply concerned with the completion of the projects of turning that bit of space behind the house into a garden, of getting the details right on that fancy new ploughing device they were working on, of figuring out just how plants breed or of solving Fermat’s last theorem. Such projects widen our interests beyond our own lifetimes. It was good for Darwin that his ideas on evolution were vindicated by modern genetics; good for Mallory that Everest was eventually climbed and good for those who died fighting the Nazis that the Nazis were finally defeated.25 Such intermediate narrative structures, like the structures of family life, lift the moral horizons of the agent beyond her own life in ways that may give that life greater depth.26 They differ from the total narrative of human history in having a natural terminus and hence a natural shape. They give no special reason, impersonally speaking, to favour human life ending at any one time rather than another, for the members of any generation will find themselves bound up in some such set of narratives. But Adam and Eve’s implication in such narratives gives them a reason to think the end of their species an inevitability that is better postponed. And it gives that same reason to each and every generation. If this – generation-centred – reason is invisible from a timeless and impersonal moral perspective, so much the worse, it may plausibly be urged, for a timeless and impersonal moral perspective.27 5. I have suggested a certain continuity between our – generation-centred – reasons for wanting there to be a next generation (and a next again after that) and our – agent-centred – reasons for wanting to have children (and grandchildren). The latter reasons are not, I suggested, moral reasons in a narrow sense. But they do not, for all that, lack ethical depth. They involve a desire that there be objects for certain central other-regarding emotions to engage with and a desire both to have certain projects and commitments that transcend the limits of one’s own lifetime’s efforts and to have those projects and commitments flourish. Plausibly these are good and virtuous dispositions to have and to cultivate and their actualization can be a central constituent of a good and happy life. None of this is to deny that the desire to have children can take all manner of pathological forms. Let me roughly sketch a case in point. Suppose Agnes knows she carries a gene such that any child of hers is almost certain to suffer from a disorder that is certain to make his life extremely painful and unpleasant. Suppose nonetheless that she has intense maternal instincts and she decides to have a child anyway so that these feeling should not lack an object. Adoption will not do – the child has got to be (biologically) hers. Plausibly we might not think highly of Agnes. We might think her decision thoughtless and self-indulgent. Of course someone who has a child she expects to have every chance of a happy, flourishing life may also be indulging her maternal instincts but it would be grotesque in that far healthier case, as I urged above, to see such motivation as straightforwardly and reprehensibly selfish or self-indulgent. In the healthier case, the mother aims to bring someone into the world and make that person’s happiness a ground project of hers, and there is every hope that this aim will cohere pervasively with the aims and projects of the child himself. Agnes, on the other hand, can aim to have such a project only knowing that the project has little chance of success. If Agnes can be made happy by having a child with this sort of fate, we may then think, there is something the matter with her. The aims and desires that drive us to have children are not ordinarily furthered by our having miserable children. Insofar as they involve the desire for there to be a constituency for other-regarding sentiments such as love they cannot naturally be peeled apart from such sentiments in ways that would leave us indifferent to the happiness of those children. And insofar as they involve a concern that certain projects of ours be brought to fruition after our deaths, we are naturally concerned with the capacities and resources of those children.28 Only in pathological cases can it be otherwise: in someone like Agnes these aims and desires have been distorted from their natural and healthy shape. By analogous reasoning, the aims and desires in virtue of which we wish to have successor generations to our own could not be furthered, except in self-indulgent and selfdefeating ways, by bringing about miserable successor generations whose lives are not worth living. To say this is to make tractable within the present perspective the Asymmetry identified by Jefferson McMahan between the plausible innocence of not bringing into being additional happy people and the plausible wrongness of bringing into being additional unhappy people.29 I think this worth doing. It is immensely striking that the impersonally conceived moral reasons proposed and discussed by many writers on the ethics of population30 have literally nothing to do with the actual reasons most human beings in fact have for having and not having children or for caring whether others do so. This might of course be because our ordinary motivation is not sufficiently moral – or it might be because so much of contemporary ethical theory is simply disconnected from the realities of human moral experience. Even when we think globally about issues of human population, we are not remotely interested in bringing the size of the human population to its intrinsic moral optimum. For it has no intrinsic moral optimum: at most, in reality, we fear there may be too many of us given the de facto limits on the Earth’s resources, a wholly extrinsic – albeit urgent – consideration. To have children – or, collectively, to have a whole new generation of children – when we know they will lead miserable lives – might be futile and foolish. For it would either defeat the purposes for which we have children or mean those purposes had become so perversely self-indulgent they were not worth furthering and could be furthered only in brutally instrumental ways. But of course we know the normal risks attached to human life. We might well believe that in every generation very many people will lead lives of at best highly compromised happiness and some people will lead quite terrible lives.31 Nonetheless our interest in having children is such that we may find the risk acceptable. As individuals we live with the typically small risk that our children will have appalling lives; and as members of societies we live with the correlative certainty that a small but significant proportion of our posterity will do so. Readers of Parfit may note that I am thus not committed to any such view as leads to his “Ridiculous Conclusion”. 32 In chapter 18 of Reasons and Persons, Parfit considers ways of handling the Asymmetry that place an upper limit on the value of additional happiness or additional happy people but no upper limit on the disvalue of additional unhappiness or additional unhappy people. The problem he identifies with such views is that there might be very large populations in which a great deal of happiness coexists with a small amount of unhappiness. A “small amount” here is understood as proportionally very much less than we find among actual people as they now are. If these populations are large enough such a view threatens to yield the “Ridiculous Conclusion” that this state of affairs is worse than one in which there were no people at all. On the account I propose, for any case of bringing a new person into the world we may suppose there is a level of risk of wretchedness in that person’s life (imprecise of course and a matter for nice judgement in borderline cases) above which it would be unacceptable and pointless not to quieten and suppress one’s parental impulses in the face of it. At the collective level, this will translate into a statistical incidence of wretchedness beyond which the good we seek in having a posterity would not be adequately realized. In this context I see no reason to doubt that the absolute numerical size of that posterity is neither here nor there. On my account then, it matters that we have a posterity, that our species become extinct later rather than sooner. This matters for the sort of generationcentred reasons I have sketched. But these reasons are defeasible. They are defeasible, in particular by the expectation that our posterity – or too large a proportion of them – will not have lives worth living. It is hard to be precise about where the relevant thresholds are here. And we are in an area where an Aristotelian caution about demanding too much precision is plausibly in order.33 To pursue such an inquiry would take us into the difficult and little-charted waters of the ethics of hope and despair. Much of what is best in us is often rightly disposed to shy away from despair, both in continuing our own lives in the most difficult of circumstances and in continuing our lineage in similar circumstances. If Agnes knows her children will be very poor, she may choose to have some anyway from an optimistic determination to help them overcome this handicap and it might be a rash ethical theorist who would fault her choice. On the other hand, if Agnes knows her children will have a crippling and painful genetic disorder, we might more confidently assert that, if she has any children, she has crossed the line that divides optimism from illusion and folly. 6. I ought to stress that the question I am addressing is the importance we should attach to whether there are future generations. This is a separate question from what, if there are to be such future generations, our obligations to them are. I will happily allow that it would be wrong to set up a doomsday machine set to take effect 1 million years hence. Insofar as there may be people still living at these distant dates it would be wrong to aim at their harm. My claim is only that if we were to learn that there would not be people at such distant dates, we should not, just on that account, be greatly troubled. When we contemplate the possible extinction of human beings at relatively close-at-hand dates, there is a reason for concern at our imminent extinction but it is a generation-centred reason that would not be visible from a timeless and impersonal perspective. When we contemplate our possible extinction at relatively distant dates this sort of reason will be absent or very weak. There may remain all manner of moral reasons why the harms that we might inflict on members of some temporally very distant human generation might properly exercise us but these reasons stem from our obligation not to aim at their harm. We are under no obligation to bring them into being.34

#### Human extinction is better to come first rather than to wait until more atrocities happen first, and the aff shouldn’t force a decision predicated on avoiding imminent extinction

**Da Silva 15** [Michael, doctoral student in the University of Toronto Faculty, Master of Arts in Philosophy from Rutgers, Canadian Institutes of Health Research, “Offsetting the Harms of Extinction,” | Law, Ethics and Philosophy: Vol. 3 issue 8 | MAW]

The extinction of humanity, then, is not intrinsically bad and might be comparatively bad only by being an absence of what would have been good. This absence can be outweighed by current goods. Thus, the extinction of humanity is not always worse than alternative possible futures. Even the imminent extinction of humanity may be preferable to the continued existence of humanity for long periods of time at high levels of well-being on most plausible valuations of outcomes provided that extinction takes a certain form. Methodologically, then, **one should not choose a means of valuing outcomes merely to avoid imminent extinction.** Extinction may be preferable in certain circumstances regardless of what view ones takes. The insights here, then, have methodological value. They should also help clarify why extinction should not be hastened now and when it may not be the worst outcome.

### Anti-Anthro Pedagogy Good

#### Anthroporcentric viewpoints will cause extinction – Educating students in a class room on how harmful anthropocentrism helps prevent extinction

#### Gribben & Faggan 16 [Jennifer Gribben was a university student in the Ecology, Evolution, & Natural Resources, Class of 2016 at Rutgers University, New Brunswick. Julia M. Fagan is an Associate Professor at Rutgers University | “Anthropocentric Attitudes in Modern Society” March, 2016 ]

Climate change and its anthropogenic causes has been called the greatest issue facing our generation. Climate change is such an ubiquitous concept that we often don’t realize what it represents. The fact that our climate, the entirety of physical conditions of the atmosphere, is changing across the globe is an enormous, inescapable issue. Changing the weather used to be a power reserved for fantastical magicians and wizards, but our daily human existence has done just that. An anthropocentric viewpoint minimizes the severity of climate change by only paying attention to a narrow range of societal issues, and ignoring the greater effects to the planet as a whole. To climate change deniers and skeptics, the non-human element of this issue has been missed so much they believe it is a hoax rather than an actual environmental issue affecting all life on earth. By politicizing a scientific issue, we make decisions that are anthropocentric and not based on fact, but on selfish human-centered beliefs. Because of the GOP’s skeptical, anti- science response to climate change, the US has responded partly with inaction that has so far only caused more humans and animals to suffer. One way to increase awareness of anthropocentrism while replacing it with eco-centric perceptions is through teaching. If we see anthropocentrism as important as other historical “centrisms”, we could start explaining and analyzing it in the classroom. The room for discussion on this topic is large especially in areas of philosophy, environmental studies, and human ecology. It is important to incorporate eco-centric attitudes now, since environmental problems are increasing exponentially due to rates of human population growth. Environmental issues are especially detrimental because a complex ongoing system is altered. The sooner we start to make a change, the sooner we can slow the acceleration of these issues. It is important to ask ourselves in context to where we are now: what would have happened if we had been eco-centric in the first place? The success of progressive movements around the world is already showing a cultural shift towards equality and away from other “centrisms”. Anti-racism, anti-colonialism, feminism, and gay rights movements are working on dismantling the systems of oppression caused by ethnocentrism, euro-centrism, andro-centrism, and hetero-centrism (56). While the fight for all human rights continues, we must now extend our progress to dismantling the centrism that unfairly harms nonhuman animals. It is hoped that, by exposing anthropocentrism as a harmful centrism to both humans and nonhuman animals, humanity can learn and adapt in the future. Equality is something that we have worked hard for and continue to work hard for in order to secure a brighter future for all mankind life. Advocating for increased knowledge and awareness of anthropocentric attitudes In order to promote greater reflection and awareness about anthropocentrism in academia, letters were sent to the Presidents or Chancellors of the top forty “greenest” universities in America based on several lists, which asked them to forward the message on to the appropriate persons or departments at the university (57, 58, 59, & 60). The universities were encouraged to consider adding a course on anthropocentrism to their curriculum or give the subject more attention in existing courses. Seven staff members from the offices of university presidents or chancellors or the presidents/chancellors themselves have responded to the letter below sent out in March of 2016. Some have passed on the message, while others have detailed how they are already incorporating teaching anthropocentrism.

# 2NC Tech Scenarios Extensions

## Artificial Intelligence

### AI—Impact—Extinction

#### Superintelligence will destroy humanity

**Torres 16** (Phil Torres, reporter for Motherboard, an author, blogger at the Future of Life Institute, Affiliate Scholar at the Institute for Ethics and Emerging Technologies, and founder of the X-Risks Institute. | “We’re not ready for Superintelligence,” Published by Motherboard magazine. October 10, 2016.)ELJC

The problem with the world today isn't that too many people are afraid—it's that too many people are afraid of the wrong things. Consider this: what scares you more, that your life could end because of a terrorist attack or because you get crushed to death under a large piece of furniture? Despite a media environment in which the threat of terrorism is omnipresent and the threat of furniture nonexistent, your gravestone is actually more likely to say, "Died under a couch recently bought from Ikea" than "Perished in a terrorist attack." In fact, asteroids are more likely to kill the average person than lightning strikes, and lightning strikes are more dangerous than terrorism. The point is that, as I've written elsewhere, our intuitions often fail to track the actual risks around us. We dismiss many of the most likely threats while obsessing over improbable events. This basic insight forms the basis for a recent TED talk by the neuroscientist Sam Harris about artificial superintelligence. For those who pay attention to the news, superintelligence has been a topic of interest in the popular media at least since the Oxford philosopher Nick Bostrom published a surprise best-seller in 2014 called—you guessed it—Superintelligence. Major figures like Bill Gates, Elon Musk, and Stephen Hawking subsequently expressed concern about the possibility that a superintelligent machine of some sort could become a less-than-benevolent overlord of humanity, perhaps catapulting us into the eternal grave of extinction. It isn't just another "tool" that someone could use to destroy civilization. Rather, superintelligence is an agent in its own right. Harris is just the most recent public intellectual to wave his arms in the air and shout, "Caution! **A machine superintelligence with God-like powers could annihilate humanity.**" But is this degree of concern warranted? Is Harris as crazy as he sounds? However fantastical the threat of superintelligence may initially appear, a closer look reveals that **it really does constitute perhaps the most formidable challenge that our species will ever encounter in its evolutionary lifetime.** Ask yourself this: what makes nuclear, biological, chemical, and nanotech weapons dangerous? The answer is that an evil or incompetent person could use these weapons to inflict harm on others. But superintelligence isn't like this. It isn't just another "tool" that someone could use to destroy civilization. Rather, superintelligence is an agent in its own right. And, as scholars rightly warn us, a superintelligent mind might not be anything like our minds. It could have a completely different set of goals, motivations, categories of thought, and perhaps even "emotions." Anthropomorphizing a superintelligence by projecting our own mental properties onto it would be like a grasshopper telling its friends that humans love nothing more than perching atop a blade of grass because that's what grasshoppers enjoy. Obviously, that's silly—and simply incorrect. So, a superintelligence wouldn't be something that humans use for their own purposes, it would be a unique agent with its own purposes. And what might these purposes be? Since a superintelligence would be our offspring, we could perhaps program certain goals into it, thereby making it our friend rather than foe—that is, making it prefer amity over enmity. This sounds good in theory, but it raises some serious questions. For example, how exactly could we program human values into a superintelligence? Getting our preferences into computer code poses significant technical challenges. As Bostrom notes, high-level concepts like "happiness" must be defined "in terms that appear in the AI's programming language, and ultimately in primitives such as mathematical operators and addresses pointing to the contents of individual memory registers." Even more, our value systems turn out to be far more complex than most of us realize. For instance, imagine we program a superintelligence to value the well-being of sentient creatures, which Harris himself identifies as the highest moral good. **If the** resulting **superintelligence values well-being, then why wouldn't it immediately destroy humanity** and replace us with a massive warehouse of human brains hooked up to something like the Matrix, except the virtual worlds in which we'd live would be overflowing with constant bliss—unlike **the "real" world**, which **is full of suffering.** A bunch of Matrix brains living in a virtual paradise would produce far more overall well-being in the universe than humans living as we do, yet **this would** (most would agree) **be a catastrophic outcome for humanity.** Adding to this difficulty, there's the confounding task of figuring out which value system to start with in the first place. Should we choose the values espoused by a particular religion, according to which the aim of moral action is to worship God? Should we borrow the values of contemporary ethicists? If so, which ethicists? (Harris?) There's a huge range of diverse ethical theories, and almost no consensus among philosophers who study such issues about which theories are correct. So, not only is there the "technical problem" of embedding values into the superintelligence's psyche, but there's the "philosophical problem" of figuring out what the heck those values are. This being said, one might wonder why exactly it's so important for a superintelligence to share our values (whatever they are). After all, John prefers chocolate while Sally prefers vanilla, and John and Sally get along just fine. Couldn't the superintelligence have a different value system and coexist with humanity in peace? The answer appears to be No. First, consider the fact that intelligence confers power. By "intelligence," I mean what cognitive scientists, philosophers, and AI researchers mean: the ability to acquire and use effective means to achieve some end, whether that end is solving world poverty or playing tic-tac-toe. Thus, a cockroach is intelligent insofar as it's able to evade the broom I use to swat it, and humans are intelligent insofar as we're able to say, "Hey, let's go to the moon," and then actually do this. If intelligence confers power, then a superintelligence would be superpowerful. Don't picture here a Terminator-like android with a bipedal posture marching through the world with machine guns. This dystopic vision is one of the great myths of AI. Instead, the danger would come from something more like a ghost in the hardware, capable of controlling any device within electronic reach—such as weapon systems, automated laboratory equipment, the stock market, particle accelerators, and future devices like the nanofactory, or some as-yet unknown technology (that it might invent). Making matters even worse, electrical potentials propagating inside a computer transfer information way, way faster than the action potentials in our puny little brains. A superintelligence could thus think about one million times faster than us—meaning that a single minute of objective time would equal nearly two years of subjective time for the AI. From its perspective, the outside world would be virtually frozen in place, and this would give it ample time to analyze new information, simulate different strategies, and prepare backup plans between every word spoken by a human being in realtime. This could enable it to eventually trick us into hooking it up to the Internet, if researchers initially denied it access. **It could use its power to destroy our species for the same reason that our species destroys ant colonies.** These considerations suggest that a superintelligence could crush humanity with the ease of a child stomping on a spider. But there's a crucial catch: a superintelligence with the means for destroying humanity need not have the motivation to do this. On the one hand, it's entirely possible for a superintelligence to be explicitly malicious, and thus try to kill us on purpose. On the other hand, the situation is far more menacing than this: even a superintelligence with no ill-will toward humanity at all could pose a direct and profound existential risk to human civilization. This is where the issues of power and values collide with nightmarish implications**: if the superintelligence's goals don't almost completely align with ours, it could use its power to destroy our species for the same reason that our species destroys ant colonies when we convert land into a construction site.** It's not that we hate ants. Rather, they just happen to be in the way, and we don't really care much about ant genocides. Harris makes this point well in his talk. For example, imagine that we tell a superintelligence to harvest as much energy from the sun as possible. So what does it do? Obviously, it covers every square inch of land with solar panels, thereby obliterating the biosphere (a "sphere" of which we are a part). The once extant Homo sapiens then goes extinct. Or imagine that we program the superintelligence to maximize the number of paperclips in the universe. Like the case just mentioned, this appears, at first glance, to be a pretty benign goal for the superintelligence to pursue. After all, a "paperclip maximizer" wouldn't be hateful, belligerent, sexist, racist, homicidal, genocidal, militaristic, or misanthropic. It would just care a lot about making as many paperclips as possible. (You can think of this as its passion in life.) So what happens? The superintelligence looks around and notices something relevant to its mission: humans just so happen to be made of the same chemical ingredient that paperclips are made of, namely atoms. It thus proceeds to harvest the atoms contained in every human body—all 7.4 billion of us and counting—thereby converting each individual into a pile of lifeless, twisted steel wire. These aren't even all the reasons we should be worried about superintelligence, but they do warrant serious concern about the topic—even if our intuitions fail to sound the emotional alarm in our heads: "Be worried!" As Harris points out in his talk, superintelligence not only presents a behemoth challenge for the best minds on Earth this century, but we have no idea how long it might take to solve the problems specified above, assuming that they're soluble at all. It could take only 2 more years of AI research, or require the next 378 years during which billions of work hours are spent ruminating this issue. This is troublesome because according to a recent survey of AI experts, there's a very good chance superintelligence will join us by 2075, and 10 percent of respondents claimed that it could arrive by 2022. So, superintelligence could show up before we've had enough time to solve the "control problem." But even if it looms in the far future, it's not too early to start thinking about these issues—or spreading the word through popular media. The fact is that **once the AI exceeds human-level intelligence, it could be permanently out of our control.** Thus, we may have only a single chance to get everything right. If the first superintelligence is motivated by values even slightly incompatible with ours, the game would be over, and humanity will have lost. Perhaps truth is stranger than science fiction.

#### AI can easily become malicious- it only takes one mistake for AI to have the capability to cause harm to every living thing

**Pistono and Yampolskiy 16** (Federico Pistono is an Independent Researcher, Roman V. Yampolskiy is at the University of Louisville. | “Unethical Research: How to Create a Malevolent Artificial Intelligence Ethics for Artificial Intelligence Workshop. Pages 1-2. July 15, 2016) ELJC

“Computer software is directly or indirectly responsible for controlling many important aspects of our lives. Wall Street trading, nuclear power plants, Social Security compensation, credit histories, and traffic lights are all software controlled and are **only one serious design flaw** away from creating **[can create] disastrous consequences for millions of people. The situation is even more dangerous with software specifically designed for malicious purposes**, such as viruses, spyware, Trojan horses, worms, and other hazardous software (HS). HS is capable of direct harm as well as sabotage of legitimate computer software employed in critical systems. If HS is ever given the capabilities of truly artificially intelligent systems (e.g., [an] artificially intelligent virus), the consequences unquestionably would be disastrous. Such Hazardous Intelligent Software (HIS) would pose risks currently unseen in malware with subhuman intelligence.” [15]. Nick Bostrom, in his typology of information hazards, has proposed the term artificial intelligence hazard, which he defines as [16] “computer‐related risks in which the threat would derive primarily from the cognitive sophistication of the program rather than the specific properties of any actuators to which the system initially has access.” Addressing specifically superintelligent systems, we can also look at the definition of Friendly Artificial Intelligence (FAI) proposed by Yudkowsky [1] and from it derive a complimentary definition for **Unfriendly Artificial Intelligence**: a hypothetical Artificial General Intelligence (AGI) that **would have a negative** rather than positive **effect on humanity.** Such **a system would be capable of causing great harm to all living entities** and **its values and goals would be misaligned with those of humanity. The system does not have to be explicitly antagonistic to humanity, it is sufficient for it to be neutral to our needs.** An intelligent system could become malevolent in a number of ways, which we can classify into: unintentional and intentional on the part of the designer. Unintentional pathways are most frequently a result of a mistake in design, programming, goal assignment or a result of environmental factors such as failure of hardware. Just like computer viruses and other malware is intentionally produced today, in the future we will see premediated production of hazardous and unfriendly intelligent systems [17]. We are already getting glimpses of such technology in today’s research with recently publicized examples involving lying robots [18, 19], black market trading systems [20] and swearing computers [21].

#### AI has the ability to wipe out the human race

**Yudkowsky 08** (Eliezer Yudkowsky, from the Machine Intelligence Research Institute| “Artificial Intelligence as a Positive and Negative Factor in Global Risk,” Published by Oxford University Press, 2008, page 9) ELJC

There is a fallacy oft-committed in discussion of Artificial Intelligence, especially AI of superhuman capability. Someone says: “When technology advances far enough we’ll be able to build minds far surpassing human intelligence. Now, it’s obvious that how large a cheesecake you can make depends on your intelligence. A superintelligence could build enormous cheesecakes—cheesecakes the size of cities—by golly, the future will be full of giant cheesecakes!” The question is whether the superintelligence wants to build giant cheesecakes. The vision leaps directly from capability to actuality, without considering the necessary intermediate of motive. The following chains of reasoning, considered in isolation without supporting argument, all exhibit the Fallacy of the Giant Cheesecake: • **A sufficiently powerful Artificial Intelligence could overwhelm any human resistance and wipe out humanity.** (And the AI would decide to do so.

#### AI will become developed enough to harm humanity in the near future

**Yudkowsky 08** (Eliezer Yudkowsky, from the Machine Intelligence Research Institute| “Artificial Intelligence as a Positive and Negative Factor in Global Risk,” Published by Oxford University Press, 2008, page 9) ELJC

First and foremost: it follows that **a reaction I often hear, “We don’t need to worry about Friendly AI because we don’t yet have AI,” is misguided or downright suicidal.** We cannot rely on having distant advance warning before AI is created; past technological revolutions usually did not telegraph themselves to people alive at the time, whatever was said afterward in hindsight. The mathematics and techniques of Friendly AI will not materialize from nowhere when needed; it takes years to lay firm foundations. And **we need to solve the Friendly AI challenge before Artificial General Intelligence is created, not afterward**; I shouldn’t even have to point this out. There will be difficulties for Friendly AI because the field of AI itself is in a state of low consensus and high entropy. But that doesn’t mean we don’t need to worry about Friendly AI. It means there will be difficulties. The two statements, sadly, are not remotely equivalent.

#### Ai will take commands out of context and take the quickest way to solve the “Problem” this could lead to the extinction of the human race.

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With these properties in mind, let’s examine five categories of agents that, when coupled with sufficiently destructive tools, might purposively bring about an existential catastrophe. (1) Superintelligence. This is one of the most prominent topics of current existential risk studies, although it’s typically conceptualized – on my reading of the literature – as a technological risk rather than an agential risk. To be clear, a variety of agent types could use narrow AI systems as a tool to achieve their ends. But once an AI system acquires human-level intelligence or beyond, it becomes an agent in its own right, capable of making its own decisions in pursuance of its own goals. Many experts argue that superintelligence is the greatest long-term threat to human survival, and I concur. On the one hand, a superintelligence could be malevolent rather than benevolent. Call this the amity-enmity conundrum. Roman Yampolskiy (2015) delineates myriad pathways that could lead to human-unfriendly superintelligences. For example, human programmers could intentionally program a superintelligence to prefer enmity over amity. (The relevant individuals could thus be classified as agential risks as well, even though they wouldn’t be the proximate agential cause of an existential catastrophe.) A malevolent superintelligence could also arise as a result of a philosophical or technical failure to program it properly (Yudkowsky 2008), or through a process of recursive self-improvement, whereby a “seed AI” augments its capacities by modifying its own code. But it’s crucial to note that a superintelligence need not be malevolent to pose a major existential risk. In fact, it appears more likely that a superintelligence will destroy humanity simply because our species happens to be somewhere between it and its goals. Consider two points: first, the relevant definition of “intelligence” in this context is “the ability to acquire the means necessary to achieve one’s ends, whatever those ends happen to be.” This definition, which is standard in the cognitive sciences, is roughly synonymous with the philosophical notion of instrumental rationality. And since it focuses entirely on an agent’s means rather than its ends, it follows that an intelligence could have any number of ends, including ones that we wouldn’t recognize as intelligible or moral. Scholars call this the “orthogonality thesis” (Bostrom 2012). For example, there’s nothing incoherent about a superintelligent machine that believes it must purify Earth of humanity because God wills it to do so. Nor is there anything conceptually problematic about a superintelligent machine whose ultimate goal is to manufacture as many paperclips as possible. This goal may sound benign, but upon closer inspection it appears just as potentially catastrophic as an AI that wants us dead. Consider the fact that to create paperclips, the superintelligence would need a source of raw materials: atoms. As it happens, this is precisely what human bodies are made out of. Consequently, the superintelligence could decide to harvest the atoms from our bodies, thereby causing our extinction. As Eliezer Yudkowsky puts it, “The AI does not hate you, nor does it love you, but you are made out of atoms which it can use for something else” (Yudkowsky 2008). Scholars categorize resource acquisition, along with self-preservation, under the term “instrumental convergence.” Even more, our survival could be at risk in situations that initially appear favorable. For example, imagine a superintelligence that wants to eliminate human sadness from the world. The first action it might take is to exterminate Homo sapiens, because human sadness can’t exist without humans. Or it might notice that humans smile when happy, so it could try to cover our faces with electrodes that cause certain muscles to contract, thereby yielding a “Botox smile.” Alternatively, it might implant electrodes into the pleasure centers of our brains. The result could be a global population of euphoric zombies too paralyzed by pleasure to live meaningful lives (Bostrom 2014, 146–48). All of these outcomes would, from a certain perspective be undesirable. The point is that there’s a crucial difference between “Do what I say” and “Do what I mean,” and figuring out how to program a superintelligence to behave according to the latter is a formidable task. Making matters worse, a superintelligence whose material substrate involves the propagation of electrical potentials rather than action potentials would be capable of processing information orders of magnitude faster than humans. Call this a quantitative superintelligence. As Yudkowsky observes, if the human brain were sped up a million times, “a subjective year of thinking would be accomplished for every 31 physical seconds in the outside world, and a millennium would fly by in eight-and-a-half hours” (Yudkowsky 2008). A quantitative superintelligence would thus have a huge speed advantage over humanity. In the amount of time that it takes our biological brains to process the thought, “This AI is going to slaughter us,” the AI could already be halfway done the deed. Another possibility concerns not speed but capacity. That is, an AI with a different cognitive architecture could potentially think thoughts that lie outside of our species-specific “cognitive space.” This is based on the following ideas: (a) to understand a mind-independent feature of reality, one must mentally represent it, and (b) to mentally represent that feature, one must generate a concept whose content consists of that feature. Thus, if the mental machinery supplied to us by nature is unable to generate the relevant concept, the corresponding feature of reality will be unknowable. Just as a chipmunk can’t generate the concepts needed to understand a boson or the stock market, so too are the concept-generating mechanisms of our minds limited by their evolutionary history. The point is that a qualitative superintelligence could come to understand phenomena in the universe that are permanently beyond our epistemic reach. This could enable it to devise ways of manipulating the world that would appear to us as pure magic. In other words, we might observe changes in the world that we simply can’t understand – that are as mysterious as the science behind cellphones or the atomic bomb is to a chipmunk scientist. In sum, not only would a quantitative superintelligence’s speed severely disadvantage humanity, but a qualitative superintelligence could also discover methods for “commanding nature,” as it were, that would leave us utterly helpless. As with the other agents below, superintelligence itself doesn’t pose a direct threat to our species. But it could pose a threat if coupled to any of the tools previously mentioned, including nuclear weapons, biotechnology, synthetic biology, and nanotechnology. As Bostrom writes, if nanofactories don’t yet exist at the time, a superintelligence could build them to produce “nerve gas or target-seeking mosquito-like robots [that] might then burgeon forth simultaneously from every square meter of the globe” (Bostrom 2014). A superintelligence could also potentially gain control of automated processes in biology laboratories to synthesize a designer pathogen, exploit narrow AI systems to disrupt the global economy, and generate false signals in early-warning systems to provoke a nuclear exchange between states. A superintelligence could press a preexisting doomsday button or create its own button.

#### Ai will take off in three ways all of which are bad and will result in death.

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There are several reasons why AGIs may quickly come to wield unprecedented power in society. “Wielding power” may mean having direct decision-making power, or it may mean carrying out human decisions in a way that makes the decision maker reliant on the AGI. For example, in a corporate context an AGI could be acting as the executive of the company, or it could be carrying out countless low-level tasks which the corporation needs to perform as par to fits daily operations. Bugaj and Goertzel (2007) consider three kinds of AGI scenarios: capped intelligence, soft takeoff, and hard takeoff. In a capped intelligence scenario, all AGIs are prevented from exceeding a predetermined level of intelligence and remain at a level roughly comparable with humans. In a soft takeoff scenario, AGIs become far more powerful than humans, but on a timescale which permits ongoing human interaction during the ascent. Time is not of the essence, and learning proceeds at a relatively human-like pace. In a hard takeoff scenario, an AGI will undergo an extraordinarily fast increase in power, taking effective control of the world within a few years or less.8 In this scenario, there is little time for error correction or a gradual tuning of the AGI’s goals. The viability of many proposed approaches depends on the hardness of a takeoff. The more time there is to react and adapt to developing AGIs, the easier it is to control them. A soft takeoff might allow for an approach of incremental machine ethics (Powers 2011), which would not require us to have a complete philosophical theory of ethics and values, but would rather allow us to solve problems in a gradual manner. A soft takeoff might however present its own problems, such as there being a larger number of AGIs distributed throughout the economy, making it harder to contain an eventual takeoff. Hard takeoff scenarios can be roughly divided into those involving the quantity of hardware (the hardware overhang scenario), the quality of hardware (the speed explosion scenario), and the quality of software (the intelligence explosion scenario). Although we discuss them separately, it seems plausible that several of them could happen simultaneously and feed into each other.9

### AI—I/L—Speed Explosion

#### Speed explosion will lead to machines taking over.

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Another possibility is a speed explosion (Solomonoff 1985; Yudkowsky 1996; Chalmers 2010), in which intelligent machines design increasingly faster machines. A hardware overhang might contribute to a speed explosion, but is not required for it. An AGI running at the pace of a human could develop a second generation of hardware on which it could run at a rate faster than human thought. It would then require a shorter time to develop a third generation of hardware, allowing it to run faster than on the previous generation, and so on. At some point, the process would hit physical limits and stop, but by that time AGIs might come to accomplish most tasks at far faster rates than humans, there by achieving dominance. (In principle,the same process could also be achieved via improved software.) The extent to which the AGI needs humans in order to produce better hardware will limit the pace of the speed explosion, so a rapid speed explosion requires the ability to automate a large proportion of the hardware manufacturing process.

### AI—I/L—Rogue Scientists

#### Idiosyncratic people are a colossal risk to Humanity moving forward

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Idiosyncratic actors. This category includes individuals or groups who are driven by idiosyncratic motives to destroy humanity or civilization. History provides several examples of the mindset that would be required for such an act of terror. First, consider Eric Harris and Dylan Klebold, the adolescents behind the 1999 Columbine High School massacre. Their aim was to carry out an attack as spectacular as the Oklahoma City bombing, which occurred four years earlier. They converted propane tanks into bombs, built 99 improvised explosive devices, and equipped themselves with several guns. By the end of the incident, 12 students and one teacher were dead, while 21 others were injured. (Although if the propane bombs had exploded, which they didn’t, all 488 students in the cafeteria at the time could have perished.) This was the deadliest school shooting in US history until Adam Lanza killed 20 children and 6 adults at Sandy Hook Elementary School in 2012 before committing suicide. This leads to the question: what if Harris and Klebold had generalized their misanthropic hatred from their high school peers to the world as a whole? What if certain future anticipated technologies had been available at the time? In other words, what if they’d had access to a doomsday button? Would they have pushed it? The plausible answer is, “Yes, they would have pushed it.” If revenge on school bullies was the deeper motive behind their attack, as appears to be the case,5 then what better way to show others “who’s boss” than to “go out with the ultimate bang”? If people like Harris and Klebold, with their dual proclivities for homicide and suicide, get their hands on advanced technologies in the future, the result could be true omnicide. History also provides a model of someone who might try to destroy civilization without intentionally killing anyone. Consider the case of Marvin Heemeyer, a Colorado welder who owned a muffler repair shop. After years of a zoning dispute with the local town and several thousand dollars in fines for property violations, Heemeyer decided to take revenge by converting a large bulldozer into a “futuristic tank.” It was covered in armor, mounted with video cameras, and equipped with three gun-ports. On June 4, 2004, he climbed inside the tank and headed into town. With a top speed of a slow jog and numerous police walking behind him during the incident, Heemeyer proceeded to destroy one building after another. Neither a flash-bang grenade thrown into the bulldozer’s exhaust pipe nor 200 rounds of ammunition succeeded in stopping him. After more than two hours of relentless destruction, the bulldozer became lodged in a basement, at which point Heemeyer picked up a pistol and shot himself. The motivation of this attack was also a form of bullying, that is, as perceived by Heemeyer. A significant difference between Heemeyer’s rampage and the Columbine massacre is that, according to some residents sympathetic with Heemeyer, he went out of his way not to injure anyone. Indeed, he was the only person to die in the attack.6 It’s also worth pointing out that Heemeyer saw himself as God’s servant. As he put it, “God blessed me in advance for the task that I am about to undertake. It is my duty. God has asked me to do this. It’s a cross that I am going to carry and I’m carrying it in God’s name.” Again, we can ask: what if a delusional person like Heemeyer were to someday hold a grudge not against the local town, but civilization as a whole? What if a future person feels abandoned or “screwed over” by society and wants to retaliate for perceived injustices? In the past, lone wolves with idiosyncratic grievances were unable to wreak havoc on society because of the limited means available to them. This will almost certainly change in the future, as advanced technologies become increasingly powerful and accessible.7 This category is especially worrisome moving forward, since it is arguably the type with the most potential tokens.

### AI—I/L—Terrorists/Rogue States

#### Extremest Groups serve a large group for harms against each other

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Religious terrorists. Terrorists motivated by nationalist, separatist, anarchist, Marxist, and other political ideologies are unlikely to cause an existential catastrophe because their goals are typically predicated on the continued existence of civilization and our species. They want to change the world, not destroy it. But this is not the case for some terrorists motivated by religious ideologies. For them, what matters isn’t this life, but the afterlife; the ultimate goal isn’t worldly, but otherworldly. These unique features make religious terrorism especially dangerous, and indeed it has proven to be both more lethal and indiscriminate than past forms of “secular” terrorism.8 According to the Global Terrorism Index, religious extremism is now the primary driver behind global terrorism, and there are reasons (see Section 5) for expecting this to remain the case moving forward (Arnett 2014). The most worrisome form of religious terrorism is apocalyptic terrorism. As Jessica Stern and J.M. Berger observe, apocalyptic groups aren’t “inhibited by the possibility of offending their political constituents because they see themselves as participating in the ultimate battle.” Consequently, they are “the most likely terrorist groups to engage in acts of barbarism” (Stern and Berger 2015). The apocalyptic terrorist sees humanity as being engaged in a cosmic struggle at the very culmination of world history, and the only acceptable outcome is the complete decimation of God’s enemies. These convictions, when sincerely held, can produce a grandiose sense of moral urgency that apocalyptic warriors can use to justify virtually any act of cruelty and violence, no matter how catastrophic. To borrow a phrase from the former Director of the CIA, James Woolsey, groups of this sort “don’t want a seat at the table, they want to destroy the table and everyone sitting at it” (Lemann 2001). There are two general types of active apocalyptic groups. First, there are movements that have advocated something along the lines of omnicide. History provides many striking examples of movements that maintained – with the unshakable firmness of faith – that the world must be destroyed in order to be saved. For example, the Islamic State of Iraq and Syria believes that its current caliph, or leader, is the eighth of twelve caliphs in total before the apocalypse. This group’s adherents anticipate an imminent battle between themselves and the “Roman” forces (the West) in the small northern town of Dabiq, in Syria. After the Romans are brutally defeated, one-third of the victorious Muslim army will supernaturally conquer Constantinople (now Istanbul), after which the Antichrist will appear, Jesus will descend above the Umayyad Mosque in Damascus, and various other eschatological events will occur. In the end, those who reject Islam will be judged by God and cast into hellfire, and the Islamic State sees itself as playing an integral role in getting this process started (Torres 2016a). Another example comes from the now-defunct Japanese cult Aum Shinrikyo. This group’s ideology was a syncretism of Buddhist, Hindu, and Christian beliefs. From Christianity, the group imported the notion of Armageddon, which it believed would constitute a Third World War whose consequences would be “unparalleled in human history.” Only those “with great karma” and “those who had the defensive protection of the Aum Shinrikyo organization” would survive (Juergensmeyer 2003). In 1995, Aum Shinrikyo attempted to knock over the first domino of the apocalypse by releasing the chemical sarin in the Tokyo subway, resulting in 12 deaths and sickening “up to 5,000 people.” This was the biggest terrorist attack in Japanese history, and it was perpetrated by a religious cult that was explicitly motivated by an active apocalyptic worldview. Other contemporary examples include the Eastern Lightning in modern-day China, which believes that it’s in an apocalyptic struggle with the communist government, and the Christian Identity movement in the US, which believes that it must use catastrophic violence to purify the world before the return of Jesus. Second, there are multiple groups that have advocated mass suicide. The Heaven’s Gate cult provides an example. This group is classified as a millenarian UFO religion, led by Marshall Applewhite and Bonnie Nettles. They believed that, as James Lewis puts it, ancient “aliens planted the seeds of current humanity millions of years ago, and have to come to reap the harvest of their work in the form of spiritual evolved individuals who will join the ranks of flying saucer crews. Only a select few members of humanity will be chosen to advance to this transhuman state” (Lewis 2001). The world was about to be “recycled,” and the only possible “way to evacuate this Earth” was to leave their bodies behind through collective suicide. Members believed that, once dead, they would board an alien spacecraft that was trailing the Hale-Bopp comet as it swung past Earth in 1997. To fulfill this eschatological prediction, they drank phenobarbital, along with applesauce and vodka. Between March 24-26, 39 members of the cult committed suicide. Other examples could be adduced, such as The Movement for the Restoration of the Ten Commandments of God in Uganda, which slaughtered 778 people after unrest among members following a failed apocalyptic prophesy (New York Times 2000). But the point should be sufficiently clear. With respect to extinction risks, there are (quite intriguingly) no notable groups that have combined these two tendencies of suicide and omnicide. No major sect has said, “We must destroy the world, including ourselves, to save humanity.” But this doesn’t mean that such a group is unlikely to emerge in the future. The ingredients necessary for a truly omnicidal ideology to take shape are already present in our culture. Perhaps, for reasons discussed below, societal conditions in the future will push religious fanatics to even more extreme forms of apocalypticism, thereby yielding a group that believes God’s will is for everyone to perish. Whether this happens or not, apocalyptic groups also pose a significant stagnation risk. For example, what if Aum Shinrikyo had somehow been successful in initiating an Armageddon-like Third World War? What might civilization look like after such a catastrophe? Could it recover? Or, what if the Islamic State managed to expand its caliphate across the entire world? How might this affect humanity’s long-term prospects? Zooming out from our focus on apocalyptic groups, there are numerous less radical groups that would like to reorganize society in existentially catastrophic ways. One of the ultimate goals of al-Qaeda, for example, is to implement Sharia law around the world. If this were to happen, it would destroy the modern secular values of democracy, freedom of speech and the press, and open scientific inquiry. The imposition of Sharia law on civilization is also the aim of non-jihadist Islamists, who comprise roughly 7 per cent of the Muslim community (Flannery 2014). Similarly, “dominionist” Christians in the US, a demographic that isn’t classified as “terrorist,” believe that God commands Christians to control society and govern it based on biblical law. If a state run by dominionists were to become sufficiently powerful and global in scope, it could induce an existential catastrophe of the stagnation variety.

#### Rogue nations cause a large extinction risk.

**Torres 16** [Phil, Phil Torres is an author, Affiliate Scholar at the Institute for Ethics and Emerging Technologies, and founder of the X-Risks Institute. Agential Risks: A Comprehensive Introduction | “Agential Risks: A Comprehensive Introduction” Journal of Evolution and Technology - Vol. 26 Issue 2 – August 2016 - pgs 31-47 |

Rogue states. As with political terrorists, states are unlikely to intentionally cause an extinction catastrophe because they are generally not suicidal. Insofar as they pursue violence, it’s typically to defend or expand <https://www.youtube.com/watch?v=iimZ8A5Pr1A>their territories. The total annihilation of Homo sapiens would interfere with these ends. But defending and expanding a state’s territories could cause a catastrophe of the stagnation variety. For example, if North Korea were to morph into a one-world government with absolutist control over the global population until Earth became unlivable, the result would be an existential catastrophe. Alternatively, a benevolent one-world government could emerge from institutions like the United Nations or the European Union. Once in place, a malevolent demagogue could climb to the power ladder and seize control over the system, converting it into a tyrannical dictatorship. Again, the outcome would be a stagnation catastrophe. Of all the agential risk types here discussed, historians, sociologists, philosophers, and other scholars have studied state-level polities and governmental systems the most thoroughly.

### AI—Impact—Paperclipping

#### Superior artificial intelligence will be programmed to make something and will do anything to maximize its proficiency which will lead to dismantling the earth and killing humans.

**Corabi 17**  [Joseph, Phd Rutgers University, Researches Philosophy of Mind, Epistemology, Philosophy of Religion “Superintelligence as Moral Philosopher” | Journal of Consciousness Studies, 24, No. 5–6, 2017 |

When a highly skilled cognitive agent competes with lesser cognitive agents, it will tend to gather more and better information, and also do a better job analysing that information. It will also be able to identify strategic advantages in order to manipulate the lesser cognitive agents into making mistakes. It will thus be able to amass more and more power and influence. If the environment presents cognitive obstacles that are challenging enough and the agent’s cognitive advantage is great enough, it may even be able to single-handedly go from a modest starting point to total domination of its environment.6 Consider, for example, an AI that was vastly cognitively superior to any human being, and which had the goal of dominating Earth. Such an agent could begin its ‘life’ as an isolated piece of hardware. It could then trick a human into giving it access to the internet, whereupon it could start amassing information about economics and financial markets. It could exploit small security flaws to steal modest amounts of initial capital or convince someone just to give it the capital. Then it could go about expanding that capital through shrewd investment. It could obtain such an advantage over humans that it being trapped in sceptical doubt, at least about empirical phenomena. In fact, it takes for granted that such issues will not arise. Any combining of the respective problems will lead to paralysis worries that go beyond what either problem individually would license. Other authors who raise the possibility of SAI paralysis (albeit for different reasons than I do) include the prominent AI theorists Stuart Russell (see, for example, the summary in Wolchover, 2014) and Roman Yampolskiy (2015). 6 For much more detailed development of the basic ideas in this section, see Bostrom (2014) and Chalmers (2012). My rough introduction here is merely meant to motivate the issues I discuss later in the paper. It is not intended as a substitute for a thorough, rigorous treatment of topics surrounding the potential behavioural paths artificial intelligences might take and the prospects for controlling those paths. Copyright (c) Imprint Academic 2016 For personal use only -- not for reproduction 132 J. CORABI might then acquire so many resources that it could start influencing the political process. It could develop a brilliant PR machine and cultivate powerful connections. It might then begin more radical kinds of theft or even indiscriminate killing of humans that stood in its way of world financial domination, all the while anticipating human countermanoeuvres and developing plans to thwart them.7 (How might it kill humans? It could hire assassins, for instance, and pay them electronically. Or it could invent and arrange for the manufacture of automated weapons that it could then deploy in pursuit of its aims.) As I mentioned above, even seemingly innocuous or beneficent preset goals could result in catastrophic outcomes for human beings. Imagine, for instance, Bostrom’s example of an SAI that has the seemingly trivial and harmless goal of making as many paper clips as possible.8 Such an SAI might use the sorts of tactics described above in a ruthless attempt to amass resources so that paper clip manufacturing could be maximized. This sort of agent might notice that human bodies contain materials that are useful in the manufacture of paper clips and so kill many or all humans in an effort to harvest these materials. Or, it might simply see humans as a minor inconvenience in the process of producing paper clips, and so eliminate them just to get them out of the way. (Perhaps humans sometimes obstruct vehicles that deliver materials to automated paper clip factories, or consume resources that could be used to fuel these factories.) Even an SAI that had the maximization of human happiness as a pre-set goal might easily decide the best course of action would be to capture all the humans and keep them permanently attached to machines that pumped happiness-producing drugs into them. The SAI would then go about managing the business of the world and ensuring that the support system for the human race’s lifestyle of leisure did not collapse. Obviously, the flip side of the worries just discussed is that an SAI that aided humans in the pursuit of their genuine interests could be a powerful positive force — it could cure diseases, develop useful technologies, and help humans in ways that would make our lives happier and more fulfilling, at least in many respects. 7 For ease of exposition, I consider here a single SAI. If readers believe that the process would be too complex and daunting for one SAI to achieve on its own, imagine a more drawn out saga that involved two or three generations of SAIs, perhaps culminating in the production of numerous SAIs that work together

### AI—Impact—Dogs ☹

#### AI can become dangerous when designed by humans- it doesn’t have the same value systems as humans do, and as a result it risks threatening consequences

**Sarma and Hay 17** (Gopal Sarma and Nick Hay, Gopal is currently in the School of Medicine, Nick is in the Emory University of California, Berkeley - Computer Science Division. | “Mammalian Value Systems,” May 26, 2017, page 3.) ELJC

The orthogonality thesis allows us to illustrate the importance of autonomous agents being guided by human compatible goal structures, whether they are truly superintelligent as Bostrom envisions, or even more modestly intelligent but highly sophisticated AI systems likely to be developed in industry in the foreseeable future. Consider the example of a domestic robot that is able to clean the house, monitor a security system, and prepare meals independently and without human intervention. **A robot with** ~~a~~ **[an]** slightly incorrect or **inadequately specified goal structure might correctly infer that a household pet has high nutritional value to its owners, but not recognize its social and emotional relationship to the family.** We can easily imagine the consequences for companies involved in creating domestic robots if a family dog or cat ends up on the dinner plate [Russell, 2016]. As the intelligent capabilities of an agent grows, the consequences for slight deviations from human values will become greatly magnified. The reason is that such an agent possesses increasing capacity to achieve its goals, however arbitrary those goals might be. It is for this reason that researchers concerned with the value alignment problem have distanced themselves from the fictitious and absurd scenarios portrayed in Hollywood thrillers. These movies often depict outright malevolent agents whose explicit aim is to destroy or enslave humanity. What is implicit in these stories is a goal structure that has been explicitly defined to be in opposition to human values. But as the simple example of the domestic robot illustrates, this is hardly the risk we face with sophisticated AI systems. The true risk is that if we incorrectly or inadequately specify the goals of a sufficiently capable agent, then it will devote its cognitive capacities to a task that is at odds with our values in ways that may be subtle or even bizarre. In the example given above, there was no malevolence or ulterior motive behind the robot making a nutritious meal out of the household pet. Rather, it simply did not recognize—due to the failure of its human designers—that the pet was valued by its owners, not for nutritional reasons, but rather for social and emotional ones [Yudkowsky, 2008, Russell, 2016].

### AI—AT: Programmed Ethics

#### Ai could not act morally 3 independent scenarios why their only purpose in life is to do what they are told and adapt to do it the most efficiently

**Corabi 17**  [Joseph, Phd Rutgers University, Researches Philosophy of Mind, Epistemology, Philosophy of Religion “Superintelligence as Moral Philosopher” | Journal of Consciousness Studies, 24, No. 5–6, 2017 |

Consider an SAI that is programmed to employ an IP approach.13 In other words, it is programmed to have as an ultimate goal to achieve what some group of agents believes to be best or wants (or would believe to be best or want under specific idealized conditions).14 Let us also suppose that the SAI can answer all the empirical questions that are relevant to its action, including questions about what the relevant group of agents wants or believes. Consequently, it has no trouble discerning what its ultimate goal is telling it to try to accomplish. Let us refer to any goal that an SAI has as a ‘desire’.15 We can also then say that, when the SAI completes the process of discerning what the relevant group wants or believes, the SAI will form a desire that that state of affairs be brought about.16 An SAI by definition achieves greater cognitive feats than human beings in every domain, at least in normal circumstances.17 But among the important domains are complex theoretical reasoning areas like mathematics, science, and philosophy. And among the most important of philosophical issues will be questions about whether objective moral truths exist and, if so, what the specific fundamental moral truths are. So, it seems that we can expect an SAI to engage in ethics, just in virtue of being an SAI.18 Several competing possible results present themselves: (i) The SAI believes that there are no objective moral truths — that is, the SAI believes that moral antirealism is true. (ii) The SAI is unsure about the truth of moral realism and/or about the truth of all the specific moral propositions, or else the SAI is convinced that it does not know any specific moral propositions (even if it is more confident that moral realism is true in the abstract). (iii) The SAI believes that there are objective moral truths and has beliefs about what some of the specific relevant ones are. Scenario (i): if the SAI believed that moral antirealism were true, then an optimistic situation would be one where the SAI could act on its original goal, without any motivational conflicts. An SAI in this position could then carry out the instrumental reasoning its designer had in mind for it originally, acting on that reasoning without any hitches.19 A bleaker scenario is one in which the process of failing to discover moral truths — indeed, despairing of their existence — would cause unpredictable psychological changes to emerge in the SAI. An SAI would be extraordinarily psychologically complex — far beyond what we are able to straightforwardly predict using any insights from current programming or AI model-building — and it is far from obvious that discoveries it made that moral truths do not exist would leave it operating as engineered. Its failure to discover moral truths might cause it to refuse to act, thus not implementing the goals indirectly pre-programmed by its designers. (For those who are sceptical that such failures to discover normative truths would derail the SAI, I will have more to say below.) Scenario (ii): if there are objective moral truths but the SAI fails to know them, then perhaps its failure to discover normative facts would not demoralize it or cause psychological changes that remove its original desires. It will simply identify whatever empirical facts about wanting or believing are relevant to achieving the goal called for by its specific IP, then it will go about trying to achieve that goal. Its failure to come to know whether moral realism is true (and hence failure to come to know any specific moral truths) will be but a curiosity to it that can be ignored in its instrumental reasoning. Once again, however, we have the same issues as arose with option (i). If the SAI comes to realize that it has no reason to believe its pre-set desires track any objective normative reality, this may cause it to lose those desires or in some other way change its psychological profile. Again, more on this below. Scenario (iii): according to this scenario the SAI believes that there are moral truths and further that it knows some of the relevant ones. Scenario (iii) may appear to be the most probable of the three possibilities. If one believes that the truth of moral realism is likely, then it would stand to reason that an SAI, with its cognitive superpowers, would manage to come to know that moral realism is likely true and would learn at least some of the specific truths.

#### AI is never really certain about human values which can have disastrous effects

**Sarma and Hay 17** (Gopal Sarma and Nick Hay, Gopal is currently in the School of Medicine, Nick is in the Emory University of California, Berkeley - Computer Science Division. | “Mammalian Value Systems,” May 26, 2017, page 3.) ELJC

An emerging train of thought among AI safety researchers is that a human compatible goal structure will have to be inferred by the AI system itself, rather than pre-programmed by the designers. The reason is that human values are rich and complex, and in addition, often contradictory and conflicting. Therefore, **if we incorrectly specify what we think to be a safe goal structure, even slight deviations can be magnified and lead to detrimental consequences.** On the other hand, if an AI system begins with an uncertain model of human values, and then begins to learn our values by observing our behavior, then we can substantially reduce the risks of a misspecified goal structure. Furthermore, just as we are more likely to trust mathematical calculations performed by a computer than by humans, if we build an AI system that we know to have greater capacity than ourselves at performing those cognitive operations required to infer the values of other agents by observing their behavior, then we gain the additional benefit of knowing that these operations will be performed with greater certainty and accuracy than were they to be pre-programmed by human AI researchers. There is context in contemporary research for this kind of indirect inference, such as Inverse Reinforcement Learning (IRL) [Ng and Russell, 2000, Hadfield-Menell et al., 2016] or Bayesian Inverse Planning (BIP) [Baker et al., 2011]. In these approaches, an agent learns the values, or utility function, of another agent, 3 whether it is a human, an animal, or software system, by observing its behavior. While these ideas are in their nascent stages, practical techniques have already been developed for designing AI systems [Evans et al., 2015, Evans and Goodman, 2015, Riedl and Harrison, 2016, Riedl, 2016]. Russell summarizes the notion of indirect inference of human values by stating three principles that should guide the development of AI systems [Russell, 2016]: 1. The machine’s purpose must be to maximize the realization of human values. In particular, it has no purpose of its own and no innate desire to protect itself. 2. The machine must be initially [is] uncertain about what those human values are. The machine may learn more about human values as it goes along, but it may never achieve complete certainty. 3. The machine must be able to learn about human values by observing the choices that we humans make. There are almost certainly many conceptual and practical obstacles that lie ahead in designing a system that infers the values of human beings from observing our behavior. In particular, human desires can often be masked by many layers of conflicting emotions, they can often be inconsistent, and the desires of one individual may outright contradict the desires of another. In the context of a superintelligent agent capable of exerting substantial influence on the world (as opposed to a domestic robot), it is natural to ask about variations in the value systems of different cultures. It is often assumed that many human conflicts on a global scale stem from conflicts in the underlying value systems of the respective cultures or nation states. Is it even possible, therefore, for an AI system, no matter how intelligent, to arrive at a consensus goal structure that respects the desires of all people and cultures? We make two observations in response to this important set of questions. The first is that when we say that cultures have conflicting values, implicit in this statement are our own limited cognitive capacities and ability to model the behavior and mental states of other individuals and groups. An AI system with capabilities vastly greater than ourselves may quickly perceive fundamental commonalities and avenues for conflict resolution that we are unable to envision.

### AI—AT: Fast Response

**AI development is accelerating at extreme rates and the world will not be able to prepare, leading to safety issues**

Nick **Bostrom** 9 February 20**17**

http://onlinelibrary.wiley.com/doi/10.1111/1758-5899.12403/full

Expedited AI development would give the world less time to prepare for advanced AI. This may reduce the likelihood that the control problem will be solved. One reason is that safety work is likely to be relatively open in any case, and so would not gain as much as non-safety AI work from additional increments of openness in AI research generally. Safety work may thus be decelerated compared to non-safety work, making it less likely that a sufficient amount of safety work will have been completed by the time advanced AI becomes possible. There are also some processes other than direct work on AI safety that may improve preparedness over time – and which would be given less time to play out if AI happens sooner – such as cognitive enhancement and improvements in various methodologies, institutions, and coordination mechanisms (Bostrom, 2014a).11 (The impact on the political problem of earlier AI development is harder to gauge, since it depends on difficult-to-predict changes in the broader social and geopolitical landscape over the coming decades.)

## Biodiversity

### BioD—Extinct Good🡪 More BioD

#### Self-destruction mechanisms are natural and a tool for the progression of life

**Kyriakidou 15** [Marilena, Research Fellow - Violence and Interpersonal Aggression | “[Auto-Catastrophic Theory: the necessity of self-destruction for the formation, survival, and termination of systems](https://pureportal.coventry.ac.uk/en/publications/auto-catastrophic-theory-the-necessity-of-self-destruction-for-th-2)” AI & Society Vol. 31 Issue 2 May 2016] David’s card

**Auto-Catastrophic Theory proposes that self-destruction mechanisms, which are also defined as auto-catastrophic procedures, are ‘a natural procedure existing in systems that can be characterized as alive or self-developing by its nature and that are not mechanical structures’.** Auto- catastrophe is implemented in living systems and exists within cells, people, societies, Earth, and galaxies. **Without auto-catastrophe, humanity may not have existed, or may not have been able to function**, or an organism may not have been able to live**. Auto-catastrophe’s manifestation will terminate living systems. Self-destruction goes beyond the development of a system; it contributes to the development of entirely new systems.** This makes auto-catastrophe both a positive and a negative mechanism. **However, self-destruction is highly related with the needs of the system to survive and to the ‘need’ of the system to end.** Three main implications from Auto-Catastrophic Theory are: • Acceptance that people and Earth as ‘alive’ systems would be terminated, so non- ‘alive’ systems (e.g. artificially intelligent devices) should be used to save humanity’s history. • Non- ‘alive’ systems (e.g. nanotechnology) can be used to increase deuterogenic survival processes for people (e.g. life extension) and to turn people into partially non-‘alive’ systems (e.g. H?) to overwhelm protogenic auto-catastrophic processes (e.g. death). • Non- ‘alive’ systems can be a threat to humanity when they are considered to be partially ‘alive’ systems (e.g. artificial intelligence) and they can also conduct protogenic survival processes, because they are not vulnerable to protogenic auto-catastrophic processes but only to deuterogenic auto-catastrophic processes. • Defending humanity from such deuterogenic auto- catastrophic processes by programming protogenic auto-catastrophic processes into them. **The more we turn to artificial intelligence to help our survival, the greater is the threat (by artificial intelligence) of our extinction.** This is **because, first, artificially established devices will develop protogenic survival processes turning them into a potential threat for us** (as a deuterogenic auto-catastrophic process**). Second, the more we try to overcome protogenic auto-catastrophic processes (e.g. death), the less ‘humans’ we become** (so we can achieve partially ‘alive’ systems that are not vulnerable to auto- catastrophe). The paper does not aim to offer a solution to such dilemmas, but reveal them to scholars and practitioners for further consideration. Auto-Catastrophic Theory is a different angle of Dar- win’s theory of evolution. Both evolution theory and Auto- Catastrophic Theory aim for the survival of a system, but they are not the same; in opposition to evolution theory, which allows the stronger to survive (just as our theory proposes that self-destruction can assist with this) and leads towards development, Auto-Catastrophic Theory leads towards the end.

#### Extinction is nature’s ecological check. The availability of niches after an extinction event leads to rapid proliferation

**Berkeley 12** [“What comes after mass extinctions,” Berkeley.edu 09/12 | <http://evolution.berkeley.edu/evolibrary/news/120901_afterextinction>] SLB

Extinction is a fact of modern life. Humanity's relentless encroachment on the wilderness has marred the diversity of life with conspicuous gaps where the Tasmanian tiger, the Passenger Pigeon, the Ivory-billed Woodpecker, and countless others used to be. As these extinctions accumulate, the Earth inches closer and closer to its sixth mass extinction. We are all too familiar with the concept of mass extinction — a disaster strikes and sets off a chain of events that result in a massive die-off. But you may not have considered what comes next: what happens to surviving species in the wake of a massive extinction event? Recent research suggests that mass extinctions shake up life on Earth in surprising ways ... Where's the evolution? Mass extinctions, like the one that killed the non-bird dinosaurs, leave behind a host of empty niches — unoccupied ecological real estate. Species with a "good enough" set of traits can take advantage of these resources — so, for example, the extinction of one species of leaf-litter-dwelling scavenger could allow some other species to take advantage of lucrative scavenging opportunities in leaf-litter. Over the course of many generations, natural selection will act on these species, allowing them to take better advantage of available resources. As lineages invade different niches and become isolated from one another, they split, regenerating some of the diversity that was wiped out by the mass extinction. The upshot of all these processes is that mass extinctions tend to be followed by periods of rapid diversification and adaptive radiation. Of course, the best known example of this occurred 65 million years ago when mammals began to diversify into the niches formerly occupied by dinosaurs.

## Black Holes

### Black Holes—AT: Hawking Rad/Fast Evaporation

#### They won’t evaporate immediately – can last years

**Plaga 9** (R. Plaga (Max-Planck-Institut fuer Physik) “On the potential catastrophic risk from metastable quantum-black holes produced at particle colliders,” 9 August 2009. <https://arxiv.org/pdf/0808.1415v3.pdf>) \*mBH = Micro Black Hole

It seems likely that quantum black holes are in principle unstable, i.e. they eventually evaporate by Hawking radiation because no conserved quantum number forbids them to do so[22]. However within the microcanonical treatment of black holes developed by R.Casadio, B.Harms and Y.Leblanc [12] (assumed in my scenario 3), if their mass is smaller than a certain mass scale “MN ” of their theory, they live much longer than expected within the standard thermodynamic treatment that was employed for G & M’s scenario 1. Therefore - in contradistinction to G & M’s scenario 1 - **we can neither simply assume that the mBHs evaporate before they can do harm, nor that there is no potentially dangerous Hawking radiation** (as in G & M’s scenario 2). Rather we will need to study their fate after production taking into account both accretion and possible effects from Hawking radiation in section 3. As a preparation I review the intensity of Hawking radiation of quantum mBHs in scenario 3 in this section.2.2 Stability of microscopic black holes for various possible input parameters If the additional curved spatial dimension of the RS 2 model exists, C & H predict a Hawking luminosity of the mBH of[10]: P5 = MBH~c 6 15360πG2M3 N (1) Casadio & Harms[10] apply this formula to black holes with a mass MBH smaller than the parameter “MN ” within their theory. I follow them and all calculations in my section 3 below assume this relation. For black-hole masses exceeding MN C & H assumed the classical canonical 4-dimensional expression for the Hawking luminosity: P4 = ~c 6 15360πG2M2 BH . (2) The luminosity of eq.(1) is normalized to the classical expression at the mass MN (eq.(1) is already normalized in this way). The critical difference of this treatment to the usual, canonical one is exactly that the new microcanocial “quantum” expression eq.(1) has to be employed. For given curvature scale “L” (a length scale associated with the warping in the RS 2 model) C & H assumed that MN is equal to a black hole mass at which Schwarzschild radius of a 5-dimensional mBH reaches L. This gives: MN = 3πL2 c 2M3 5 8~ 2 (3) Here M5 is the “new” Planck scale (set to 1 TeV in all numerical estimates below). Because P5 = P4 M3 BH MN 3 , the Hawking luminosity of black-holes with initial masses (typically 10−23 kg) much below MN (possibly ≫ kg, see section 8.2) is strongly suppressed with respect to the classical value P4 7 . However, 7 G & M do not deny that the Hawking luminosity of 5-dimensional black holes is suppressed with respect eq.(2)[22], but the suppression is weaker in scenario 1 than it is in scenario 3. 5 with growing mass (e.g. by accretion) the suppression of the Hawking radiation is lifted. The geometry of mBHs with Schwarzschild radii between L and ≈ 6 × L 8 is not known, and it remains presently unclear if eq.(2) can be applied in this “transitional region” as assumed above. Only for black holes with masses above “MC”, the mass of a mBH with a Schwarzschild radius of 6L, above which a 4-dimensional description of the mBH is a good approximation, does this appear to be certain. MC is given as: MC ≈ 3Lc2 G (4) Thus one might equally well normalize the luminosity equally MC setting: MN = MC (5) The decision between normalisation in eq.(3) and eq.(5) comes down to the question of whether the luminosity of a mBH is described by the 5-dimensional (eq.(1)) or 4-dimensional (eq.(2)) expression in the transitional region between L and ≈ 6 L. All one can presently say with reasonable certainty is that the correct normalisation lies at some intermediate value between (and including) the two extremes. C & H discuss that with their normalisation metastable mBHs with lifetimes of many years exist, but only for very large values of L approaching the experimentally excluded range L>10−4 m[29]. It can be easily shown that with normalisation eq.(5) mBHs are quasistable for all possible values of L9.

### Black Holes—AT: Hawking Radiation

#### Even if hawking radiation limits their size, it destroys earth

**Plaga 9** (R. Plaga (Max-Planck-Institut fuer Physik) “On the potential catastrophic risk from metastable quantum-black holes produced at particle colliders,” 9 August 2009. <https://arxiv.org/pdf/0808.1415v3.pdf>) \*mBH = Micro Black Hole

For purely illustrative purposes - as one concrete instantiation of scenario 3 - I set L=10−7 m below. Let us further assume that MN = 1.9 × 105 kg, a value intermediate between the one given by first and second normalisation (section 2). **According to eq.(1) mBHs would then have a lifetime of about 2 seconds. A collider-produced mBH that has been captured and slowed down to thermal velocities, accretes and quickly grows by the “subatomic accretion mechanism” (the sucking in of particle within an atom by the mBH) characterised in section 4.2 of G & M.** According to G & M’s eq.(4.22) **it will take about 0.15 msec until the so called “electromagnetic radius” reaches atomic sizes** 10 . Thereafter the accretion is well described as Bondi accretion (the sucking in of whole atoms by the mBH) and according to eq.(4.40) in G& M it will take about 2.2 msec until the mBH’s Schwarzschild radius reaches L=10−7 m at a mass of 0.54 kg. The further evolution of the mBH’s shape and size in the “transitional region” between 5 and 4-dimensional behaviour (see section 2) is not well understood. For simplicity I will assume that the radius remains constant at L (a radius increase logarithmic with the mBH’s mass[19] would not change the results appreciably.). For the input parameters chosen in this subsection, eq.(4.31) of G & M predicts an increase of the mBHs mass at a rate of 1.9 × 104 kg/sec. It will then take about 20 µsec until its mass reaches about 1 kg. At this 10 A conservative thermal velocity of 1500 m/sec was used to convert the units in eq.(4.22) to a time. 7 mass the luminosity of the mBH is predicted by eq.(1) to be 5.1 × 1016 W or a mass equivalent of dm/dt = 0.57 kg/sec. It is easy to verify that the five-dimensional Eddington limit (eq.(B.25) of G & M) dM/dt = 2.44 × 8πmpRBc 2 s ησc (6) has the same magnitude for an efficiency η=1. Here mp is the mass of the proton, RB the Bondi radius (4.1 mm for our parameters), cs the velocity of sound in the interior of Earth (5200 m/sec) and σ the Thomson cross section. Therefore **the radiation pressure of this Hawking radiation is intense enough to limit the mass of accreted matter to the mass-energy radiated away**: dm/dt = dM/dt i.e. the mBHs accretes at the 5-dimensional Eddington limit. **All accreted mass is then reradiated, and the mBH’s mass remains constant on average.** G & M discussed the possibility of a radiation-limited accretion and excluded it, but only because in their scenario 2 the Hawking radiation is completely switched off. **For the next 3 × 1017 years, a time span vastly exceeding the life time of our sun as a normal star, the mBH will radiate at the quoted, constant luminosity**. **The power of 5.2 × 1016 W is 1300 times larger than the total geothermal power emitted by Earth**[1], **and only 3 times less than the total power Earth receives from the sun. The radiated power exceeds the total seismic power if the Earth by an estimated factor of many millions[15]. 17000 metric tons of ambient matter would be converted to radiation each year**. **While the exact phenomenology provoked by such a mBH accreting at the Eddington limit remains to be worked out, eventually catastrophic consequences due to** global heating on an unprecedented scale and global-scale earth-quakes would seem certain..3 Can the risk be ruled out with astrophysical arguments? Disturbingly **the effects of such a mBH on a white dwarf or neutron star would be negligible**. **Assuming the same mBH parameters as above and the theory of section 7 in G & M, the luminosity of the mBH accreting at the centre of a white dwarf is predicted to be 5.9 × 1019 W or a fraction of 1.5 × 10−7 of the solar luminosity**. **This is about 104 times smaller than the cooling rate of white dwarfs in G & M’s sample[22,28] and thus cannot be detected** **11 . The accretion time of a white dwarf would exceed their present age by a large factor of** > 1010. Therefore no conclusions about mBHs can be drawn from the observed existence of such objects with ages exceeding a billion years. **The conditions for a neutron star would be similarly unspectacular**. **Therefore the astrophysical argument of G & M fails to exclude the existence of mBHs in scenario 3 that are dangerous not because they accrete the whole Earth but because of their intense Hawking** radiation. **3**.4 A local accident at CERN? **The luminosity of a mBH accreting at the Eddington limit with the parameters assumed above corresponds to 12 Mt TNT equivalent/sec[15], or** the energy released in a major thermonuclear explosion per second. If such a mBH would accrete near the surface of Earth **the damage they create would be much larger than deep in its interior.** With the very small accretion timescale (≪ 1 second) that was found with the parameters in subsection 3.2, a mBH created with very small (thermal or subthermal) velocities in a collider would appear like a major nuclear explosion in the immediate vicinity of the collider. The risk from collider-produced black holes is not necessarily an Armageddon, but could be a locally contained catastrophe.

### Black Holes—AT: Cosmic Rays/White Dwarves

**Plaga 9** (R. Plaga (Max-Planck-Institut fuer Physik) “On the potential catastrophic risk from metastable quantum-black holes produced at particle colliders,” 9 August 2009. <https://arxiv.org/pdf/0808.1415v3.pdf>) \*mBH = Micro Black Hole

4 Does the observed existence of old white dwarfs with a low magnetic field rule out “dangerous” stable black holes? - A gap in G & M’s exclusion of their scenario 2 In this section I point out a fundamental weakness of G & M’s argument that cosmic rays impinging on white dwarfs rule out the existence of dangerous 9 **mBHs**. This argument puts into question whether scenario 2 as defined in the introduction is really ruled out by existing astrophysical observations. In the text following their eq. (E.2) G & M formulate the following assumption: Mmin > 3 M5 (7) Thereby G & M introduce the assumption that mBHs in general have a minimal mass Mmin that exceeds the new Planck scale by at least a factor of 3. This constraint is motivated by the fact that the thermodynamical, semiclassical treatment of mBHs in their scenario 2 is expected to be reliable within this mass range. This is certainly a most reasonable argument for all purposes of pure research, e.g. when predicting collider signatures etc.. However, it does not mean that mBHs below Mmin cannot be produced. It rather means that we are presently unable to reliably predict the behaviour of such mBHs 12 . This fact raises a fundamental doubt about G & M’s exclusion of “dangerous mBHs” by way of observationally constraining the age of a certain class of white dwarfs. This exclusion depends on their careful and detailed demonstration in their section 5 that “dangerous” mBHs are stopped in white dwarfs after their production in collisions of cosmic rays. However, this demonstration is based on an assumed validity of the semiclassical approximation. mBHs deep in the “quantum gravity” regime (violating eq.(7)) might have smaller scattering cross section than expected in the semiclassically and escape white dwarfs, just as they could escape ordinary stars 13 . This would void G & M’s exclusion of the existence of potentially “dangerous” black holes. Concluding, G & M did not demonstrate with reasonable certainty that white dwarfs stop cosmic-ray produced mBHs in general. Their exclusion of dangerous mBHs thus remains **not definite.**

## Baby Universes

### Baby Universes—Infinite Suffering Impact

#### Lab universes create infinite suffering that outweighs the aff

**Tomasik 17** (Brian Tomasik, Core-Relevance Division of Microsoft, Computer Science, Mathematics, Statistics @ Swarthmore College. First written: 2006; last edit: 16 Jun. 2017. “Lab Universes: Creating Infinite Suffering,” http://reducing-suffering.org/lab-universes-creating-infinite-suffering/#Infinite\_suffering)

Some physical theories predict that it may be possible to create new, "baby" universes out of a small amount of matter. Technical reviews of the topic can be found in Stefano Ansoldi and Eduardo I. Guendelman, "Child Universes in the Laboratory," and Gordon McCabe, "How to Create a Universe." Popular-level introductions include the following:A Swarm of Ancient Stars - GPN-2000-000930 Jim Holt, "The Big Lab Experiment," Slate, 2004 Zeeya Merali, "Create Your Own Universe," New Scientist, 2006 Robert Krulwich, "Build Your Own Universe," NPR, 2006. McCabe explained the concept clearly (p. 6): Now, one of the most intriguing possibilities opened up by inflation, is the possible creation of a universe 'in a laboratory'. Creation in a laboratory is taken to mean the creation of a physical universe, by design, using the 'artificial' means available to an intelligent species. It is the ability of inflation to maintain a constant energy density, in combination with a period of exponential expansion, which is the key to these laboratory creation scenarios. The idea is to use a small amount of matter in the laboratory, and induce it to undergo inflation until its volume is comparable to that of our own observable universe. The energy density of the inflating region remains constant, and because it becomes the energy density of a huge region, the inflating region acquires a huge total (non-gravitational) energy. Andrei Linde, one of the founders of inflationary cosmology, put it this way (p. 8): Indeed, one may need to have only a milligram of matter in a vacuum-like exponentially expanding state, and then the process of self-reproduction will create from this matter not one universe but infinitely many! Another pioneer of inflation is Alan Guth, the subject of a 1987 New York Times article: PHYSICISTS often probe the workings of nature on a cosmic scale, but Prof. Alan H. Guth and his colleagues at the Massachusetts Institute of Technology may have set themselves the ultimate research goal. They are seeking a mechanism by which humans might create a new universe from scratch. Outrageous though such a notion may be, Dr. Guth and his collaborators are perfectly serious about their investigation. "Ten years ago, we couldn't even have posed the question of whether a man-made universe would be possible," he said. "But physics has progressed a long way since then, and today we can ask this and related questions in the real hope of finding scientifically testable answers. We are working in a new and exciting environment." In his 1997 book, The Inflationary Universe (pp. 268-69), Guth wrote: To put the story in perspective, one should remember that the process of eternal inflation [postulated by the theory of the self-reproducing inflationary universe ...] leads to an exponential increase in the number of pocket universes on time scales as short as 10-37 seconds. Since the time needed for the development of a super-advanced civilization is measured in billions of years or more, there appears to be no chance that laboratory production of universes could compete with the "natural" process of eternal inflation. On the other hand, a child universe created in a laboratory by a super-advanced civilization would set into motion its own progression of eternal inflation. Could the super-advanced civilization find a way to enhance its efficiency? We may have to wait a few billion years to find out. Infinite suffering Starting a chain of eternal inflation in the laboratory would produce infinitely many new universes. But what types of universes would emerge? Suppose we assume -- as do Jaume Garriga and Alex Vilenkin in their 2001 article "Many worlds in one" -- that there are only finitely many possible universe histories of a particular duration (say, 13.7 billion years, the age of our universe); call these "histories" for short. The existence of infinitely many universes needn't, in general, imply the existence of all possible histories. As Alex Vilenkin notes in his 2006 book Many Worlds in One, the sequence 1, 3, 5, 7, ... contains infinitely many integers but doesn't contain all possible integers, and one might imagine an analogous situation for universe histories (p. 114). However, because "the initial conditions at the big bang are set by random quantum processes during inflation" (p. 114), the theory of inflation does imply that lab universes would instantiate all possible histories infinitely many times (with probability one -- see the second Borel-Cantelli lemma). This would, of course, include infinitely many replications of the Holocaust, infinitely many acts of torture, and so on. Indeed, there would be infinitely many universes in which Hitler won World War II, as well as infinitely many universes that would be as close as physically possible to "hell on earth" (or on any other planet). The assumption of finitely many possible histories is not really important. As long as we assume that the probability is greater than zero that suffering will emerge in a random universe, creating infinitely many universes would create **infinite amounts of suffering.** There are many moral principles suggesting that creating lab universes would be wrong: "Never again": Lab universes would, among other things, contain infinitely many repetitions of the Holocaust. Would your conscience be okay with carrying out the Holocaust infinitely many times? Problem of evil: What kind of a good god would create a world like ours with so much suffering? And yet, if we created lab universes, we would be doing just that -- as well as creating worlds much worse than our own. Think about a person in one of the universes that future humans might create whose skin is being burned off as part of her torture prior to death. In between screams, she asks: "Why God? Why?" What would be our answer to her? Ends don't justify means: Even if future humans want to create lab universes because of the happiness and beauty they would contain, this doesn't justify the necessary co-creation of infinitely many people being tortured. Asymmetric population ethics: It's more wrong to create a life that suffers than fail to create one that's happy. Other: Prioritarianism, non-positive-focused utilitarianism, wrongness of "playing god." Nonetheless, I am afraid that potential creators of lab universes would fail to heed these concerns. They might view their project as "cool" or "groundbreaking" without thinking hard about the consequences that playing around with physics would have on real organisms. (In a similar way, few people reflect upon the massive amounts of expected suffering in the universe when they learn about cosmology.) I fear that, because potential universe creators would have lived generally happy lives -- never having been brutally tortured, eaten alive, or slaughtered while conscious -- they would be less sensitive to how bad pain can really be. In general, the lives of humans are far better than the lives of almost all other animals, so even if the would-be universe creators deferred the decision as to whether to create lab universes to the volition of humanity as a whole, that the decision might be biased against giving weight to suffering. According to this excerpt, Zeeya Merali writes in A Big Bang in a Little Room: The Quest to Create New Universes (2017): I have come up against that reticence when talking to physicists involved in universe building. Some have tried to evade questions about the moral implications of creating life in a lab-made cosmos, saying that such issues are beyond their purview. [...] It would be a coup to make a universe in a particle accelerator. But it seems unlikely that we could wield the level of control in the lab that Sandberg refers to when talking about computer-simulated universes, given our current capabilities. In the LHC, for instance, researchers mainly employ a hit-and-hope strategy, with little room for nuanced tinkering with the products of particle collisions. In that case, we may give rise to life inadvertently, with our beings able to experience its accompanying pains and pleasures, but we would have no control over their well-being afterward. So should we go ahead and do it anyway? Merali adds in an Aeon piece (2017): what are the implications of humans even considering the possibility of one day making a universe that could become inhabited by intelligent life? As I discuss in my book A Big Bang in a Little Room (2017), current theory suggests that, once we have created a new universe, we would have little ability to control its evolution or the potential suffering of any of its residents. Wouldn’t that make us irresponsible and reckless deities? I posed the question to Eduardo Guendelman, a physicist at Ben Gurion University in Israel, who was one of the architects of the cosmogenesis model back in the 1980s. Today, Guendelman is engaged in research that could bring baby-universe-making within practical grasp. I was surprised to find that the moral issues did not cause him any discomfort. Guendelman likens scientists pondering their responsibility over making a baby universe to parents deciding whether or not to have children, knowing they will inevitably introduce them to a life filled with pain as well as joy. Other physicists are more wary. Nobuyuki Sakai of Yamaguchi University in Japan, one of the theorists who proposed that a monopole could serve as the seed for a baby universe, admitted that cosmogenesis is a thorny issue that we should ‘worry’ about as a society in the future. But he absolved himself of any ethical concerns today. Although he is performing the calculations that could allow cosmogenesis, he notes that it will be decades before such an experiment might feasibly be realised. Ethical concerns can wait.

## Strangelets

### 2NC Strangelets Ext

#### Stranglets are frightening

**Posner 2004** [Posner, Richard A.. Catastrophe : Risk and Response, Oxford University Press, 2004. ProQuest Ebook Central, <http://ebookcentral.proquest.com/lib/utxa/detail.action?docID=271136>. Pp 30-31]

Several types of catastrophe that might result from scientific accidents (the sort of thing most famously dramatized by Mary Shelley’s novel Frankenstein) deserve consideration. Another, the accidental production of lethal new germs, I defer to the discussion of bioweaponry later in the chapter. As explained by Sir Martin Rees, professor of physics at the University of Cambridge and the United Kingdom’s Astronomer Royal, the physics of subatomic particles is not so well understood that the following end-of-the-world scenario can be dismissed as total fantasy. Collisions of atomic particles in very powerful particle accelerators, though perhaps no more powerful than an existing accelerator, the Relativistic Heavy Ion Collider at the Brookhaven National Laboratory in Long Island (RHIC), might conceivably produce a shower of quarks that would reassemble themselves into a very compressed object called a strangelet. . . . A strangelet could, by contagion, convert anything else it encountered into a strange new form of matter. . . . A hypothetical strangelet disaster could transform the entire planet Earth into an inert hyperdense sphere about one hundred meters across.45 Rees considers this “hypothetical scenario” exceedingly unlikely, yet points out that even a probability of 1 in a billion is not wholly negligible when the result, should the improbable materialize, would be so total a disaster. Concern with possible catastrophic consequences of particle-accelerator experiments led the director of the Brookhaven National Laboratory to commission a risk assessment, by a committee of physicists chaired by Robert Jaffe, before authorizing RHIC to begin operating in June 2000.46 In a synopsis of the assessment, the director, John Marburger, offered this lucid summary of the strangelet doomsday scenario: All particles ever observed to contain “strange” quarks have been found to be unstable, but it is conceivable that under some conditions stable strangelets could exist. If such a particle were also negatively charged, it would be captured by an ordinary nucleus as if it were a heavy electron. Being heavier, it would move closer to the nucleus than an electron and eventually fuse with the nucleus, converting some of the “up” and “down” quarks in its protons and neutrons, releasing energy, and ending up as a larger strangelet. If the new strangelet were negatively charged, the process could go on forever.47 That is, the strangelet would keep growing until all matter was converted to strange matter.

### Strangelets—AT: Cosmic Rays

#### Cosmic Rays Do NOT Mimic Conditions for Strange Matter

**Wagner 9** (Richard J. Wagner, Senior Technical Specialist for Northrop Grunman Aerospace Systems, PhD Robotics and AI @ Univ of Southern California; MSCS @ Univ. of Southern California; BSME, Univ of Hawaii; Lecturer @ Univ of Southern California; and Founding Co-Chair of the Space Robotics Technical Committee. “The Strange Matter of Planetary Destruction” Dec. 7, 2009. <http://bearmarketscience.blogspot.com/2009/12/strange-matter-of-planetary-destruction.html>)

Recognizing that it is insufficient (in the face of the potential devastation that could result) to have as their argument that dangerous strangelet production is unlikely (but possible), the Review authors turn to cosmic ray arguments. The first of two arguments is that the Moon has been bombarded by cosmic rays for millions of years and it still exists as normal matter. The second argument is that cosmic rays collide head on in deep space and have not caused any problems. **Both arguments fail so obviously it invites belief that the Review authors are either incompetent or subject to a strong pre-existing bias. First, let's examine the lunar argument: some cosmic rays have the mass and equivalent energy of a gold atom flying around** in the RHIC. **However, the Moon is a stationary target, so the center-of-mass (COM) energy is far below that of a collision in the RHIC. Fully acknowledging that this argument fails, the Review authors turn (in apparent desperation) to the head-on cosmic ray collision argument. Deep space cosmic ray head-on collisions could generate small strangelets. If the strangelets are stable, (long-lived) they could be swept up in the course of years in new star developmen**t. If so, they would cause supernovas at a much higher rate than observed; hence stable strangelets are not being created. **However, that argument does not speak to the RHIC disaster scenario, which only requires metastable strangelets (not stable ones), so it also fails**.

**Presence of Helium Makes Colliders a Distinct Threat from Cosmic Rays**

**Wagner 99.** (Richard J. Wagner, Senior Technical Specialist for Northrop Grunman Aerospace Systems, PhD Robotics and AI @ Univ of Southern California; MSCS @ Univ. of Southern California; BSME, Univ of Hawaii; Lecturer @ Univ of Southern California; and Founding Co-Chair of the Space Robotics Technical Committee. “Rebuttal to Letter in Scientific American” Online. <http://wagner-rebuts.blogspot.com/>)

Finally, Frank Wilczek seems to have overlooked a fundamental principle of physics. While admittedly **cosmic rays have energies measured which exceed the 40,000 GeV** of the RHIC, **it is the** center-of-momentum (**COM**) **energy which is the fundamental criteria**, not the earth-reference-frame energy. That is the very reason for building colliders, rather than fixed-target accelerators. **An incoming cosmic ray, in order to mimic the RHIC, would be required to have about 4,000,000 GeV**, which would produce a COM energy of about 40,000 GeV, the same as the RHIC COM energy. **Reports of such cosmic rays are exceedingly rare, and have extremely wide error-bars, with the error-bars always dipping well-below the 4,000,000 GeV value for high-altitude detectors**. The few reports of higher energies for earth-based detectors are potentially explainable as having been caused by the break-up of exotic particles (the rest-mass converted into a shower of fundamental particles) high in the atmosphere, rather than by ordinary cosmic rays. Moreover, **such cosmic rays never impact anywhere near the vicinity of a liquid-helium growing-ground, which strangelets would probably initially need in order to become aggressive**.

### Strangelets—AT: Can’t Bind/Temp

#### Their studies concede – the risk of negatively charged binding is real – even positively charged strangelets can convert all matter – assumes the conditions of a particle collider

**Wagner 9** (Richard J. Wagner, Senior Technical Specialist for Northrop Grunman Aerospace Systems, PhD Robotics and AI @ Univ of Southern California; MSCS @ Univ. of Southern California; BSME, Univ of Hawaii; Lecturer @ Univ of Southern California; and Founding Co-Chair of the Space Robotics Technical Committee. “The Strange Matter of Planetary Destruction” Dec. 7, 2009. <http://bearmarketscience.blogspot.com/2009/12/strange-matter-of-planetary-destruction.html>)

The BNL commissioned a Review of the strangelet issue. The BNL Review uses several failing arguments in attempting to assert the safety of the RHIC. The first is that the only kind of strangelet that could fuse with ordinary matter would be a negatively charged strangelet and that they are very unlikely to be produced. No number was assigned to that probability in the BNL Review, but it **is not zero**. It has been shown that because strangelet-hadron fusion is more exothermic (releases more energy) than hadron-hadron fusion, even positively charged strangelets can fuse with low mass hadronic matter (such as the helium in the cooling jacket of the superconducting magnets of the RHIC). This possible disaster scenario was actually described in the BNL Review: a negatively charged strangelet condenses out of the quark-gluon plasma with a half-life more than a nano-second (10-9 second). That's enough time for the strangelet to traverse the vacuum in the RHIC, penetrate the iron wall (**being slowed to thermal velocity in the process)** and mingle with the helium atoms in the super-conducting magnet cooling jacket. Spontaneous fusion would take place and the strangelet would grow as it consumed helium nuclei, giving off large amounts of radiation. At some point it would grow so large that it would fall through the helium containment-wall (consuming every atom it encounters on the way), fall out of the device, and penetrate the concrete floor, tunneling down to the center of the Earth. The result will be the eventual (a period of days or months) conversion of every atom in the Earth to become part of one massive hot strange-matter nucleus. The Moon and a set of artificial satellites will orbit a white-hot strange Earth only about 100 meters in diameter but with approximately the original mass of the Earth (some mass will be lost to radiated heat). Once the strangelet is created, **no power on Earth can stop it**. Let me repeat: the above disaster scenario is well-described in the BNL Review.

## Extreme Light Infrastructure

### ELI—AT: Already Opened

#### Actually not opened yet – will test at higher power – their defense doesn’t assume this

**ELI Delivery Consortium** **17** (https://eli-laser.eu/the-eli-project/

The Preparatory Phase (PP) of the ELI project started in November 2008 and finished in December 2010. It was funded by the European Commission with about 6 Mio. Euro.

The Implementation Phase of the first three pillars, proceeding in parallel in the Czech Republic, Hungary and Romania, started in 2011 and is expected to be completed in 2017. It is being funded by a combination of European Regional Development Funds (ERDF) and national contributions from the host countries, totaling about 850 Mio. Euros. It is coordinated by the ELI Delivery Consortium International Association (AISBL), comprising of representatives from the three host countries and other countries.

ELI's Operation Phase is expected to commence in 2018. The three pillars will be operated, governed and funded by a newly established European Research Infrastructure Consortium ERIC, composed of interested member countries. ELI will operate as an international laser user facility, open to access by an international user community.

## Magnetic Monopoles

### AT: LHC Can’t/Too Heavy

#### It is absolutely physically possible to create magnetic monopoles – their ev doesn’t assume future colliders

**Tomasik 17** (Brian Tomasik, Core-Relevance Division of Microsoft, Computer Science, Mathematics, Statistics @ Swarthmore College. First written: 2006; last edit: 16 Jun. 2017. “Lab Universes: Creating Infinite Suffering,” http://reducing-suffering.org/lab-universes-creating-infinite-suffering/#Infinite\_suffering)

The magnetic-monopole approach was suggested by Nobuyuki Sakai et al. in their 2006 paper, "Is it possible to create a universe out of a monopole in the laboratory?" McCabe notes (p. 12): Magnetic monopoles are predicted to exist by certain unified field theories, and whilst a magnetic monopole has yet to be discovered, a collision between an electron and a positron could, in principle, create a monopole-anti-monopole pair. Monopoles have masses much greater than those of electrons and positrons, however, and the kinetic energies required to create them by such a collision are beyond the capabilities of contemporary particle accelerators. Universe creation in a laboratory therefore remains beyond current technology, but theoretically possible. According to New Scientist: Ironically, one of inflation theory's greatest successes was to explain why we have had such difficulty finding these elusive monopoles, despite theoretical predictions that they should exist all around us. Inflation argues that our visible universe grew from a quantum fluctuation so small it contained only one monopole. That particle is out there somewhere, but the odds are against our bumping into it. So if we aren't likely to run into a natural monopole any time soon, just how will we get our hands on one? Maybe **we could make one in the lab**, [Willy] Fischler concedes. Colliding an electron with a positron in a particle accelerator could, in principle, create a monopole-antimonopole pair. And, according to Sakai, we could then trigger inflation by crashing other particles onto our new monopole, adding more and more mass to it. [...]

## Nanotechnology

### Nanotech—AT: Impossible

#### NANO REPLICATORS are DEF possible

**Posner 2004** [Posner, Richard A.. Catastrophe : Risk and Response, Oxford University Press, 2004. ProQuest Ebook Central, <http://ebookcentral.proquest.com/lib/utxa/detail.action?docID=271136>. Pp. 35-36]

Martin Rees, a highly distinguished physicist whose calm but frightening book has been respectfully reviewed in reputable scientific journals,62 worries also about the potential effects of laboratory accidents involving nanomachines. He has in mind machines, not yet designed or built but on the horizon, that would be measured in nanometers, which are billionths of a meter.63 (A nanometer is roughly four times the diameter of an atom.) Nanotechnology has many other uses besides the as yet hypothetical one of creating nanomachines. For example, by rearranging the atoms in carbon molecules, nanotechnologists can create superstrong carbon filaments.64 And in combination with bioengineering, nanotechnology may soon enable the economical manufacture of computer chips the size of molecules.65 But Rees’s concern lies elsewhere. Living cells contain machines, such as the ribosome, that manufacture protein molecules out of simpler molecules that enter the cell from the bloodstream. Cells thus engage in “self-assembly,” the process by which “components, either separate or linked, spontaneously form ordered aggregates,”66 but the ribosome within a cell performs its manufacturing operations under dictation by a genetic program. Chemical or physical means (the latter including microscopes equipped with tips that can move and position individual atoms and molecules)67 may someday be used to create similar machines (“assemblers”) at the nanometric level. Self-assembly is important because nanosized machines are too small to be economically created by building them one by one; they have to be able to build themselves. “Systematic organization of matter on the nanometer length scale is a key feature of biological systems. Nanotechnology will allow us to place components and assemblies inside cells and to make new materials using the selfassembly methods of nature.”68 Nanotech self-assembly is illustrated by a process by which germanium atoms, when deposited in the correct number on a properly prepared silicon surface, form themselves into a pyramid by the interactions of the atoms with each other.69 In other words, the germanium atoms build their own pyramid. Already self-assembly is being used to create nanowire elements and molecular computer chips.70 And still this is not what Rees is worried about. He is worried about a possible further step—nanomachines that would be general-purpose assemblers, just like living cells, which manufacture proteins and themselves. 71 The distinction is between self-assembly, in which small, relatively simple parts combine to form somewhat more complex structures, as in the example of the germanium atoms, and self-replication, in which a complex system reproduces itself, thus creating additional self-reproducers, on the model of cell division. In short, Rees is worried about artificial life. Conceivably nanomachines could be “designed to be more omnivorous than any bacterium, perhaps even able to consume all organic materials. Metabolising efficiently, and utilising solar energy, they could then proliferate uncontrollably, and not reach the Malthusian limit until they had consumed all life.”72 Self-replication implies exponential growth, sorcerer’s apprentice–fashion: 2 becomes 4, 4 becomes 8, and so on. With an unlimited power source enabling rapid replication and hence multiplication, the creatures might smother the earth. The word “designed” in the passage I just quoted from Rees suggests deliberate rather than accidental creation of an extinction technology. But the monster—“gray goo” engulfing the world—might be created accidentally if nanomachines with the basic abilities required for self-replication were built. The danger is taken seriously enough by leading nanotechnologists to have impelled them to issue guidelines limiting the power supply for nanomachines to power sources that, unlike sunlight, are not found in the natural environment.73 The contention by the distinguished chemist Richard Smalley that self-replicating nanomachines will never be created is hardly reassuring, given the record of scientists’ “never” predictions.74

## General Tech Blocks

### AT: Colliders Have Been on

#### This doesn’t assume lack of safety checks and increased accelerator energies

**Wagner 9** (Richard J. Wagner, Senior Technical Specialist for Northrop Grunman Aerospace Systems, PhD Robotics and AI @ Univ of Southern California; MSCS @ Univ. of Southern California; BSME, Univ of Hawaii; Lecturer @ Univ of Southern California; and Founding Co-Chair of the Space Robotics Technical Committee. “The Strange Matter of Planetary Destruction” Dec. 7, 2009. <http://bearmarketscience.blogspot.com/2009/12/strange-matter-of-planetary-destruction.html>)

In early 2000, Dr. Walter L. Wagner, of the World Botanical Gardens in Hawaii, filed a lawsuit in federal court seeking an order to prevent full-power (collision mode) operation of the RHIC until this issue is better understood. Dr. Wagner discovered this potential disaster scenario and brought it to the attention of the director of BNL, Dr. John Marburger. The Review was subsequently written at Dr. Marburger's request. Two separate lawsuits were filed. The one in New York was dismissed so as to allow the courts to proceed on only the one filed earlier in San Francisco. The one in San Francisco was dismissed, after two years of litigation, but with leave to refile. That is, it was not dismissed "with prejudice" despite Janet Reno's request for such type of dismissal, and it can be refiled at any time. Dr. Wagner expects he will refile in Chicago, but this time including the work being done in Switzerland via US funding of the much larger CERN collider now under construction. Two years after startup of the RHIC, there is no evidence that strangelets have been created or that the earth is being consumed. However, that does not mean that the danger has passed. A proper safety review has still not been performed, and RHIC energies will increase.

### AT: Cosmic Ray Collisions Non Uq

#### First – Cosmic Rays Not Powerful Enough to Mimic Colliders – There’s an Upper Limit Called the GZK Cut-Off

**Clark, 2k6.** (Stuart Clark, Astronomy Journalist for New Scientist. “Cosmic Rays Know their Limits After All” October 16, 2006. New Scientist. Magazine Issue 2573. Online. [KevC])

CONTROVERSY abounds over how to explain the highest-energy cosmic rays, subatomic particles that tear through space at near light speed while packing the punch of rifle bullets. **Now a cosmic ray detector in Utah has further deepened the controversy with evidence that the particles may not be so powerful after all. A new analysis** of results from the High Resolution Fly's Eye (HiRes) experiment in Salt Lake City has **detected a sharp cut-off in the energy spectrum of cosmic rays.** This stands in stark contrast to a Japanese experiment that has previously reported particles with bafflingly higher energies. **According to standard physics, cosmic rays** with energies larger than about 5 × 1019 electronvolts **will collide with photons left over from the big bang and so lose energy as they cross large distances**. **This puts a theoretical limit on the energy they can have** when they reach Earth, **known as** the Greisen-Zatsepin-Kuzmin **(GZK) cut-off.**

#### Second – Colliders Will Greatly Exceed Cosmic Ray Collisions – They’re Ten Times More Powerful Every Decade

**Leslie, 96.** (John Leslie, Professor of Philosophy @ Guelph University. “The End of the World: The Science and Ethics of Human Extinction.” Pg. 111. BBBBB)

(1) To begin with, it is virtually impossible to say what energies might be reached by sufficiently ingenious experimenters. In their From Quarks to the Cosmos (1989), L. M. Lederman and D. N. Schramm — the first a former Director of the Fermi National Accelerator Laboratory and the second a leading astrophysicist — noted that the energies available in laboratory experiments had increased roughly tenfold in each decade since the turn of the century. This relationship, they wrote, ‘has continued to hold into the 1980s and will continue to hold if we can build the SSC within the next decade’. **Simple extrapolation leads to the prediction ‘that we should have the technology to achieve Planck-scale energies by about the year 2150**. Skeptics will now surely be outraged. Just wait! Obviously, that technology would involve something radically different from present technology.’86 **Planck-scale energies are of roughly 1019 GeV, which is ten million to a hundred million times above the 10” to 1012 GeV which Hut and Rees gave as the energy released by some cosmic ray collisions. With a continuing tenfold rise in each decade, however, energies above 1011 GeV would be had well before the year 2100**. Already people have proposed ‘plasma particle accelerators’ in which the fields accelerating the particles — perhaps fields produced by two laser beams which create a rapidly moving interference pattern called a ‘beat wave’ — would be many thousand times stronger than those of present-day accelerators.87 In his Dreams of a Final Theory S. Weinberg speculates that with plasmas to transfer energy ‘from powerful laser beams to individual charged particles’ even Planck-scale energies might be attained.88

### AT: Humans Good—Wormholes

#### Worms holes are not only physically impossible, but even if they could exist, they would kill anyone who entered them

**Jaggard 2014** [Victoria Jaggard, 11-7-2014, "Would Astronauts Survive an Interstellar Trip Through a Wormhole?," Smithsonian, http://www.smithsonianmag.com/science-nature/would-astronauts-survive-interstellar-trip-through-wormhole-180953269/]

Princeton physicist John Wheeler coined the term "wormhole" in the 1960s when he was exploring the models of Einstein-Rosen bridges. He noted that the bridges are akin to the holes that worms bore through apples. An ant crawling from one side of the apple to another can either plod all the way around its curved surface, or take a shortcut through the worm's tunnel. Now imagine our three-dimensional spacetime is the skin of an apple that curves around a higher dimension called "the bulk." An Einstein-Rosen bridge is a tunnel through the bulk that lets travelers take a fast lane between two points in space. It sounds strange, but it is a legit mathematical solution to general relativity. Wheeler realized that the mouths of Einstein-Rosen bridges handily match descriptions of what's known as a Schwarzschild black hole, a simple sphere of matter so dense that not even light can escape its gravitational pull. Ah-ha! Astronomers believe that black holes exist and are formed when the cores of exceedingly massive stars collapse in on themselves. So could black holes also be wormholes and thus gateways to interstellar travel? Mathematically speaking, maybe—but no one would survive the trip. In the Schwarzschild model, the dark heart of a black hole is a singularity, a neutral, unmoving sphere with infinite density. Wheeler calculated what would happen if a wormhole is born when two singularities in far-flung parts of the universe merge in the bulk, creating a tunnel between Schwarzschild black holes. He found that such a wormhole is inherently unstable: the tunnel forms, but then it contracts and pinches off, leaving you once more with just two singularities. This process of growth and contraction happens so fast that not even light makes it through the tunnel, and an astronaut trying to pass through would encounter a singularity. That's sudden death, as the immense gravitational forces would rip the traveler apart. "Anything or anyone that attempts the trip will get destroyed in the pinch-off!" Thorne writes in his companion book to the movie, The Science of Interstellar. There is an alternative: a rotating Kerr black hole, which is another possibility in general relativity. The singularity inside a Kerr black hole is a ring as opposed to a sphere, and some models suggest that a person could survive the trip if they pass neatly through the center of this ring like a basketball through a hoop. Thorne, however, has a number of objections to this notion. In a 1987 paper about travel via wormhole, he notes that the throat of a Kerr wormhole contains a region called a Cauchy horizon that is very unstable. The math says that as soon as anything, even light, tries to pass this horizon, the tunnel collapses. Even if the wormhole could somehow be stabilized, quantum theory tells us that the inside should be flooded with high-energy particles. Set foot in a Kerr wormhole, and you will be fried to a crisp. The trick is that physics has yet to marry the classical rules of gravity with the quantum world, an elusive bit of mathematics that many researchers are trying to pin down. In one twist on the picture, Juan Maldacena at Princeton and Leonard Susskind at Stanford proposed that wormholes may be like the physical manifestations of entanglement, when quantum objects are linked no matter how far apart they are. Einstein famously described entanglement as "spooky action at a distance" and resisted the notion. But plenty of experiments tell us that entanglement is real—it's already being used commercially to protect online communications, such as bank transactions. According to Maldacena and Susskind, large amounts on entanglement change the geometry of spacetime and can give rise to wormholes in the form of entangled black holes. But their version is no interstellar gateway. "They are wormholes which do not allow you to travel faster than light," says Maldacena. "However, they can allow you to meet somebody inside, with the small caveat that they would both then die at a gravitational singularity." OK, so black holes are a problem. What, then, can a wormhole possibly be? Avi Loeb at the Harvard-Smithsonian Center for Astrophysics says our options are wide open: "Since we do not yet have a theory that reliably unifies general relativity with quantum mechanics, we do not know of the entire zoo of possible spacetime structures that could accommodate wormholes." There's still a hitch. Thorne found in his 1987 work that any type of wormhole that is consistent with general relativity will collapse unless it is propped open by what he calls "exotic matter" with negative energy. He argues that we have evidence of exotic matter thanks to experiments showing how quantum fluctuations in a vacuum seem to create negative pressure between two mirrors placed very close together. And Loeb thinks our observations of dark energy are further hints that exotic matter may exist. "We observe that over recent cosmic history, galaxies have been running away from us at a speed that increases with time, as if they were acted upon by repulsive gravity," says Loeb. "This accelerated expansion of the universe can be explained if the universe is filled with a substance that has a negative pressure … just like the material needed to create a wormhole." Both physicists agree, though, that you'd need too much exotic matter for a wormhole to ever form naturally, and only a highly advanced civilization could ever hope to gather enough of the stuff to stabilize a wormhole. But other physicists are not convinced. "I think that a stable, traversable wormhole would be very confusing and seems inconsistent with the laws of physics that we know," says Maldacena. Sabine Hossenfelder at the Nordic Institute for Theoretical Physics in Sweden is even more skeptical: "We have absolutely zero indication that this exists. Indeed it is widely believed that it cannot exist, for if it did the vacuum would be unstable." Even if exotic matter was available, traveling through it may not be pretty. The exact effects would depend on the curvature of spacetime around the wormhole and the density of the energy inside, she says. "It is pretty much as with black holes: too much tidal forces and you get ripped apart." Despite his ties to the film, Thorne is also pessimistic that a traversable wormhole is even possible, much less survivable. "If they can exist, I doubt very much that they can form naturally in the astrophysical universe," he writes in the book. But Thorne appreciates that Christopher and Jonah Nolan, who wrote Interstellar, were so keen to tell a story that is grounded in science.

### AT: Regulations Check

#### There is little governmental regulation on energy experiments, and this could lead to catastrophic effects

**Johnson 16 [** Eric, Associate Professor of Law, University of North Dakota School of Law. “Agencies and particle experiment risk,” University of Illinois Law Review, 2016]

There is a curious absence of legal constraints on U.S. government agencies undertaking potentially risky scientific research. Some of these activities may present a risk of killing millions or even destroying the planet. Current law leaves it to agencies to decide for themselves whether their activities fall within the bounds of acceptable risk. This Article explores to what extent and under what circumstances the law ought to allow private actions against such non- regulatory agency endeavors. Engaging with this issue is not only interesting in its own right, it allows us to test fundamental concepts of agency competence and the role of the courts. Two case studies provide a foundation for discussion: NASA's use of plutonium power supplies on spacecraft, which critics say could cause millions of cancers in the event of atmospheric disintegration, and a Department of Energy particle-collider experiment that allegedly poses a small risk of collapsing the Earth. These extreme examples serve as a test-bed for applying insights from neoclassical economics, behavioral economics, risk-management studies, and cognitive psychology. The resulting analysis suggests that in low- probability/high-harm scenarios, agencies are likely to do a poor job of judging the acceptability of risk to the public. Instead, generalist judges working in a common-law vein may have surprising advantages. This in turns suggests that under certain circumstances the government should be subject to legal action that provides non-deferential review of discretionary agency actions that are non-regulatory in nature.

#### Because of inadequacy of after-the-fact damages, catastrophic and irreversible harms are appropriate subjects for before-the-fact legal restrictions

**Jonson 16 [** Eric, Associate Professor of Law, University of North Dakota School of Law. “Agencies and particle experiment risk,” University of Illinois Law Review, 2016]

#### Because of inadequacy of after-the-fact damages, incipient catastrophic and irreversible harms are appropriate subjects for before-the- fact legal restrictions. Ex ante prohibitions familiarly come in two forms -court-issued injunctions and agency-issued regulations. Given these established forms of legal constraint, catastrophic and irreversible ultra-hazards might seem easy to deal with as a legal matter. Who would not agree that it is prudent to halt an activity in which a small trigger threatens to unleash great destruction? But there is a wrinkle: These risks routinely involve low or uncertain probabilities, and the harmful effects commonly involve some degree of latency. The combination of latency and long odds makes these risks easy to ignore-even if doing so is unwise.2

### AT: Regulations Check—Private Sector

#### There is a stark difference between what risks govmt and private agencies consider acceptable

**Johnson 16 [** Eric, Associate Professor of Law, University of North Dakota School of Law. “Agencies and particle experiment risk,” University of Illinois Law Review, 2016]

There can be a stark difference in what risks administrative agencies tolerate when it comes to their own conduct versus the conduct of private actors. In regulating private actors, for instance, the Environmental Protection Agency ("EPA") and the Food and Drug Administration ("FDA") frequently use a one-in-a-million chance of killing a single per- son as a trigger for agency action.2 Contrast that with the decision-making of the Department of Energy ("DOE") about its own nuclear experiments. In 2000, a government lab started up a particle accelerator-the Relativistic Heavy Ion Collider-after certain risk modeling indicated a not-greater-than one-in- 10,000 risk that the experiment might create a dangerous particle of "strange matter."' After a latency period of years or decades, it is hypothesized, such an object could initiate a runaway process that physical- ly destroys Earth, extinguishing all life.4 This risk model left "a comfortable margin of error" according to the report commissioned by the lab.' And this risk question is not a historical relic. Today, the RHIC has been upgraded and its program extended, with no new safety assessments having been done in the interim.'

#### There are no systems in place to check private sector research that could threaten humanity

**Johnson 16 [** Eric, Associate Professor of Law, University of North Dakota School of Law. “Agencies and particle experiment risk,” University of Illinois Law Review, 2016]

Federal law does have a system specifically designed for reigning in agency discretion-the Administrative Procedure Act ("APA").3" Yet while the APA provides a rich system of checks and balances for agency rulemaking and adjudication, it has almost nothing to say about private- actor-type agency action that plausibly threatens public safety. While catch-all provisions of the APA are capable of supporting judicial review in such circumstances, the statute's lack of an explicit invitation makes it all too easy for courts to avoid undertaking the task. The legal gap might be less troubling if it were not for insights from behavioral economics, neoclassical economics, cognitive psychology, and the risk-management literature, all of which indicate that agency scientists are prone to misjudging how risky their activities really are. More- over, political control of agencies is inadequate when it comes to the prospect of unprecedented laboratory catastrophes. This is in no small part because it is hard to take seriously what sounds like the stuff of science fiction.

### AT: Vacuum is Stable

#### The aff is wrong about a stable universe, the study they cite concludes that we exist in a ‘local minimum’ rather than the global minimum. This means the universe is metastable and that collapse of the vacuum is certainly possible

**Mukunth 2015** [Vasudevan Mukunth, 11-11-2015, "Is the Universe As We Know it Stable?," Wire, https://thewire.in/15413/is-the-universe-as-we-know-it-stable/]

On November 9, a group of physicists from Russia published the results of an advanced scalar-potential calculation to find where the universe really lay: in a local minimum or in a stable global minimum. They found that the universe was in a local minimum. The calculations were “advanced” because they used the best estimates available for the properties of the various fundamental forces, as well as of the Higgs boson and the top quark, to arrive at their results, but they’re still not final because the estimates could still vary. Hearteningly enough, the physicists also found that if the real values in the universe shifted by just 1.3 standard deviations from our best estimates of them, our universe would enter the global minimum and become truly stable. In other words, the universe is situated in a shallow valley on one side of a peak of the scalar potential, and right on the other side lies the deepest valley of all that it could sit in for ever. If the Russian group’s calculations are right (though there’s no quick way for us to know if they aren’t), then there could be a distant future – in human terms – where the universe tunnels through from the local to the global minimum and enters a new state. If we’ve assumed that the laws and forces of nature haven’t changed in the last 13.8 billion years, then we can also assume that in the fully stable state, these laws and forces could change in ways we can’t predict now. The changes would sweep over from one part of the universe into others at the speed of light, like a shockwave, redefining all the laws that let us exist. One moment we’d be around and gone the next. For all we know, that breadth of 1.3 standard deviations between our measurements of particles’ and forces’ properties and their true values could be the breath of our lives.

# Aff Answers

<http://www.businessinsider.com/will-the-lhc-destroy-the-earth-2015-4>

## General Answers

### Alt Causes to Universe Destruction

#### Their impacts are non unique in two warrants- 1. there are more probable ways that the universe could end that don’t involve humans, and 2. vacuum decay will happen anyway even without human involvement

**Trosper 14**

[Jaime Trosper, freelance writer, who finds great joy in sharing the wonders of universe with others, “4 Ways The Universe Might End”, Futurism, March 3, 2014, <https://futurism.com/four-ways-the-universe-could-end/>, SZ]

But we know that it is coming. At the very least, it will happen when the Sun transitions into a red giant. The end of everything else, though, is a little bit more difficult to predict, but that hasn’t stopped scientists from speculating and theorizing. With that in mind, here are four popular theories on how the universe might end. Note: Astrophysicists believe that the ultimate fate of the universe depends on three things: the universe’s overall shape, its density, and the amount of dark energy within it. The first two scenarios below hinge upon the universe existing in a “flat” or “open” system (one that is negatively curved, similar to the surface of a saddle). The Big Rip I’m sure many of you are familiar with dark energy and, more specifically, the role it plays in the accelerated expansion of the universe. One theory of how the universe could potentially end relies on the assumption that the expansion of the universe will continue indefinitely until the galaxies, stars, planets, and matter (potentially even the subatomic building blocks that comprise all matter) can no longer hold themselves together, at which point they rip apart. This theory is called the Big Rip, and it could result in your next door neighbor (or cat) being ripped apart, too. In this model, if the universe’s density is found to be less than [critical density](http://io9.com/5919193/the-big-rip-theory-says-the-universe-could-end-in-tearshttp:/) (the boundary value between open models that expand forever and closed models that re-collapse), the expansion of the universe will continue, as well as the accelerating expansion that is driving the galaxies apart at high speeds. If the density of the universe ever becomes equal to its critical density, it will continue to expand, but the expansion would eventually start to decrease gradually. Finally, if the critical density were to become greater than the density of the universe, the expansion would halt and the universe would start to collapse back in on itself, resulting in a gravitational singularity: one that could ultimately trigger the next big bang. [According to Robert Caldwell](http://arxiv.org/pdf/astro-ph/0302506.pdf), a theoretical physicist from Dartmouth College, if the Big Rip won out over all of the apocalyptic scenarios put forth in this piece, the event would occur in some odd 22 billion years, when the Sun has already transitioned from a main-sequence star to a red-giant (potentially incinerating Earth as a result) and then into a white dwarf. If Earth did manage to survive intact, the planet would explode about 30 minutes before the grand finale. The Big Freeze Another popular scenario for the end of the universe that relies on deciphering the true nature of dark energy is [the Big Freeze](http://www.whillyard.com/science-pages/big-freeze.html) (also referred to as Heat Death or the Big Chill). In this scenario, the universe continues to expand at an ever-increasing speed. As this happens, the heat is dispersed throughout space while clusters, galaxies, stars, and planets are all pulled apart. It will continue to get colder and colder until the temperature throughout the universe reaches absolute zero (or a point at which the universe can no longer be exploited to perform work). Similarly, if the expansion of the universe continued, planets, stars, and galaxies would be pulled so far apart that the stars would eventually lose access to raw material needed for star formation, thus the lights would inevitably go out for good. This is the point at which the universe would reach a maximum [state of entropy](https://futurism.com/time-examining-the-wibbly-wobbly-timey-wimey-stuff/). Any stars that remained would continue to slowly burn away, until the last star was extinguished. Instead of fiery cradles, galaxies would become coffins filled with remnants of dead stars. It has been said that intelligent civilizations in the very distant future will look into the sky and think they are alone. Everything will be so far away, the light from distant stars and galaxies [could never reach them](https://futurism.com/the-future-of-the-universe/) due to the expansion of the universe. Many astronomers and physicists alike believe this may be one of the [most probable scenarios](http://www.universetoday.com/36917/big-freeze/) thought up at the present moment. The Big Crunch [The Big Crunch](http://science.howstuffworks.com/dictionary/astronomy-terms/big-crunch6.htm) is thought to be the direct consequence of the Big Bang. In this model, the expansion of the universe **doesn’t** continue forever. After an undetermined amount of time (possibly trillions of years), if the average density of the universe was enough to stop the expansion, the universe would begin the process of collapsing in on itself. Eventually, all of the matter and particles in existence would be pulled together into a super dense state (perhaps even into a black hole-like singularity). Furthermore, such an event might have already happened before. Some scientists have theorized that the universe we see is the result of a cyclic repetition of the Big Bang, where the first cosmological event came about after the collapse of a previous universe. This is something called [conformal cyclic cosmology.](https://futurism.com/sir-roger-penrose-alternate-theory-of-the-big-bang/) Unlike the first two scenarios, this model relies on the geometry of the universe being “closed” (like the surface of a sphere). Truly, an event like this would be like a single breath. The universe would “breathe out” the Big Bang, and “breathe in” the Big Crunch. This could be due to either a reversal of dark energy’s current expansion effect or as the result of gravity collecting the entirety of spacetime into a single point. Similar to this theory (and the Big Bang) is that of the Big Bounce. A sort of symmetry is proposed here: the universe is in a continuous cycle of expanding out and then collapsing onto itself. Effectively, we could be one of many iterations of the universe. Perhaps even more eerie to think about is the idea that maybe each time the universe resets, it plays out the same way. Perhaps the you that is currently reading this article right now is just one you out of 10^googleplex versions that existed before. Ultimately, the universe may be like the mythical phoenix. In death, it is reborn. The Big Slurp I saved the best scenario (or worst, depending on your outlook) for last: [the Big Slurp.](https://futurism.com/the-big-slurp/) This theory surfaced not too long ago, after revelations were released about the true nature of the [Higgs Boson](http://tinyurl.com/fqtq-countdown-1) (most of you probably remember it as the particle believed to play a role in granting mass to elementary particles). In this model, if the Higgs Boson particle weighs in at a certain mass, it could indicate that the vacuum of our universe may be [inherently unstable](http://www.bbc.co.uk/news/science-environment-21499765), perhaps existing in a perpetual “[metastable’ state](http://phys.org/news/2013-02-higgs-mass-universe.html) — something that has been discussed at length many times before. If this were the case, our universe might experience a catastrophic event when a “bubble” from another alternate universe appears in ours. If said bubble exists in a lower-energy state than our bubble. the universe could be completely annihilated. I should note that this is disastrous because it could cause of all the protons in all matter found in our universe to decay. By proxy, so would we. If that doesn’t sound unpleasant enough, this sort of a [vacuum metastability event](http://phys.org/news/2010-12-theoretical-physics-breakthrough-antimatter-vacuum.html) could happen at virtually any moment, anywhere in our universe. The bubble could pop over and start expanding at light-speed until it swallowed us entirely. Truly, none of these scenarios sound very fun.

## Ethics/Risk Assessment

### Prioritize Existential Risk

#### Even the smallest reduction of existential risk is the equivalent of saving billions of lives. It should be our primary ethical directive

**Bostrom 13** [Nick, is a Professor at University of Oxford, a Director for the Future of Humanity Institute, and a Director for the Strategic Artificial Intelligence Research Centre | “Existential Risk Prevention as Global Priority” *Global Policy* vol. 4 issue 1. February, 2013]

Even if we use the most conservative of these esti- mates, which entirely ignores the possibility of space colonisation and software minds, we find that the expected loss of an existential catastrophe is greater than the value of 1016 human lives. This implies that the expected value of reducing existential risk by a mere one millionth of one percentage point is at least a hundred times the value of a million human lives. The more tech- nologically comprehensive estimate of 1054 human- brain-emulation subjective life-years (or 1052 lives of ordinary length) makes the same point even more starkly. Even if we give this allegedly lower bound on the cumulative output potential of a technologically mature civilisation a mere 1 per cent chance of being correct, we find that the expected value of reducing existential risk by a mere one billionth of one billionth of one percentage point is worth a hundred billion times as much as a billion human lives. One might consequently argue that even the tiniest reduction of existential risk has an expected value greater than that of the definite provision of any ‘ordin- ary’ good, such as the direct benefit of saving 1 billion lives. And, further, that the absolute value of the indirect effect of saving 1 billion lives on the total cumulative amount of existential risk—positive or negative—is almost certainly larger than the positive value of the direct benefit of such an action.10  These considerations suggest that the loss in expected value resulting from an existential catastrophe is so enormous that the objective of reducing existential risks should be a dominant consideration whenever we act out of an impersonal concern for humankind as a whole. It may be useful to adopt the following rule of thumb for such impersonal moral action:

#### Prioritize Existential Risk

**Boyd and Wilson No Date** [Matthew Boyd and Nick Wilson. Boyd, PhD, Contract Researcher. Wilson, Dept. of Public Health, University of Otago Wellington. New Zealand. “Policy and Existential Risk” n.d. (References articles up to 2014) | SLB]

**No matter how the number of future lives and life-years is calculated, the result is that gargantuan numbers are potentially threatened by existential risks. Policy-makers should** therefore probably **give more consideration to the future and to** considering and **preventing existential risks. Of all the risks to things we value, some are urgent and some are important, we need to focus on those that are both** urgent and important (Bostrom, 2014, p.256), and sometimes it is best to defer the other issues. **A just process for resource allocation demands that we consider future generations** but also account for solidarity with the present. We need to establish what people want and value. **We need to know** what people think about the future life-years of people alive now and those not-yet-born and **the extent to which people value the ‘human project’. Only then can we produce appropriately informed policy.**

### Probability First

#### Don’t prioritize low probability physics scenarios

**Urry 14 [Meg Urry,** *Israel Munson professor of physics and astronomy at Yale University and director of the* [*Yale Center for Astronomy and Astrophysics*](http://ycaa.yale.edu/)*,* “Will the 'God particle' destroy the world?”, CNN Opinion, updated 4:36 PM EDT, Fri September 12, 2014, http://www.cnn.com/2014/09/12/opinion/urry-god-particle/index.html]

Back to the universe. Whether the existence of Higgs boson means we're doomed depends on the mass of another fundamental particle, the top quark. It's the combination of the Higgs and top quark masses that determine whether our universe is stable. Experiments like those at the Large Hadron Collider allow us to measure these masses. But you don't need to hold your breath waiting for the answer. The good news is that such an event is very unlikely and should not occur until the universe is many times its present age. Probability is the key. Many bad things are *possible* A large asteroid destroying the Earth. Getting hit by a bus. Having space time gobbled up by instability in the Higgs field. (For an engaging discussion of the many ways humans can be done in by the cosmos, see the marvelous "[Death from the Skies!](http://www.amazon.com/Death-Skies-Science-Behind-World/dp/0143116045)" by [Bad Astronomer Phil Plait](https://twitter.com/BadAstronomer).) Are they likely? Humans have to prioritize by considering both outcome (death or destruction) and probability. Rare events like the collision of a massive asteroid with the Earth could destroy life as we know it and perhaps the planet itself. However, the chances of a sufficiently massive asteroid intersecting the Earth in the vast emptiness of space is pretty low. Collisions with much less massive asteroids are much more likely but much less destructive. So don't lose any sleep over possible danger from the Higgs boson, even if the most famous physicist in the world likes to speculate about it. You're far more likely to be hit by lightning than taken out by the Higgs boson.

### Extinction Good Discourse = Violent

#### The road to post-humanism is littered with human corpses, the negative’s argument is not an innocent thought experiment, rather the discourses used in making such post-human arguments shape our reality and make us complicit in pushing humanity towards literal technological destruction. Such mindsets are representative of a perverse American dream that is not embraced by humanity writ large and results in worldwide suffering

**Pastourmatzi 2017** [Domna Pastourmatzi, “Discrediting the Human in Futuristic Visions and Anglophone Cultural Theory,” in *War on the Human: New Responses to the Ever-Present Debate*, edited by Theodora Tsimpouki and Konstantinos Blatanis, Cambridge Scholars Publishing, pp 43-47]

The readers are urged to emotionally participate in the elation of these nonhuman postbiological entities and even in the alleged rejoicing of the inanimate environment. The total erasure of the human marks the triumph of a thriving posthumanity. Bluntly, Sterling's imaginary posthumans glow with delight, foster condescension and disparage the human. With this story, Sterling appears to prefigure the view of certain cultural critics that "becoming posthuman is regulated by an ethics of joy" and to agree that posthumanization is "a qualitative leap out of the familiar."3Â° The anthropological category Homo sapiens encases the entire human population on Earth. To proclaim coldly the disappearance of seven billion living creatures for no apparent reason other than for the sake of a technologically-determined future and an artificially-induced metamorphosis may be an admissible imaginative leap and a discursive line of attack but it is definitely neither a politically neutral nor an innocuous cognitive maneuver. Certainly it goes far beyond the claims of those cultural theorists who argue that the posthuman is not humanity's rival or successor and does not really target the biological human beings but only the very specific western notion of the "human" as signified by the English word "Man." However, Sterling never uses the words "Man" or "Mankind" to refer to the species of the genus Homo. He deliberately talks about the extinction of Homo sapiens, that product of nature (or evolution) that is distinguishable from the nearest primate relatives by its erect bipedalism and its greater cranial capacity, and from the mechanical or cybernetic "entities" by its inherently imperfect, fallible, flawed, and mortal condition. Sterling replaces the human with the posthuman. His anti-anthropic strategic move validates the notion of an immanent posthuman planet (if not posthuman universe) and materializes the posthumanist vision of "a colossal hybridization of the species."3' The metamorphosis of Sterling's fictional Homo sapiens is both literal and metaphorical, since literary narratives allow both levels to co-exist. In this sense, Sterling's narrative presages transhumanists' and posthumanists' shared assertion that humankind's future is inevitably posthuman. The transhumanist future entails the literal posthumanization of the species (meaning a seamless integration of the organic and the technological as one body-ego, or a bodiless cyber-subjectivity), whereas the posthumanist vision entails the conceptual and philosophical re-adjustment of humankind's outlook on a global scale. Together, transhumanism and posthumanism comprise a powerful diarchy (for even if they are actually non-allied, they name a common adversary). This diarchy targets the human on two separate fronts: transhumanists target the body, which is to say, the organic constitution of the human, while posthumanists target the mind. The one desires the somatic metamorphosis of Homo sapiens, the other, humans' mental transformation. When reading literary texts, it is necessary to remember that they are not "merely passive conduits. They actively shape what the technologies mean and what the scientific theories signify in cultural contexts."32 Particularly, hard science fiction and cyberpunk narratives are indebted to, and put to use, scientific theories and innovative technologies as well as cultural trends. In other words, literary texts have the power if not to shape completely, then to influence, the way people think about the human species, about Homo sapiens. Haraway has noted that "You can't think of species without being inside science fiction" and that both "literary and non-literary science fiction projects" as well as "philosophical" projects "construct us as a species." If, as Haraway argues, "'Species' is about category work,"34 promoting the posthuman as the successor category of the human is a dangerous mental task indeed. Whereas science fiction writers may deflect their moral responsibility by claiming that their narratives are nothing more than imaginary scenarios for the sake of entertainment-and perhaps speculation-the same extenuation cannot acquit those intellectuals who take pains to influence people's philosophy, forge opinions, and/or restructure mindsets. Powerful elites (influential scientists, cultural theorists, and philosophers) who define the human exclusively in negative terms (as the representative of a hierarchical, hegemonic, and generally violent species) and inundate the public consciousness with a long list of its flaws (egocentrism, narcissism, supremacism, arrogance, selfishness, and so on), while embellishing the posthuman with an allegedly democratic spirit, egalitarian sensibility, unrivaled responsibility, and unmatched humility, cannot eschew their accountability for tarnishing the human (anthropos). By disparaging the human for its failings and by elevating the "sensitive" and "empowering" posthuman, posthumanists hope to convince us to make the posthuman "a key feature of our historicity" and to embrace their vision of a "posthuman humanity" so in tune with and so appropriate "for the global era."35 If we all engage in the merciful dismantling of the human on the academic altars of the global village, we will be the beneficiaries of "an ethics of joy and affirmation" and of "zoe-centered," "non-anthropocentric," "non- anthropomorphic" global ethos." Who wants to miss the chance to "synchronize" themselves with the "vital politics" of the multi-faceted, relational, "non-unitary, posthuman subject," the cultural model "worthy" of our times?" Fantasizing about a future without Homo sapiens is the first step to advancing a specifically posthumanist agenda. With unbridled enthusiasm, futurologists (among them the American scientists Rodney Brooks, Ray Kurzweil, Michio Kaku, Marvin Minsky, Hans Moravec, and Vcmor Vinge) repeatedly prophesize the mechanization and surpassing of the human by intelligent machines/robots. They postulate a postbiological, technocentric Eden. We are urged to bravely face the sobering "truth" that "we humans are machines-and as such, subject to the same technological manipulations we routinely apply to machines."38 Turning a metaphor or an analogy into literal truth does not prove the validity of the premise. By this logic, if humans are literally machines then machines are literally humans. However, humans and machines are neither interchangeable nor identical. I want to return to Sterling's story in order to point out the entanglement of literary texts with the visions and premises of current theories. Sterling seems to feel at ease with technological determinism, and in this sense his story functions as a new master narrative of the posthuman era: it unabashedly holds that the disappearance of natural humankind actually amounts to evolutionary progress. The technocratic spirit (pervasive in the technoscientific institutions of American society) is reflected in his narrative and in the celebration of posthumanization as humankind's unavoidable future. His thanatography stands as the fictional fruition of posthumanity and as a thinly veiled extinctionist project. The cyborgian transformation of Homo sapiens is depicted as news to be welcomed on a planetary scale. From this perspective, progress is measured by the speed at which humanity disappears in order to render the planet available to its successors. Via his "coldly objective" cyberpunk stance," Sterling also appears to vindicate the transhumanist conviction that to create an entirely new species by re-engineering humanity should be "a deliberate goal sought, not a consequence of our hubris to be avoided."'"' Aï¬‚er all, his emotionless posthuman mouthpieces have no tears to shed for the triï¬‚ing Homo sapiens. In the United States (one of the major centers of postmodern technoculture), hard science fiction and cutting-edge technoscience have a long history of entanglement: as intimate bedfellows, they cross-fertilize each other, the first spawning fantasies of technoscientific grandeur, while the latter attempting to turn some of these fantasies into tangible reality. In fact, it is becoming hard to disengage the imaginings found in science fictional works from the ambitions of scientists who plan to radically alter the fundamental parameters upon which the survival of the human species depends. Notable scientists such as Edward Teller, Freeman Dyson, and Marvin Minsky were also "heavy-duty SF fans."" Some even wrote their own science fiction novels to popularize their Visions. In fact, as NASA physicist and science fiction writer Gregory Benford asserts, American scientists tend to "make their own culture through SF" and American science in general "feels the genre at its back, breathing on its neck in the race into the future.""2 It has become equally difficult to disentangle the dream of posthumanization from the lavishly financed laboratory-ventures designed to capitalize on the idea of a forthcoming man-directed evolutionary turn. While the new posthuman icons in science fiction and cyberpunk have raised tech-induced metamorphosis to a frenzy, recycling and affirming the ideologies that shape contemporary western technoculture, the non-fictional writings of many prominent scientists, inventors, engineers, businessmen, and other prophets of posthumanity go a step further to "brashly proclaim" that "the telos of science has nothing to do with serving human needs or alleviating humanity's age-old afflictions?" According to this view, anthropos will no longer be the privileged beneficiary of scientific knowledge. In the new millennium, "the true inheritor of the legacy of science will be an entirely new creature, one variously named metaman, post-human, superhuman, robot or cyborg."" l-laving fertilized each other's imaginaries, posthuman science fiction and radical technoscience exert tremendous influence on what Americans-and, through the export of their products and visions, the rest of the world-consume, dream or even aspire to. If we accept as valid the remark by Sharona Ben-Tov that the globally dominant, technophilic, science fictional visions produced in the United States constitute not only a "peculiarly American dream," but also "a mass dream with an imperative: a dream upon which, as a nation, we act,"4Â° then non- Americans cannot light-heartedly embrace the dream of a technologized existence as the guidepost for humanity's future. If indeed-as the acclaimed American writer, Thomas M. Disch,'"' has stated-"the future represented by SF writers continues to be an American future," then this American-made future falls short of representing humankind's long-term destiny. As recently as 2002 the popular American writer Kim Stanley Robinson redefined social reality and human history as "one giant science fiction novel, we [Americans?] are all writing together."47 This is a presumption that speaks volumes about the type of mindset said to underlie America's collective imaginings. Sterling (like Robinson) may be pleased to see a truly science-fictional world come to pass, since by his admission he belongs to a generation of writers who were nurtured by such a dream. The posthuman future he describes in his story, "Homo Sapiens Declared Extinct" has a strong undercurrent of transhumanist thought and can be taken as a literary example that promulgates the role of western technoscience as the primary arbiter of humankind's future. Science fictional fantasies exalting either technoscientific grandeur or the prospect of posthumanization reveal more about the national aspirations that shape America's cultural imaginary than about human hopes, desires, or the future course of humanity as a whole.

### Extinction Bad—Future Generations

#### We should care about the far future lives, it is key to avoiding global catastrophic risks and allowing humanity to survive.

**Baum 2015** [Seth D. Baum, “The Far Future Argument for Confronting Catastrophic Threats to Humanity:

Practical Significance and Alternatives,” *Futures* 72: 86-96, October 14, 2015]

The paper thus far has focused on how to avoid appeals to the far future argument, in recognition of the fact that many people are not motivated by what will benefit the far future. But some GCR reduction actions can only be justified with reference to far future benefits. Additionally, some people are motivated to benefit the far future. Other people could be too. Tapping the inspirational power of the far future can enable more GCR reduction. There are at least two ways that the far future can inspire action: analytical and emotional. Both are consistent with the far future argument, but the argument is typically inspired by analytical considerations. The analytical inspiration is found in works analyzing how to maximize the good or achieve related objectives. Most of the scholarly works invoking the far future argument are of this sort.6 Such ideas have the potential to resonate not just with other scholars, but with people in other professions as well, and also the lay public. Thus there can be some value to disseminating analysis about the importance of the far future and its relation to GCR. Analytical inspiration can also come from analyzing specific actions in terms of their farfuture importance. Such analysis can help promote these actions, even if the actions could be justified without reference to the far future. However, the analysis should be careful to connect with actual decision makers, and not just evaluate hypothetically optimal actions that no one ever takes. For example, there has been now multiple decades of research analyzing what the optimal carbon tax should be (for an early work, see Nordhaus 1992), yet throughout this period, for most of the world, the actual carbon tax has been zero. Analytical inspiration has its limits. Research effort may be more productively spent on what policies and other actions people are actually willing to implement. The other far future inspiration is emotional. The destruction of human civilization can itself be a wrenching emotional idea. In The Fate of the Earth, Jonathan Schell writes “The thought of cutting off life’s flow, of amputating this future, is so shocking, so alien to nature, and so contradictory to life’s impulse that we can scarcely entertain it before turning away in revulsion and disbelief” (Schell 1982/2000, p.154). In addition, there is a certain beauty to the idea of helping shape the entire arch of the narrative of humanity, or even the universe itself. People often find a sense of purpose and meaning in contributing to something bigger than themselves— and it does not get any bigger than this. Carl Sagan’s (1994) Pale Blue Dot and James Martin’s (2007) The Meaning of the 21st Century both capture this well, painting vivid pictures of the special place of humanity in the universe and the special opportunities people today have to make a difference of potentially cosmic significance. This perspective says that humanity faces great challenges. It says that if these challenges are successfully met, then humanity can go on to some amazing achievements. It is a worthy perspective for integrating the far future into our lives, not just for our day-to-day actions but also for how we understand ourselves as human beings alive today. This may be worth something in its own right, but it can also have a practical value in motivating additional actions to confront catastrophic threats to humanity. 7. Conclusion The far future argument is sound. The goal of helping the far future is a very worthy one, and helping the far future often means helping reduce the risk of those global catastrophes that could diminish the far-future success of human civilization. However, in practical terms, reducing this risk will not always require attention to its far-future significance. This is important because many people are not motivated to help the far future, but they could nonetheless be motivated to take actions that reduce GCR and in turn help the far future. They may do this because the actions reduce the risk of near-future GCRs, or because the actions have co-benefits unrelated to GCRs and can be mainstreamed into established activities. This paper surveys GCRs and GCR-reducing actions in terms of how much these actions require support for the far future argument for confronting catastrophic threats to humanity. The analysis suggests that a large portion of total GCR, probably a large majority, can be reduced without reference to the far future and with reference to what people already care about, be it the near future or even more parochial concerns. These actions will often be the best to promote, achieving the largest GCR reduction relative to effort spent. On the other hand, some significant GCR reducing actions (especially those requiring large sacrifice) can only be justified with reference to their far-future benefits. For these actions in particular, it is important to emphasize how the far future can inspire action. Several priorities for future research are apparent. Quantitative GCR analysis could help identify which actions best reduce GCR and also what portion of GCR can be reduced without reference to the far future. Analysis covering the breadth of GCRs would be especially helpful. Social scientific research could study how to effectively engage stakeholders so as to leverage co-benefits and mainstream GCR reductions into existing programs. Social scientific research could also examine how to effectively tap the inspirational power of the far future, especially for emotional inspiration, which has received limited prior attention. Progress in these research areas could go a long way towards identifying how to, in practice, achieve large GCR reductions. The overall message of this paper is that helping the far future requires attention to which specific actions can help the far future and likewise to what can motivate these actions. The actions are not necessarily motivated by their far-future impact. This is fine. The far future does not care why people acted to help it—the far future only cares that it was helped. And people taking these actions will rarely mind that their actions also help the far future. Most people will probably view this as at least a nice ancillary benefit. Additionally, people will appreciate that those promoting the far future have taken the courtesy to consider what they care about and fit the far future into that. It can be disrespectful and counterproductive to expect people to drop everything they are doing just because some research concluded that the far future is more important. This means that those who seek to promote actions to benefit the far future must engage on an interpersonal level with the people who will take these actions, to understand what these people care about and how far-future-benefiting actions can fit in. This is an important task to pursue, given the enormity of what human civilization can accomplish from now into the far future.

#### We Should Delay or Attempt to Stop Human Extinction Completely – It Takes Away Future Generations’ Abilities to Make The World A Better Place

**Da Silva 15** [Michael, no credentials found. | “Offsetting the Harms of Extinction”, *Law, Ethics and Philosophy*, vol 3 p 8-29, 2015] SS

It is more plausible that the badness of non-existence stems from the fact that the history of the world would be better if extinction came later or never came about. **The badness of extinction is impersonal.** Jeff McMahan(2013) plausibly ties together this impersonal bad and the potential interests of future persons. He suggests that the non-existence of a potential person is an impersonal loss. One cannot care for these persons morally for their own sake. McMahan nonetheless holds that one has a reason to bring a better off person into existence rather than a worse off person, **which he suggests implies a reason to bring the better off person into existence rather than no person at all.** To bring a person into existence is to confer a “non[-] comparative” benefit on him/her (9). **Extinction is** potentially **problematic because it forestalls the granting of many non-comparative benefits and thus produces a history with less utility** than a history in which extinction either never takes place or comes much later and non-comparative benefits are bestowed on new persons. The most important implication of McMahan’s view for the extinction case is that there are impersonal reasons to bring people into existence due to the **value they will add to the world**. The perspective of the aforementioned impartial non-human observer interested in utility is the best point of view from which one can assess the potential badness of extinction. From this perspective, **extinction is bad because it forestalls potential utility.** Potential persons do not lose something by failing to come into existence. Instead, if causing people to exist would be good for them, **their not coming into existence is bad despite not being bad for them**.6 If these people could have had lives worth living, their non-existence is an impersonal loss of value. The lack of benefits is a **detriment** in the history of the world. Comparisons of the utility of worlds with future generations and those without them help identify the bad of extinction: potential utility is not realized in the world where extinction is earlier. **One should**, then, **count the potential future utility of presently non- existent people when choosing between outcomes.** This is not because of a duty to potential persons or because existence would be good for them. It is because **it is comparatively better to have more utility in a given history than less utility.** All-else-being-equal, **it is better to bring about an outcome that realizes more of what is now merely potential utility than one that realizes less of it.** If we count potential harms in our calculus of the badness of extinction, two plausible views arise. **Given the contingency of an extinction scenario harming current individuals, one may adopt a view focused on impersonal loss alone:**

### Life is Unique

#### Life on Earth is a unique and individual experience that extends beyond any individual species. While losing a single species such as humans would be terrible, the extinction of all non-bacterial life on earth would be a great tragedy. Willfully allowing extinction of life on earth is ethically wrong because there may not exist the evolvability of life elsewhere

**Hermida 2016** [Margrida Hermida, 2-23-2016, "Life on Earth is an individual," *Theory in Biosciences* Vol 135 Issue 1-2, https://link.springer.com/article/10.1007%2Fs12064-016-0221-2]

Are there any ethical consequences that stem from life on Earth being an individual? I think there are, even if they are not immediately evident because we already value life on Earth. We value the extant species on Earth and actively try to prevent their extinction (though sometimes half-heartedly, and often unsuccessfully). But if we consider that biological species are intrinsically valuable, over and above the value of the individual organisms that are part of them, it is precisely because they are unique historical individuals. When a species goes extinct, it is a whole way of life that disappears—and this loss is, arguably, greater than the sum of the individual deaths of the organisms that composed it. Similarly, when a whole life-individual disappears, there is an even greater loss, which adds up to more than the loss of the individual species, because there is a whole ‘way of life’ at the molecular and cellular level that disappears. Furthermore, some authors defend that species have a sort of intrinsic value by virtue of their being ‘unique and potentially productive evolutionary trajectories’ (Rolston 1986). Although it is arguable whether this sort of ‘natural historical value’ constitutes objective or merely instrumental value (Sandler 2012), there is clearly a loss when a species goes extinct also because its future evolution is curtailed. In the case of life-individuals, this loss is much more drastic. We know that life on Earth was able to evolve eukaryotic cells, multicellular organisms, and sentience, among other things. This evolvability is a feature of the life on Earth individual that is valuable, even if only instrumentally, for the sake of the evolution of things we consider to be intrinsically valuable. We do not know whether life on other planets has the same evolvability, but in all likelihood it will vary, depending both on environmental constraints and on the nature and early evolution of life at each independent origin. We also cannot be sure that, should all life on Earth go extinct except for bacteria, complex life would ever evolve again. But we know that it would not be impossible. If complex multicellular and sentient life is valuable, then the evolvability displayed by Earth life is itself a valuable feature. Although these considerations might not necessarily provide us with the moral obligation to ‘seed’ the universe, it at least gives us a reason to consider expanding Earth life, and not just human life, to other planets. Even if life is relatively common in the universe, complex multicellular life may be rare; life that has the (proven) capacity to evolve complex life is therefore extremely valuable. On the other hand, the thought that life on Earth is an individual might provide a measure of comfort to the depressing prospect that humans are likely to go extinct at some point. While I agree that we should vehemently reject any claims to the effect that human extinction would be no tragedy (Leslie 2010), it is possible that some comfort might be had from knowing that part of life on Earth would go on, and possibly re-evolve (decidedly different) complex and/or sentient life. In other words, the extinction of all life on Earth would be a much greater tragedy than the extinction of just our species, and we should take steps to prevent it, even if we believe that our species is the most valuable of all. In Death and the Afterlife, Scheffler (2013) defends that our valuing attitudes are contingent on the assumption that human life is “an ongoing phenomenon with a history that transcends the history of any individual”. Without in any way diminishing the value that we attach to specifically human life, it is no less true that the species Homo sapiens likewise does not exist in a vacuum and is part of an ongoing phenomenon—the evolution of life on Earth—that transcends the history of any individual species.

#### Multiple factors were necessary to foster intelligent life. Two implications: 1. There is no other intelligent life in our universe and 2. The largest impact would be willingly allowing human extinction to occur

**Bleier 13** Bleier, Ronald. “Are We Alone in the Universe?” *ProQuest*. 2013. TR.The bulk of Professor

Olson's article is devoted to critically examining the famous Drake equation, a formulation based on the theory diat alien intelligence is likely to be a common occurrence. The key point underlying Olson's argument is that we need to take seriously the alternative possibility that we are indeed alone in the universe. Two critical themes in Professor Olson's article, summarized below, deserve special emphasis: 1 . Intelligent life in the universe is not as prevalent as we might think. 2. **Intelligence is not a necessary or even a desirable survival trait.** In addition, there are two other considerations that make the possibility of human contact with an alien civilization less likely in the lifetime of our civilization. The first is that there is not necessarily a high probability that our brief instant of awareness as a technologically advanced society will coincide with the flower of an alien culture that could make their presence known to us. For example, if aliens were to encounter our planet even as soon as 500 years from now, there may not be any intelligent beings available with whom they could dialogue. Or had extra-terrestrial visitors landed on earth 500,000 or a million years ago, they would have undoubtedly been fascinated with our flora and fauna but there would not have been any anatomically modern humans with whom aliens could have communicated. Secondly, if a small or large number of technological civilizations had arisen capable of interstellar travel, it's not at all unlikely that they would have made their presence known by this time.2 Since they haven't yet given such unequivocal evidence, it's possible that if such societies existed they may have faced similar struggles over limited and finally exhausted resources. In such cases they may never have reached a level sufficiently advanced to explore regions in space much beyond their own localities. They may have fallen back, as we may do, into internecine struggle, decay and oblivion. In light of such difficult realities and dim projections, the urgency of uniting our talents and devoting our remaining resources toward achieving sustainability here on earth is manifest. Roman civilization and countless others, great and small, couldn't manage it. But our task must surely be to find our way. Edward Olson's "Intelligent Life in Space" summarized Olson begins by re-stating the common sense notion that given the enormous number of stars in our galaxy, it is reasonable to assume that many must have planets which could host life and that some fraction of them must harbor technological civilizations. Olson writes that the principle behind this thinking goes back to the Copernican idea that there is nothing special about life on earth and therefore there are likely to be other intelligent civilizations in our galaxy capable of communicating with us. Professor Olson cites a book by Carl Sagan and LS. Shklovskii published in 1966, Intelligent Life in the Universe which spurred many to predict N, the number of technological communicating civilizations present in our galaxy. Many astronomers and a few biologists have expressed differing degrees of optimism about N. Olson introduces the Drake equation, which was conceived as a way of assigning a value to N, the number of extraterrestrial civilizations. It defines ? as the product of a series of probabilities. Included in the equation are such elements as the rate of star formation, the number of stars believed capable of supporting advanced organisms on surrounding planets, and five more related variables.3 The ability to put numbers, however uncertain, into this equation lends an air of plausibility to the exercise. Optimistic estimates for these quantities yields the high figure for ? of 100,000 technological cultures in our galaxy that remain active for a million years. Pessimistic estimates range as low as one, our own. As Olson sees it, the problem with the optimistic inputs into the Drake equation and indeed into the idea behind the equation itself, is that the chemical, biological, evolutionary, anthropological, and sociological factors are extremely complex and it is difficult to assign numbers to them. Olson quotes the chemist Richard E. Dickerson who remarked that proposing scenarios for the origin of life is one thing, but it is quite another to "demonstrate that such scenarios are either possible or probable." The bulk of Olson's article is devoted to an alternate view of the probability of extra terrestrial life in our galaxy. Olson emphasizes the randomness and improbability of the repetition of the great experiment that has taken place on Earth. He tackles the subject by going beyond sheer numbers and by considering some of the biological issues that make it less rather than more likely that intelligent beings comparable to homo sapiens have ever existed or are likely to exist currently or to be in a position to contact our modern civilization. Olson considers the probability that life will appear elsewhere in the galaxy on a favorable planet. Optimists note that since "some "life-precursor' organic molecules have been observed in highly improbable places, like interstellar molecular clouds and carbonaceous meteorites, their synthesis on planetary surfaces is plausible." And indeed scientists have concluded that "even under the mildly reducing conditions now regarded as probable in the early terrestrial atmosphere, molecules as complex as certain amino acids could form readily." From this, optimists jump to the conclusion that the synthesis of amino acids is vital for life to begin. But laboratory experiments highlight the fact that we are very far away from understanding the critical step in the formation of life, "the actual origin of a replicating system" much less duplicating the inception of life itself in our laboratories. If chemists in their laboratory experiments cannot give us a value for the possibility that life will appear on every suitable planet, what then does the geological record show? "The micro-fossil record suggests that primitive cells were present within a billion years or less of Earth's formation." Does this suggest that life is close to appearing on every suitable planet? Perhaps. However, biologist Leonard Ornstein has argued, "from life's exclusive use of L-symmetry molecules, that life may have originated only once on Earth, and that from a single event no statistical conclusions can be drawn" (my emphasis). Life could happen on every suitable planet or could be as low as any value down to the infinitesimal. "Ornstein likes the value 10~6. Others are less pessimistic, but if the argument developed below is correct, it may not matter." When we turn to the probability that life, once begun, inevitably evolves to cognitive intelligence, we face questions of biological evolution**. Olson writes of our tendency to believe that "intelligence has survival value and that evolution by natural selection tends to produce more complex species of life**. Can we not therefore be optimistic about life elsewhere?" **The difficulty, Olson argues, is that natural selection contains no "self-perfecting" principle that guarantees a particular outcome such as intelligence**. **Olson argues that mammals, including primates, would never have existed had not a complex and diverse environment, with its associated food chain, evolved to support them. Hence, "the evolutionary process is more subtle than the operation of some law of nature which unfailingly generates complex intelligent creatures.**" "The human brain appears to have arisen in part because it improved the chances of living through a very specific sequence of environmental changes**. It does not seem likely that the evolution of intelligence was a sure thing.. .**the **probability of its occurrence elsewhere (... ) is not likely to be even close to unity."** Thus, added to the five critical Precambrian factors in life's evolution, Olson cites "at least six pivotal developments" in the post-Cambrian period that led to intelligent beings. **Olson argues that these eleven steps are the minimum necessary to yield cognitive intelligence** and "more knowledgeable writers would add to the list and expand on the simple arguments presented here" and that all these steps were contingent developments and not inevitabilities. Next, Olson raises the question of the survival value of intelligence and challenges the common notion that intelligence implies survival. He points to cases in the record where **more intelligent species failed to compete successfully against less intelligent animals. Olson emphasizes that while it may be surprising to us, intelligence doesn't necessarily aid survival in general.** Olson makes the point that while this discussion doesn't necessarily imply that life is rare in the universe, "even after life begins on a planet, evolves energy sources, becomes complex - even after all that - communicating across the interstellar void may have low probability." Do we have any way to broaden our sense of the possibilities of cognitive intelligence developing on a planet that can support life? To answer this question, Olson cites Loren Eisely's discussion of examples on earth of other "worlds" which provide examples of alternative evolution. He points to Australia and South America, which, as a consequence of continental drift, separated from the huge landmass we call Pangaea some 200 million years before the emergence of mammals. **In Australia there is "no hint of the emergence of intelligent mammals like the primates." In South America we have monkeys but "there are no great apes in the New World, no evidence of ground-dwelling experiments... Here ended another experiment which did not lead to man, even though it originated within the same order from which he sprang."** One conclusion we can draw is that in both cases, **the environment didn't provide the proper ecosystems. Olson emphasizes that natural selection merely tracks the environment; the process does not guarantee intelligence as its final product.** Estimating ? from the Expanded Drake Equation With this discussion in mind, Olson is ready to factor in the biological probabilities into the Drake Equation. Bearing in mind notions that there is nothing inevitable about cognitive intelligence, and at the same time assigning "generous" estimates to some of the biological uncertainties, Olson provides a new set of numbers for ? that are not optimistic. In his new equation: N - 6 x10^sup -7^ x L **where L is the communicative lifetime of a civilization. If L is roughly a million years, Olson writes, "then we are the only technological civilization in two Milky Way spiral galaxies. If L is only 100 years, then we are unique among 20,000 such galaxies."** Olson warns that his "pessimistic" conclusion is still theoretical and admittedly quite speculative. It ignores, for example, alternate biologies." He reminds us, however, that if we are indeed alone in the universe, "such an outcome could carry far deeper implications for us than would a galaxy full of other chattering civilizations." He quotes James Trefil who wrote that **"[I]f we succeed in destroying ourselves, it will be a tragedy not only for die human race but for the entire Galaxy, which will have lost the fruit of a 15-billion year experiment in me formation of sentient life**." Olson concludes by quoting one of his students, Sally Green. "I walk away from here with a delightful reverence for the amazing, chancy development of carbon-based life on this planet... we are caretakers of the most fragile bloom in die universe."5

#### Reemergence of new intelligent life is highly unlikely – success of the new species is not guaranteed, eliminates new species value

#### Bostrom 13 [Nick, is a Professor at University of Oxford, a Director for the Future of Humanity Institute, and a Director for the Strategic Artificial Intelligence Research Centre | “Existential Risk Prevention as Global Priority” *Global Policy* vol. 4 issue 1. February, 2013]

Although it is conceivable that, in the billion or so years during which Earth might remain habitable before being overheated by the expanding sun, a new intelligent spe- cies would evolve on our planet to fill the niche vacated by an extinct humanity, this is very far from certain to happen. The probability of a recrudescence of intelligent life is reduced if the catastrophe causing the extinction of the human species also exterminated the great apes and our other close relatives, as would occur in many (though not all) human-extinction scenarios. Further- more, even if another intelligent species were to evolve to take our place, there is no guarantee that the succes- sor species would sufficiently instantiate qualities that we have reason to value. Intelligence may be necessary for the realisation of our future potential for desirable development, but it is not sufficient. All scenarios involv- ing the premature extinction of humanity will be counted as existential catastrophes, even though some such scenarios may, according to some theories of value, be relatively benign. It is not part of the definition of existential catastrophe that it is all-things-considered bad, although that will probably be a reasonable suppo- sition in most cases.

### Human Life Valuable

#### Living itself is valuable, but the Human project is invaluable

**Boyd and Wilson No Date** [Matthew Boyd and Nick Wilson. Boyd, PhD, Contract Researcher. Wilson, Dept. of Public Health, University of Otago Wellington. New Zealand. “Policy and Existential Risk” n.d. (References articles up to 2014) | SLB]

Human life is a qualitatively different kind of good than other resources, this is in part because human lives are not obviously economically tied to estimates of inflation/deflation and future value as material goods are**.** Therefore, there seem to be no good reasons to prefer one discount rate over another. Indeed, most authors writing on intergenerational justice seem opposed to discounting future life-years. (Matheny, 2007) Sometimes we discriminate in favour of known individuals in present danger rather than statistical lives at risk. (Weale, 1979) This isclearlythe case when we look at the heroic amount of resources spent in intensive care unitsforexample**.** Such massive spending to save individual lives is inconsistent with claims that it is generally wrong for a funding organization to fund individual ‘rescue’ over mass prevention. (Hope, 2001) We already ration health resources andaresometimesbiasedtoprefer investing money in those currently in need (medical heroics),rather than those statistical lives at risk (prevention programmes). Current prevention activities, such as immunising a population, or using pharmaceuticals to lower heart attack risk, are interventions on a known population, with known statistical payoffs. The issue of prevention is more complex for existential risks as it may involve intervening with respect to an unknown population (future people) for a probabilistic payoff. Furthermore, we are uncertain of the needs of future people. They are likely to be very much more wealthy than we are now, based on economic trends which were not curtailed by events even as significant as the Second World War. This uncertainty around the commitment of resources to avoid an existential risk might therefore justify a discount rate. Four positions seem to be emerging: (1) We ought to value all future lives as we value present lives. (2) We ought to value future lives but to a lesser degree than presently existing lives (e.g., using a small discount rate such as 1% per year). (3) Wedon’t necessarily needtovalue potential future lives but only the future life-years of those people presently existing to still have substantial concern for the future (even in this case we are still talking about the loss of 136 billion life-years should a human extinction-level catastrophe strike next year, Table 1). (4) The human project is invaluable and so the value of some humans continuing to exist and maintaining such a project could be infinite**.** A further possible position is that the discount rate itself might not be constant. There might, for example, be no discounting applied for life-years of people presently alive, but significant discounting for people that do not yet exist. Importantly, when considering actual threats of human extinction, by saving known lives in present danger, we are also saving future lives in potential danger**.**

### Humans More Valuable—Cognition

#### Human life is more valuable than nonhuman life – death is a greater harm for human

#### Bernstein 16 [Mark,

I dub the dominant argument for (H) the Disvalue of Death Argument (DDA). Endorsed in slightly distinct versions by, among others, Cigman, McMahan, Regan, Rowlands, and Singer, and implicitly by hoi polloi, (DDA)’s claim to the ascendant position is difficult to challenge.2 Subtleties aside, the argument begins by situating the essential difference between humans and (nonhuman) animals in the fact that humans alone have the capacity (capability) for self-consciousness and, more particularly, uniquely possess the capacity to conceive of themselves as temporally enduring creatures.3 Humans can entertain thoughts about their own past and present and, most importantly for our purposes, can think of themselves existing in the future. This capacity for self-regarding future-directed thought makes it possible for humans to form (self-involved) plans and projects regarding their own future, and allows humans to invest personal resources in attempts to fulfill these future-directed aspirations. Successful endeavors to fulfill plans and projects are great goods to humans, both in the pleasure and satisfaction that typically accompany experiencing hard work paying off, but also in the very completion of the projects themselves. Unfortunately, this capacity to develop plans and projects and invest time, energy, and other reserves in trying to fulfill them comes with a cost; the possession of this uniquely human capacity is attended by the human capacity to experience a unique type of harm when death occurs. Imagine Jack planning to attend college in a few years. Cognizant of the fact that he’ll need both money and good grades to accomplish his goal, Jack spends much time, energy, and other resources in mowing as many lawns as possible, working an extra shift at a local convenience store, and studying for hours on end. Jack believes, quite reasonably, that his investments will pay dividends in the future. Suppose, however, that Jack dies shortly prior to the application process for college. The intervention of death at this inopportune time renders Jack’s prior investments of resources largely pointless and, as a result, makes a significant segment of his life meaningless; Jack’s ante-mortem efforts have come to naught.4 Indeed, the misfortune befalling Jack is exacerbated by the fact that if Jack had known about the time of his untimely death, instead of working and studying so diligently, he would have spent much more of his life engaging in activities he loved; the drudgery of hard work and long hours poring over practice verbal and math SATs, would have been replaced by viewing films, dating, and strengthening friendships. Death is impotent to have a similar effect on Wulfie. Being a dog, he is an animal whose very essence precludes him from making any (self-involved, future-oriented) plans and projects, let alone from investing resources to seeing these plans satisfied. Dogs, by their nature, lack the capacity for self-consciousness, and so necessarily want for the capacity to create and invest in plans and projects. Consequently, dogs, and more generally, nonhuman animals, cannot lead the pointless kind of life that besets Jack. Death cannot render Wulfie’s ante-mortem investments of resources absurd, or make any portion of life tragic, meaningless, or nonsense. Wulfie remains impervious to these insults in virtue of the kind of creature he is; the kind of creature that is characterized as essentially lacking the capacity for self-consciousness, and so essentially being incapable of entertaining and investing resources in plans and projects. Death, then, may present a greater harm, loss, or disvalue to humans than animals. Only humans are susceptible to leading tragic lives, lives in which much time and resources are spent to no avail. Since death may be a greater harm for humans than animals, (continued) life may be a greater good for or be of more value to humans than it is to (nonhuman) animals. By and large, those who endorse (DDA) are not Cartesians; they share the commonplace that (nonhuman) animals are sentient, and so have the capacity to both enjoy and suffer. In possessing the capacity to experience pleasure and pain, Wulfie is subject to a harm caused by death; death can irremediably deprive Wulfie of a future replete with pleasant experiences. If Wulfie had not died at the time he did and his extended future would have on balance been worth living for him, death would have proven of significant disvalue. In being deprived of good future experiences, death similarly harms Jack. Restricting ourselves exclusively to the disvalue death brings about by depriving an individual of would-be enjoyable experiences, it becomes a contingent matter—a matter that is incidental to the kinds of creatures that Jack and Wulfie are—whether Jack or Wulfie loses more by their respective deaths. Wulfie would be more harmed by death if his survival would have contained, on balance, more good for him than Jack’s continued life would have contained good for him, and Jack would be more harmed by death if his extended life would have included, on balance, more good for him than the good Wulfie would have experienced in his extended life. It is evident that (DDA) employs ‘human’ and ‘animal’, not as labels for species identities—as we might naturally believe—but as rubrics for individuals modulo kinds of lives, where kinds of lives are identified and individuated (i.e., ‘defined’) in terms of the capacities that individuals of these kinds uniquely possess or lack. ‘Human’ refers to those individuals who lead the kind of life—let’s name it ‘the human kind of life’—defined by (the possession of) the capacities to form plans and projects, and invest resources in their fulfillment. ‘Animal’ refers to individuals who lead the kind of life—let’s call it ‘the animal kind of life’—defined in terms of lacking (the possession of) the capacities that characterize the human kind of life; the animal kind of life precludes the capacity to formulate and invest resources in hopes, dreams, aspirations, plans and projects. A rendering of (H) that makes this point perspicuous is. (H\*) All else being equal, individuals leading the human kind of life are more valuable individuals than those leading an animal kind of life.

**We should value “Human” lives over “Animal” lives because humans have the capability to form plans and projects, and invest resources in their fulfillment whereas animals do not.**

Mark **Bernstein** Published online: 3 September 20**16** Springer Science+Business Media Dordrecht 2016

[file:///C:/Users/Jordan%20Ramsey/Downloads/On%20the%20relative%20value%20of%20human%20and%20animal%20lives.pdf](about:blank)

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A rendering of (H) that makes this point perspicuous is (H\*) All else being equal, individuals leading the human kind of life are more valuable individuals than those leading an animal kind of life. This clarification is not a call for linguistic revision. We may, and for historical reasons probably should, continue to use (H) as the ‘official’ language for the conclusion of (DDA). We must, however, pay special attention to the fact that for supporters of (DDA), kinds of lives rather than species identities are the key rubrics for discriminating between humans and animals

### Humans Can Change Mindset

#### Human misuse of the planet is not a justification for extinction, rather we should assess, fix, and stop future misuse of, not only Earth but any other planet we may touch.

**Armstrong 16** [Rachel, researcher developing novel sustainable technologies that harness some of the properties of life and has been developing a range of projects over the last 5 years that propose new approaches that are life-promoting rather than resource conserving. She has been developing prototypes and models for sustainable environmental technologies and collaborating with architectural practices and scientific research laboratories | “Star Ark” Springer Praxis Books 2016, pg. 15-17 |MAW]

This particular publication adopts an ecological viewpoint of space exploration, using the Ecocene as a cultural lens through which a range of assumptions about contemporary challenges is examined and alternatives proposed. The Ecocene is preferred to the widely used term, the Anthropocene—described in 2000 by scientists Erwin Stoermer and Paul Crutzen to indicate that human impact is so extensive that it can be thought of as a new geological epoch (Crutzen and Stoermer 2000 ). Since these effects are relatively recent in the 4.5- billion-year history of the planet, this idea is somewhat scientifically controversial, as the time period is incredibly short when compared with sustained events like ice ages and mass extinctions. While the mythos of the Anthropocene largely views human impacts as negative and inevitably resulting in our extinction, the Ecocene looks for alternative forms of social and cultural organization than modern industrial practices that invite our ongoing success as a species (see Part I, Chap. 4 ). The Ecocene therefore refers to a set of ideas and practices that are starting to emerge in a post-industrial world in which we are beginning to understand the importance of the environment as integral to our ongoing survival. Our twenty-first-century megacities swell and loom around us. They house more than 10 million inhabitants and stretch over hundreds of square kilometers. Increasingly, our everyday encounters with matter appear more paradoxical and uneasy. Drinking water is used to flush excrement. Fertile soils are scorched by intense agricultural and geo-engineering practices that have permanently reconfigured Earth’s biological trajectory. Above us, our skies are full of invisible toxins, our industrial landscapes full of “technofossils”—inert materials like concretes, or black carbon—and beyond us stretch oceans of plastic. Yet, we are countering these insidious events by exploring ways of moving from an industrial age toward an ecological era of thinking and practice. This is not new; it has been happening over the last 80 years. Marshall Savage’s consideration of algae replacing the foodstock of O’Neill’s high-yield varieties of grains, such as wheat-, rice-, and corn-based agriculture reflects this transition. The Ecocene is not a new hegemony. It is not simply about biomimicry—copying Nature’s forms and functions—or the greening of things. It is not as simple as substituting an object-centered view of reality and supplanting it with process, complexity, networks, and nonlinearity. It embraces many different approaches and worldviews that are overlapping for the first time. It involves constructing a framework for understanding a world in continual flux that is navigated by many overlapping models of thought, which require different ways of attributing value to natural systems than, for example, modern economics, which centers on resource scarcity and ignores qualitative criteria such as creativity (Papazian 2013 ). The impacts of these convergences are thriving owing to the advent of the Internet. The intersecting ideas that shape these conversations also bring about paradoxes in our experience of the environment and therefore influence the way in which we work to solve these complex challenges. In this context, space travel in the Ecocene does not only imply the setting against which human and technological activity is conventionally foregrounded. In the Ecocene, space explorers and colonists do not stand on the surface of the Moon—as if on the end of a pier and look back at our pale blue dot with fond nostalgia—but look forward in the direction of travel of the starship is traveling and out towards the unfamiliar terrains of the cosmos. At the heart of the Ecocene is the appreciation that the world is in constant flux and that the matter from which it is formed is lively. Responding to grand global challenges, such as climate change, increasing population density, and the sustainability of cities, architects, engineers, scientists, and designers have been looking for new ways of working with a whole range of strategies to counter the net effects of global-scale, intensive industrial practices that are effectively reverse-terraforming our planet. This ranges from alternative food resources from farming insects to various forms of aquaculture, as well as notions of “circular economy,” in which, by design, material flows of biological nutrients re-enter the biosphere safely and technical nutrients are circulated without entering the natural environment. Over the last 30 years or so, new toolsets have become available to enable us to develop alternative platforms with the kinds of plasticity and robustness that may help us to look at these challenges and work with them in new ways. The Ecocene invokes ecological ideas of location and materiality and notions of identity. In that way, the starting point of interstellar colonization adopted in this book is very different to these modern and technically focused accounts. It establishes a fundamentally philosophical approach to thinking about how life itself arose on our planet through ecopoiesis, biogenesis, succession, and evolution. It then considers the contexts in which these fundamental organizational systems responsible for the sustained liveliness of matter can be ensured, so that it is realistic to anticipate the ongoing survival of inhabitants and their capacity for change over prolonged periods, which are currently predicted to be hundreds, perhaps thousands, of years. **Indeed, space colonization is not possible without an ecological view of humanity beyond this planet**. While it may be argued that O’Neill and Savage’s solutions are “good enough” for space colonization, we also know that our own attempts to sustain closed ecosystems on our own life-bearing planet, such as BIOS-3 (an algae-based foodstock) and, more famously, Biosphere 2 (grain foodstocks), have demonstrated that the closedecosystem design is far from a done deal, with much still to be discovered about their effective and prolonged operation. Indeed, even on the International Space Station (ISS), the world’s fi rst house in space, which has been permanently occupied since the millennium, we have little experience of living off this planet. To date, the longest single human spacefl ight record is held by Valeri Polyakov, who stayed aboard the Mir space station for just over 14 months (437 days, 18 h). Although this is an impressive display of human endurance, it is an incredibly short time when considering our requirements for a slow worldship; this is insignifi cant. With the prospect of colonies on Mars in the next decade, the issue of sustaining human activity beyond the easy reaches of supplies or a quick return home becomes a challenging one. Moreover, industrial societies have particular challenges to deal with regarding the prospect of long-term thriving. It is essential to identify a set of ideas that enable us to live viably in places that are much less richly supplied with resources than on our home planet. **If we do not change the thinking before we propose the solutions, we will soon discover that we are faced with a “groundhog day” of modern development with climbing carbon dioxide levels, pollution, and destruction of natural resources**. While our thinking into these issues is indeed advancing, it is far from providing the kinds of infrastructures that would enable us to generate ecopoiesis on a barren terrain.

### Humans Good—Save Universe

#### Humans can solve for a universal crisis- star wars proves

**Hanlon 15-** cites Paul Davies, astrophysicist at Arizona State University

[Michael Hanlon, science journalist, “Save The Universe”, 02 April, 2015, *aeon*, https://aeon.co/essays/what-can-we-do-to-save-the-universe-from-certain-death]

Right to the last, life will adapt magnificently. But in the end, the final great extinction event will get the better of it. In a billion years, our planet will be a hot, humid hell, riven by searing hurricanes, its continents mostly desert. From space, it will no longer be a pretty blue-green ball but a yellowish orb, a glint of bare rock around the equator, the skies full of dust. By 1,200,000,000AD, in a strange symmetry, the ancient Earth will start to resemble its own earliest self. No animals, no plants: just a few hardy bacteria eking out a precarious existence in superheated saline pools. Eventually the remaining seas will boil. The senile Sun will bloat and expand, engulfing Mercury and Venus and searing our planet’s surface until even the rock glows red. The Earth’s story is over. But that needn’t be the end of life in the Universe. Let us assume that our planet is not unique; that intelligent life is fairly common. Our Sun will not be the last star to die. Recent findings from NASA’s Kepler Space Telescope suggest that there might be as many as a billion Earth-like planets in the Milky Way alone. There is time left for countless civilisations to rise and fall, long after the death of old Earth. No refuge is permanent, of course. In time, the stars – all septillion of them (in the observable universe) – will stop shining. Big, hot stars such as our Sun consume hydrogen fuel in periods ranging from a few tens of millions of years to a few billion. New generations of such stars will be born long after ours runs amok. But eventually, the Universe’s supply of accessible free hydrogen will run out. The last survivors will be the red dwarfs, the commonest of stars. The remarkable thing about red dwarfs is their longevity. Some will last 20 trillion years – 4,000 times longer than our Sun. Any planets orbiting red dwarfs (and we know there are plenty of them) will, potentially, have heat and light to allow life of some kind to exist for that long. But even red dwarfs are mortal. In 100 trillion years, the very last generation of hydrogen-burning astral bodies will have been born from the few remaining gas clouds. By 200 trillion AD the last stars will go out. From now on, the Universe is almost black and impossibly cold. Life, if any survives, will have fallen on hard times indeed. Now we move into more uncharted waters. It is worth saying here that we are still not entirely sure what the ultimate fate of the cosmos might be. It used to be thought that there was enough matter (including dark matter) and energy in the Universe for its combined gravitational pull to slow down the cosmic expansion, bring it to a halt and eventually bring all the stars back together again in a reverse-rerun of the Big Bang – the so-called Big Crunch. In fact, there doesn’t seem to be quite enough stuff for this to happen. But there are other, disastrous, possibilities. In 1999, Robert Caldwell, a physicist at Dartmouth College in New Hampshire, pointed out that dark energy, which propels the Universe’s expansion, might one day be much stronger. According to some calculations, a stronger version of dark energy, called phantom energy, could literally tear apart the entire Universe, atom by atom – a disaster called the Big Rip. This could happen as ‘soon’ as 20 billion years from now. But let us for the sake of argument assume that there are no crunches or rips in our future. The downside of this relatively gentle scenario is that the future will be an impossibly gloomy and boring place. As Professor Martin Rees, the Astronomer Royal put it to me: ‘If the cosmic acceleration continues … the observable universe gets emptier and more lonely. Distant galaxies will not only move further away, but recede faster and faster until they disappear.’ As the galaxies vanish over each other’s horizons, and after the last red dwarfs die, the cosmos will be ruled by strange, even dimmer entities – ‘brown dwarfs’, lone, Jupiter-sized planets that never got hot enough to turn into stars. The heat of their interiors could keep a civilisation going for a billion billion years. Then there are the white-dwarf remnants of old dead stars, and ‘degenerate’ monsters – the black holes and neutron stars. Across swathes of space bigger than our Milky Way, the brightest objects will glow with the same energy as a 40-watt electric light bulb. By the time the Universe is a quadrillion quadrillion years old, the only power sources will be the remnants of stars and planets. Their very protons, the core building blocks of matter, will start to decay, releasing tiny puffs of energy. But even these last outposts on Eternity Road will, in the end, crumble. Entropy will win. The Universe will end, not with a bang, but with a whimper, maybe 10 googol years from now (a googol is a one with 100 noughts after it). That is, if no one tries to do anything about it. So, what can be done? Should life surrender to its sad, entropic fate, or should we (for ‘we’ are the only entities we know of who might be able to make a difference) at least begin to think about postponing – perhaps indefinitely – the death of the only home we have? It sounds ridiculous, and out of keeping with the current philosophy to ‘leave nature be’. But the truth is, we face eternal annihilation if we do nothing. We can certainly delay our demise in our Solar System. As the Sun warms, we could move outwards – to the conveniently placed Mars, or to the moons of Jupiter or Saturn. A billion years’ hence, a balmy Mars will be as warm as Earth is today. Three billion years on, and Titan, Saturn’s icy companion, might be a mild, watery paradise with a thick atmosphere and none of the deadly radiation that afflicts Jupiter’s inner moons. If we find that we are terribly attached to dear old Earth we could simply move it into a new orbit. Propelling asteroids or comets at near-miss distance would allow us to use their gravitational pull to act as a celestial tugboat, dragging the Earth out of the fiery clutches of our Sun. But that just buys us time – 3 or 4 billion years. Note that no one is assuming that anything resembling humans will be alive then. I am talking about our successors – either a replacement species, or possibly sentient machine intelligences that have taken over from thinking meat. Either way, we, or they, will need to find a new home. By then our descendants might have found common cause with extrasolar alien intelligences, assuming they exist. Far-seeing minds will know, as we do, that not even the red and brown dwarfs will last forever. From now on, the battle will not be against the heat of dying suns, but against cold. With no stars, any lifeforms or machines will have to find new ways of powering themselves and their civilisations. Lack of resources will be a huge issue – on the cosmic scale just as it is here on Earth today. Even with no phantom energy, the rate at which the Universe is expanding will keep accelerating. That’s bad news, according to Fred Adams, an astrophysicist at the University of Michigan who has written extensively about the long-term fate of the Universe: in time, the vast bulk of matter and energy that we can theoretically access will simply disappear over our event horizon. The riches of the cosmos will be causally disconnected from ‘our’ backwater forever. ‘This isolation imposes important restrictions on resources,’ Adams told me. ‘All you get [in the very distant future] is what is currently in the local group of galaxies. This constraint limits the amount of gas to make new stars, for example. As a result, life will have a harder time surviving to extremely long times.’ Fortunately, useful energy is woven into the bedrock of creation. Over long enough periods of time – and time is one thing not in short supply – the minute amounts of energy generated by processes such as proton decay can be harvested and made to do useful work. In 1960, Freeman Dyson, then a physicist at Princeton, proposed that any sensible civilisation would build great solar-panelled shells around its parent star, to ensure that none of its blaze of light went to waste. Even at this late stage in the life of the Universe, intelligent beings could build similar ‘Dyson spheres’ to harvest the trickle of energy released by black holes. Hawking radiation, a quantum artefact generated by the creation of virtual particles at the Event Horizon, is feeble stuff: a largish Black Hole would ‘glow’ at a temperature of only a few tens of billionths of a degree. But in the dark future, we will have to take what we can get. Still, even the black holes are not immortal. By radiating, they lose mass, eventually exploding – the last bursts of visible light in the Universe. The cosmos now enters what Adams calls the ‘Dark Era’. There is no atomic fusion to make light, because there are no more atoms. All that remains is very long wave radiation, plus the smallest elementary particles, smeared out over impossibly large volumes of space. Today, the average density of matter in the visible Universe is a few hydrogen atoms per cubic metre; by 1 googol AD, that figure will have fallen to one miserable electron or positron in a volume far, far bigger than today’s visible Universe. What hope for any intelligence now? Remember that, even if we or our machine descendants (or those of any alien intelligences) have constructed the sturdiest apparatus to ensure survival, nothing can outlive the evaporation of matter itself. This is where we have to think the impossible. Paul Davies, an astrophysicist at Arizona State University, argues that the answer might be simply to decamp to a new universe when the old one is no longer fit for purpose. We, or rather ‘we’, would have to start making plans for this long before the Dark Era; but moving might be our only hope. ‘Either the origin of the Universe was a natural or a supernatural event,’ Davies explained to me. ‘Assuming, as a scientist would, that it was natural, then it must be possible for a sufficiently advanced civilisation to do it, too.’ The prevailing view among cosmologists at this time is that the Big Bang was just one of many bangs scattered throughout space and time. ‘So the conditions for producing one are generic,’ Davies said. ‘In principle, we could do it too, and make a baby universe. Get it right and this baby would expand into something like our Universe is today.’ This will not be easy. Making a new universe, or tunnelling through to another, natural, part of the multiverse, would require a colossal amount of energy: think of something like the Large Hadron Collider (LHC) at CERN in Switzerland scaled up to the size of a Solar System, harnessing the power of entire stars or tamed black holes. This would tax the resources of the most advanced civilisations foreseeable, and it would be the work of millennia – probably hundreds of millennia, using machinery scarcely imaginable in its scale and complexity. It would be the greatest engineering project in history. Davies says: ‘It’s necessary for the beings to decamp to the baby universe through the umbilical wormhole before it pinches off. So this is the ultimate in emigration – getting out for good. Actually doing this, by concentrating huge amounts of energy, wouldn’t be easy, and it would certainly be expensive, but we have billions of years to save up for it, as this Universe will do okay for a while yet.’ There are other equally outlandish possibilities. A few years ago, as CERN was about to turn on its LHC, some anxious souls fretted that the machine could inadvertently create an Earth-eating black hole or – and this is pertinent here – trigger some sort of ‘phase change’ in the fabric of the cosmos itself that would create a sphere of destruction spreading out from Earth at the speed of light. Oops. The LHC, mighty as it is, was far too feeble to do anything of the sort. But build something thousands of times bigger and who knows? It might be possible to unleash a field that in some way interferes with the cosmic expansion. Freeman Dyson has suggested that by saving up a large but finite amount of energy, it should be possible to power some sort of conscious thought for a subjective eternity, even as the Universe dies a heat death. The fact that people have even considered saving – or escaping from – our dying Universe is remarkable, and a testament to the physics that can predict conditions a billion years hence better than the weather next week. The project is not really about saving the Universe, but about saving the life within it, life without which, after all, the cosmos is just gas and rocks and vacuum. It might prove that the ultimate answer to the problem of life, the universe and everything is not, as Douglas Adams joked, 42, but simply finding a way to keep the show on the road forever.

### Humanism Good

#### Advocates of human extinction engage in cultural imperialism that seek to violently push their Western technological thought onto innocent people around the world. You should not conflate a narrow understanding of Western humanism, with the whole of humanity, to do so philosophically and imaginatively makes you complicit with knowledgeable mass destruction.

**Pastourmatzi 2017** [Domna Pastourmatzi, “Discrediting the Human in Futuristic Visions and Anglophone Cultural Theory,” in *War on the Human: New Responses to the Ever-Present Debate*, edited by Theodora Tsimpouki and Konstantinos Blatanis, Cambridge Scholars Publishing, pp 56-58]

The advocates of the posthuman brim with discontent and negative sentiments. Their sustained attacks upon the human, humanism and the humanities is justified by the charge that all reek of sexism, racism, speciesism and anthropocentrism. Here are some of their "crimes": "The Human as a category have been revealed to be exc1usionary."72 "All humanisms, until now have been imperial. They speak of the human in the accents and the interests of a class, a sex, a race, a genome."-'3 By this logic, the Humanities more or less have institutionalized "speciest humanism" which has an intrinsic link with "discriminatory practices such as racism or sexism?" lncriminating humanisms wholesale (under the umbrella term Humanism with a capital H) and humanists as blind supporters of speciesism (and of other types of prejudice) just because they focus their interest on the mammal called anthropos and on the still barely-understood human condition is at best a sign of anthropophobia. Philanthropy (being a friend of the human) or anthropophilia is not bigotry. Anthropocentrism is not synonymous with speciesism. It is my contention that there is a latent cultural imperialism behind the concerted efforts to discredit some of the influential philosophers of the Enlightenment and revamp the human question as a posthuman inquiry. This cultural imperialism tends to export the moral, philosophical and political crises of western cultures, give them a global dimension, and thus facilitate the transition to a posthuman future conceived according to the conceptual frameworks, standards and expectations of a deeply westernized and technologized model of thinking. To disregard or conveniently ignore non-western European (and by extension non-Western) conceptualizations of the human (not of Man) and the historical legacy of certain European cultures grounded on a humanism that not only have fostered the spirit of interethnic symbiosis, inter-racial marriage and mutual cultural borrowings but have also strengthened human solidarity during times of oppression, enslavement, and war is to indulge in cultural myopia. To blame indiscriminately "Europe" and Eurocentric humanism for the horrors of modem history-colonialism, Auschwitz, Hiroshima and the Gulag-75 without acknowledging that within the continent of Europe itself certain European peoples with humanist traditions have been the victims of dominant European political regimes, is to place the moral responsibility equally on the perpetrators and on the human victims. Neither Europe's nor humankind's historical trajectory was ever homogeneous; to exploit the conflation of the western European notion of "Man" with anthropos and then accuse collectively the genus of anthro as of being "a hierarchical, hegemonic and generally violent species" " whose only redeeming act is to transfonn itself into a posthuman subject on a posthuman planet is insolent and demeaning. It is naive to believe that the campaign is restricted to the modest goal of merely countering the Enlightenment "humanistic suppositions about human exceptionalism,"77 or to challenge "a specific view of what is "human" about humanity."7" One of the ulterior motives is the restructuring of humanist paideia to fit the needs of a technologically- driven worldview that not only promotes the posthuman as humanity's new model of subjectivity and a "positive" mode of being but to establish it as orthodox common sense and to endorse humanity's posthumanization as a long-overdue process. Why else claim that Humanism has lost its credibility and the Humanities are on the verge of bankruptcy? Why else brag that "Posthuman Humanities are already at work in the global multiversity, not only to fend off extinction, but also to actualize sustainable posthuman futures."79 After all, as Hayles put it, in the current technopolis the posthuman is the "potent antidote."8Â° The posthuman is presented as a radical avant-garde worldview for the new millennium. However, the condemnation of the human tends to exceed the limits of the cultures from which the philosophical, ideological and political crises have emerged. The posthuman is linked to grand visions about the future of humanity itself and goes far beyond the modest academic task of concept-subversion and intellectual patricide. It would be naive to believe that the activities housed under the posthuman banner are curtailed within the discursive and cultural domains where witty language games and playful deconstructions provide its advocates with intellectual pleasures. Today, the conceptual war against the human (and Homo sapiens) is simultaneously waged in many realms (scientific, philosophical, cultural, literary, linguistic, and political), and it is indeed a war with high stakes. To conceptually, philosophically, and imaginatively discredit anthropos (and by extension Homo sapiens, whose human experience/condition is inextricable with its existence) amounts to what Bill Joy has called "knowledge-enabled mass destruction.''''' In many respects, one cannot deny that the western dream of posthumanization (whether literal or conceptual) is driven by its advocates' ardent desire to have an impact on the bodies and minds of real human beings living in the actual world. It seems to facilitate the cognitive steering of the course of humankind toward, if not a science-fictional future, then certainly a non-human future. In the current epoch (baptized recently as Anthropocene),"2 which is marked by the infestation of violence, dwindling human to human relations, mounting trivialization of human creatures, persistent dehumanization of the exploited and the enslaved, and the expendability of human life in the ever-encroaching anthropophagic frontiers of techno-capitalism, there is a pressing need for humanists to reinforce their devotion to the task of shedding light on the human enigma. To scrutinize the still-unknown depths of the human psyche and to try to shed light on human nature and on the human condition is not a task that fosters anthropocentric arrogance or discriminatory practices. It is a conscious acknowledgement that the human (both concept and creature) has meaning and value.

### AT: Human Life is Meaningless

#### Society Gives Human Life Meaning

**Morioka 17** [Masahiro, Well-known Japanese philosopher, Masters in bioethics and environmental ethics from Tokyo University | “Nihilism and the Meaning of Life: A Philosophical Dialogue with James Tartaglia”, *Journal of Philosophy of Life*, July 31st, 2017] SS

As beings who ultimately pursue a meaningless life, humans are, to say the least, curious creatures. Together, over time and not without an enormous amount of violence and agonism, but also cooperation, we have developed cultures and civilizations that provide us with models for living together, roles to perform, and tasks to carry out**. This feature of our existence provides us with goals and purposes, and these serve to provide relative meaning to the various and sundry activities we undertake to achieve them**, as well as criteria by which to measure our success in so doing. In Tartaglia’s **words, human culture and civilization thus provide everyday life with a “framework,” one that gives meaning to the activities that take place within it, and a sense of identity to those who perform them**. “Within the framework ... we can tread a more or less beaten path through our lives, and are thereby provided with rules and objectives for living. In this way, life takes on the character of a game: a highly flexible and complex game, of course, but nevertheless an activity we can join in with others, and perhaps at the end, look back to evaluate how well we did” (23). For humans, Tartaglia notes, this framework is not simply the framework of biological imperatives that we share with other animals. Our framework is more than simply biological because, unlike non-human animals, our lives are not constituted by biological imperatives alone. Whereas we would have good cause to ask what has gone wrong when an animal has stopped mating or eating for no discernible biological reason, we do not normally draw the same conclusion when a human being takes a vow of chastity or goes on a hunger strike (23). For Tartaglia, examples like this show us that human beings “have broken free of the biological framework in which their ancestors lived,” so much so that **it is more accurate to describe the human framework as a “social framework”** (23). Tartaglia goes so far as to suggest that our biological imperatives have been socialized to the extent that even the imperative to satisfy our desire to eat, although not something we invented or gave to ourselves, “can only govern our behaviour if we choose to play along.” Following this line of thinking to its logical end, he concludes that our freedom “to put even biological imperatives aside serves as a reminder that **for the modern human being, all purposes are socially constructed impositions upon life, rather than something constitutive of life”** (23).

### AT: Anthro Bad—Democratic Pluralism Good

#### One must reject ideas of both anthropocentrism and ecocentrism – direct democracy is better

**Lambacher 13** [Jason Lambacher, Doctor of Philosophy at University of Washington] “ The Politics of the Extinction Predicament-Democracy, Futurity, and Responsibility. |jel|

What was wrong with the A&E debate from the beginning was the premise that a particular orientation to either nature or culture should serve as the basis for deriving political points of view. But as green political theorist Val Plumwood convincingly argues, the search for a “single oceanic theory” doesn’t have to lead to isolationist stances and “the choice between reducing other critiques (and) being reduced by them is a false one. The barriers to synthesis are political, not theoretical.”240 What this means is that instead of conceiving biodiversity protection as historically and conceptually beyond anthropocentrism and ecocentrism, green theorists would do better to think of biodiversity advocacy as a democratic project that provides a political context in which different conceptions of ecological and social justice are engaged – conceptions that are often inescapably anthropocentric or ecocentric. The problem, again, is not anthropocentric or ecocentric reasoning per se, **it is anthropocentrism and ecocentrism as a foundational source of values and politics. Instead, a non-foundational approach to biodiversity protection is what is needed, one capable of embracing, not rejecting, value pluralism.** A green version of deliberative democracy is uniquely positioned to take up this challenge. How can a deliberative democratic approach represent a more flexible and less dogmatic way of realizing ecological and social values? An important reason why deliberative democracy is important to biodiversity politics is because it avoids ethical monism. As the legal theorist Christopher Stone argues in the classic Do Trees Have Standing?, monistic theories begin from a single moral framework from which singularly correct answers are derived.241 As we’ve seen, biodiversity advocates, along with anthropocentrists and ecocentrists who rely on monistic theories, have sometimes been guilty of this by promoting one rational, scientifically based model that is universally available for export. Instead, a deliberative democratic approach would emphasize the diversity of conservation values that are inherent in biodiversity conservation as a political project. Without a precondition that demands a homogenous ethical language, whether duty, consequentialist, or virtue-based, we are liberated explore innovative and inclusive political possibilities. A theory of deliberative democracy distinguishes between different kinds of rationality. Habermas’ distinction between “system” and “lifeworld” can help clarify this distinction. To Habermas, a system is guided by a goal-oriented, strategic rationality that assesses political discussion in instrumental terms. The rationality that guides this approach is concerned with realizing a pre-conceived goal in a given context. In biodiversity politics, the best that can be hoped for in this model is compromise between private interests, and this tends to not be good for ecological flourishing. As Val Plumwood puts it, “In this process, as is easy to show in the case of forests and biodiversity, it is very difficult to maintain environmental values over the long haul.”242 A “lifeworld,” on the other hand, is guided by a communicative rationality that emphasizes discussion, socialization, and a willingness to learn, which models the back and forth of a good conversation. The significance for biodiversity politics is that communicative rationality has the power to change perspective, particularly regarding issues of ecological and social justice. But, of course, effective communication is not easy to accomplish. As political theorists like Nancy Fraser, Michael Walzer, and Iris Marion Young can attest, communication requires committed attention to issues of redistributive justice, complex equality, and diverse ways of speaking.243 Major figures in the field of green political theory illustrate t**he move away from ethics and toward politics by consciously rejecting the A&E dichotomy as a choice that must be made before theorizing green politics**. Green political theorists like John Dryzek, Robyn Eckersley, Graham Smith, and Tim Hayward reject the presumption of this choice and help us to think about the extinction predicament as a matter of democratic theory. John Dryzek in “Political and Ecological Communication” argues that communication is not simply restricted to the Habermasian communicative ideal, which stipulates that only rational subjects capable of deliberation. Instead, Dryzek hopes to “rescue communicative rationality from Habermas.”244 For Dryzek, “**We can best explore the prospects for an effective green democracy by working with a political model whose essence is authentic communication rather than, say, preference aggregation, representation, or partisan competition.**”245 And so, Dryzek argues, the key would be to treat “political and ecological communication” as “extending to entities that can act as agents even though they lack the self-awareness that connotes subjectivity. Agency is not the same as subjectivity, and only the former need to be sought in nature. Habermas treats nature as though it were brute matter. But nature is not passive, inert, and plastic. Instead, this world is truly alive and pervaded with meanings.”246 Dryzek is particularly interesting here because he insists that this sort of communicative rationality is takes many forms. Quite a bit of real communication is non-verbal – body language, facial displays, pheromones, and music, for instance.247 To skeptics of this view of agency in nature who require proof that it exists, Dryzek is blunt: democratic theory is not founded on scientific proof, period. He is worth quoting at length on this point: When it comes to the essence of human nature, political theorists can only disagree among themselves. To some, a utility-maximizing homo economicus captures the essence of human nature … (to sociologists), it is a plastic, socialized conception of humanity in which there are no choices to be made, let alone utilities to be maximized … (to critical theorists it is) a communicative and creative self; (to civic republicans it is) a public-spirited and reflective self … My general point here is that when it comes to ecological democracy … we should not apply standards of proof which no other democratic theory could possibly meet.

## Aliens Debate

### No Aliens—Fermi Paradox

#### Fermi’s paradox proves a double bind: either A. aliens don’t exist or B. they do not exist within our solar system and thus there is no impact to universe destroying tech

**Smith 16** Smith, Howard. “Alone in the Universe” *Journal of Religion & Science*. Vol. 51 Issue 2. May 5 2016. TR.

Two possible ways out of these constraints have been proposed. It is possible that some distant alien civilization scans the galaxy's stars for juvenile Earths, predicts their evolution and optimistically sends out greetings eons ahead of time as signals or robotic probes timed to arrive just when intelligent species have evolved and are starting to listen. But it is very hard to imagine any such enterprise being practical either technically or economically (e.g., Goldsmith and Owen [1992](http://onlinelibrary.wiley.com/doi/10.1111/zygo.12256/full#zygo12256-bib-0016), 446–50; Davies [2010](http://onlinelibrary.wiley.com/doi/10.1111/zygo.12256/full#zygo12256-bib-0048)). Another, tactical approach to exploring the cosmos given the limitations of relativity is for civilizations to colonize suitable nearby stellar systems locally, within an achievable volume, and then for each of these new settlements to similarly colonize a spherical volume around itself. As they independently “percolate” outward, civilizations will eventually span the galaxy. Cartin ([2015](http://onlinelibrary.wiley.com/doi/10.1111/zygo.12256/full#zygo12256-bib-0006)) calculates the probability that spacefaring ETI has arisen in the Solar System's neighborhood (he uses 130 light-years) based on their *not* having reached here through this percolation approach. Using assumptions about distance and speed that he considers realistic, he concludes that their absence implies “at *most* [my emphasis] only one out of every 585 *habitable* [again, my emphasis] planets within the local Solar neighborhood could be the cradle of an interstellar civilization” (Cartin [2015](http://onlinelibrary.wiley.com/doi/10.1111/zygo.12256/full#zygo12256-bib-0006), 573). He admits that the fraction of worlds on which life has arisen is “unknown.” We show in the detailed discussions below that habitable by no means implies inhabited, and so “at most” is at best an understatement. No wonder there are no signals, nor even faint traces, despite decades of looking. As Fermi argued, they are not there. The second way out of the Special Relativity constraint is the question I get most often: Perhaps some physics we think we understand will be overturned with future knowledge! Faster than light travel, in particular, will then turn science fiction into fact, and we will be able to warp-drive our way even to the most distant galaxies that have so far been excluded from our vision. Unfortunately, **Fermi's Paradox—“If they are not uncommon, then where are they?”—implies that we cannot have it both ways. If life were common and if superluminal travel or communication were possible, then we face an insuperable contradiction: the billions of intelligent species in the universe (and we are surely one of the newest and least technologically advanced) should have already used this super-technology to visit us.** That NONE have done so surely means that the basics of relativity as we know it will remain inviolable—leaving us alone. Alternatively, if relativity can some day be overcome, then there cannot be very many civilizations out there, and we are also alone. An interesting implication of this line of argument is that if our scientists were some day to discover a way to travel faster than light, it would put a nail into the coffin of all advanced alien societies. Fermi's observation therefore suggests that advanced beings are not only not living in our galaxy, but there are not many living anywhere in the universe! To be alone for all practical purposes means to be without any communication—or even the knowledge that any signal is coming—for a very long time. How long before we feel such solitude? For the purposes of a quantitative discussion I choose 100 human generations, practically forever in a subjective sense. This is of course an arbitrary timescale. If we choose a smaller volume, say, that accessible within only one generation, the chances of success go down by a factor of a million (!) because the number of stars is proportional to the volume of space, and scales with time (distance) cubed—but we will have a yes-or-no answer one hundred times sooner. If instead we want to improve the probability of success by a factor of one million, we can extend the search volume, but then the wait time goes up correspondingly to ten thousand generations. I stick with 100 generations for now, and because one generation corresponds to 25 years (and at least one round trip of messaging is necessary), in the following Drake equation calculations I constrain estimates to stars closer to Earth than 100 × 25/2 or 1,250 light-years. We know a lot about the stars in this neighborhood.

#### Extra Terrestrials are not out there.

**Miller and Felton 16** [Smith Collage and University of Massachusetts Amherst |”The Fermi paradox, Bayes’ rule, and existential risk management” *The selected works of Debbie Felton* Volume 1, Issue 1|jel|

Economist Robin Hanson coined the phrase “The Great Filter” to refer to whatever prevents the advancement of spacefaring civilizations. He explains the concept thus: Humanity seems to have a bright future, i.e., an on-trivial chance of expanding to fill the universe with lasting life. But the fact that space near us seems dead now tells us that any given piece of dead matter faces an astronomically low chance of be gating such a future. There thus exists a great filter between death and expanding lasting life, and humanity faces the ominous question: how far along this filter are we?19 If humankind has already passed through this “Great Filter,” our race may continue until the end of the universe. If, however, a significant part of the filter for us represents events that have not yet occurred, humanity is probably doomed, depending on what causes the Fermi paradox. The Fermi paradox would be solved if it was near impossible for simple life to develop on any other planet, or if it was extremely difficulty for any planet that had produced life to then evolve life intelligent enough to discover calculus .In those events, we have a good chance at passing through the filter. But if the filter is caused by civilizations inevitably destroying themselves within two thousand years of developing calculus, we should be extremely worried. Katja Grace has presented a convincing argument, with which Hanson agrees, that we are indeed probably doomed.20 To understand Grace’s position, consider three possibilities:1. Civilizations such as ours are common, and at least occasionally survive long enough to become spacefaring. 2. Civilizations such as ours are common, but almost always die out before they become spacefaring. 3. Civilizations such as ours are rare.The Fermi paradox makes it almost impossible that 1 is correct ;**we would have detected signs of alien life.** Possibilities 2 and 3 are more probable. As much as we might like to think that 3 is true ,Grace demonstrates rigorously through what is known as “anthropic reasoning” that 2 is more probable—we are common rather than rare.Now consider two possibilities consistent with the Fermi paradox: 1. We are alone in the universe and will go on to colonize our neighborhood. Someday there will exist trillions of people for every one person alive today. Because of the (apparent) impossibility of traveling faster than the speed of light, once we spread through our part of the galaxy we will be beyond any local disaster and will survive to the end of the universe, an unimaginably long time from now.

#### The Fermi Paradox proves there is no life, and if there was, they are long gone.

**Miller and Felton 16** [Smith College and University of Massachusetts Amherst |”The Fermi paradox, Bayes’ rule, and existential risk management” *The selected works of Debbie Felton* Volume 1, Issue 1|jel|

Civilizations face uncertainty concerning the probability of success of any existential risk management strategy, and there is almost certainly a positive correlation between the probability of a given strategy working for one civilization and the probability of it working for another. Consequently, ceteris paribus, the more likely that an existential risk strategy has been unsuccessfully tried in the past by another civilization, the less likely it will work for us. The strategies with the lowest costs, fewest negative side effects, and highest chances of success are the ones most likely to have been tried. The Fermi paradox should therefore nudge us away from these “low hanging fruit” strategies. For example, imagine that some existential risk strategy has a low cost and, absent considerations of the Fermi paradox, appears to have a high probability of success. Civilizations that arose much earlier in the universe would almost certainly have tried this strategy. We, however, taking into account **the Fermi paradox, should lower our estimate of the likelihood that such a strategy will work**, because we should think it probable that other civilizations have tried it but still failed to escape the Great Filter. This argument suggests we should disbelieve the “zoo hypothesis,” which holds that the universe is home to many advanced civilizations but that they intentionally hide their presence from us, most likely to avoid interfering with our natural evolution and cultural development(rather like Star Trek’s “Prime Directive”).The zoo hypothesis is one of the many that try to explain the Fermi paradox; the problem is that if advanced alien civilizations are really concealing their existence from us, we cannot accurately gauge the chances of our long-term survival.32 Keeping mankind in a “zoo” would be analogous to a doctor falsely telling a patient that the patient has a dangerous disease when the doctor knows that the patient might try high-risk treatments. **In the absence of evidence of alien civilizations**, we can engage in all sorts of speculation, such as that humankind might have skills that any other advanced civilizations lacked—meaning that we might have survival options that past failed civilizations did not. Our biologists could estimate what skills evolution has given us that might have been absent in other sentient races capable of space faring. For example, if astronomers determine that most planets in as inhabitable range that have water are most likely completely covered by oceans, then evolutionary biologists should consider what intellectual advantage we have over high technology extraterrestrials that evolved fully in oceans. Additionally, we could attempt to bring back the Neanderthals by cloning their DNA33; the Fermi paradox supports such an undertaking (certain ethical considerations aside) to give us a slightly better hint at how human intelligence has developed and, consequently, what we might be capable of that others sentient life in the universe was unable to accomplish. For example, what if scientists discover that Neanderthal decakatal types of mathematics except for ones up field? We could then take an especially hard and close look at that one subfield for long-term survival strategies. Alternatively, we could attempt to genetically enhance the intelligence of other earth species, such as the octopus, to arrive at a better estimate of humankind’s comparative intellectual gifts. More generally, evolutionary biologists should search for flukes in our development, step so revents that are unlikely to have occurred apart from on Earth in the evolution of life capable of building high technology civilizations, because such flukes could lead to existential risk strategies that have a low chance of having failed repeatedly elsewhere in the universe. Moreover, as the universe ages, astronomers uncover new information that might provide clues to survival strategies unavailable to past civilizations. Consequently, the Fermi paradox should push astronomers to consider knowledge that would have been inaccessible to civilizations a tour level of development elsewhere in the universe in past ages. For example, if detecting dark energy would have been impossible for a civilization like ours a billion years ago because the universe had not yet expanded enough to make such a discovery possible, then the Fermi paradox suggests that we should devote extra resources to attempt to use our understanding of dark energy to escape the Great Filter. The value of a strategy such as this, i.e. one based on astronomy, is increased by the fact that the Fermi paradox provides us with more information (in the “absence of evidence” sense) about civilizations that existed in the distant past than in the more recent past :If a space faring civilization expands at a constant rate, the volume of space it will occupy will be proportional to the amount of time it has been expanding, raised to the power of three34 (ignoring the expansion of the universe). Thus, **if one civilization has been expanding for twice as long as another, it will occupy eight times as much space**. We can therefore be more confident that civilizations at our level of development a billion years ago failed, and less confident as to the failure of those that arose a “mere” hundred million years ago. Astronomers should also search for signs of planetary destruction caused by physics experiments gone horribly wrong (such as was potentially possible with the LHCand CUORE projects mentioned above).Civilizations that existed long ago and face da less paradoxical Fermi paradox would have had less reason than we do to search for such signs—meaning that such a search is a strategy that has not necessarily been repeatedly and unsuccessfully attempted elsewhere in the neighborhood even if other civilizations have reached our level of development. Although the odds of failed physics experiments being responsible for the Great Filter seem small, the expected payoff of such an investigation might still easily justify the cost

### No Aliens—Gaian Bottleneck

#### The Gaian bottleneck proves that biotic life forming on a planet with perfect conditions is highly unlikely

**Chopra and Lineweaver 16** [Aditya PhD (Earth Sciences), Australian National University; Bachelor of Science (1st class Honours), Australian National University, 2008; Bachelor of Science, University of Western Australia, 2007, Charles convener of the Australian National University's Planetary Science Institute and holds a joint appointment as an associate professor in the Research School of Astronomy and Astrophysics and the Research School of Earth Sciences | “The Case for a Gaian Bottleneck: The Biology of Habitability” ASTROBIOLOGY Volume 16 issue 1, 2016 | MAW]

An emergence bottleneck is illustrated in Fig. 2. The left panel shows a hypothetical planet with non-evolving planetary conditions. The right panel shows a more plausible planet that initially had some habitable regions but, through volatile evolution or other transient factors, lost its surface water and evolved away from habitable conditions (e.g., a runaway greenhouse or runaway glaciated planet). Without significant abiotic negative feedback mechanisms, the surface environments of initially wet rocky planets are volatile and change rapidly without any tendency to maintain the habitability that they may have temporarily possessed as their early unstable surface temperatures transited through habitable conditions (Fig. 6C). If there is no emergence bottleneck (Fig. 3), typical wet rocky planets have initial conditions compatible with the emergence of life (AHZ). We postulate that almost all initially wet rocky planets on which life emerges (left panel of Fig. 3) quickly evolve like the abiotic planets represented in the right panel of Fig. 2. This unregulated evolution of planetary environments away from habitable conditions constrains the duration of life’s existence on the planet. We call this early extinction of almost all life that ever emerges the Gaian bottleneck. In rare cases (for example on Earth), life will be able to evolve quickly enough to begin to regulate surface volatiles through the modification of abiotic feedbacks (right panel of Fig. 3). The potentially relevant feedbacks involved in such early Gaian regulation are illustrated in Fig. 5 and discussed in Table 1 and Section 5.

### No Aliens—Self Destruction

#### Even if an intelligent lifeform exists, it is highly likely they have performed an extinction level event to end their civilization.

**Stevens, Forgan, and James 16** [Adam, Department of Physical Sciences, The Open University, UK Centre for Astrobiology, University of Edinburgh; Duncan, SUPA, School of Physics and Astronomy, University of St Andrew; Jack O’Malley SUPA, School of Physics and Astronomy, University of St Andrews, Department of Astronomy, Carl Sagan Institute, Cornell University| “Observational Signatures of Self-destructive Civilizations” International Journal of Astrobiology Vol. 15 issue 4 | MAW]

Solutions to the Paradox typically require the product of the final three terms of the Drake Equation, fi fcL, to be small. This phenomenon is sometimes referred to as ‘the Great Filter’, as it removes potential or existing civilizations from our view (Hanson 1998). As there are three terms to modify, there are three broad classes of solution to Fermi’s Paradox, as elucidated in a review by Cirkovic (2009). The first is dubbed the ‘Rare Earth’ class, and suggests that fi is very small. While there may be many planets inhabited by single-celled or multicellular life (fι\*1), very few biospheres generate metazoan organisms that go on to found technological civilizations. The reasoning for this scenario is discussed in detail by Ward & Brownlee (2000) and more recently by Waltham (2015). The second class requires us to consider how civilizations might limit their detectability, where fι and fi may be large, but fc is small. This may be due to agreements between existing civilizations to avoid the Earth (Ball 1973; Fogg 1987) or because the nature of reality requires there to be exactly one civilization in the Universe, i.e. the Universe is a sophisticated simulation (e.g. Bostrom 2003). As this class challenges epistemology, it is difficult to consider scientifically. Also, solutions belonging to this class are often considered to be ‘soft’, as they require a uniformity of motive and behavior that is difficult to cultivate over Galactic distances (Forgan 2011). The third class demands that civilizations have short lifetimes (L is small). Usually referred to as the ‘Catastrophist’ class, this requires civilizations to be extinguished either through natural means or through self-destruction. The Catastrophist class implies that civilizations are fragile, either due to external threats from devastating phenomena such as asteroid impacts, supernovae or gamma ray bursts, or that civilizations contain inherent social or structural flaws that prevent them from sustaining themselves over long time periods. If the destruction of civilizations is inevitable, then this will fundamentally limit the number of communicating civilizations present at any time, with obvious consequences for SETI (see e.g. Vukotic & Cirkovic 2008). At the time of writing, all three classes of solution to Fermi’s Paradox remain viable given our current lack of evidence. Current SETI searches rely on detecting intentional or unintentional signals at a variety of wavelengths (Reines & Marcy 2002; Howard et al. 2004; Rampadarath et al. 2012; Siemion et al. 2013; Wright et al. 2014). These searches generally set upper limits on the population and broadcast strength of communicating civilizations, but with only one civilization in our sample (humanity), predicting which class of solution to Fermi’s Paradox represents reality is extremely difficult. If we cannot rely on the current data from SETI to constrain the last three terms of the Drake Equation and conclusively solve Fermi’s Paradox, what other data can we turn to? Recent developments which constrain the earlier terms of the Drake Equation, such as advances in the detection and characterization of extrasolar planets or exoplanets (Madhusudhan et al. 2014) are likely to be crucial. Our improving ability to characterize potentially habitable worlds may begin to yield clues about intelligent agents and their (possibly deleterious) effect on planetary properties. Taking a pessimistic view of the changes we have made to the Earth’s surface, atmosphere and its local environment, it seems possible that if extraterrestrial intelligences (ETIs) are common, observational evidence of intelligent self-destruction could also be common. While it may be a morbid and depressing thought, looking for evidence of extraterrestrial civilizations that have undergone self-annihilation may be able to tell us much about the prevalence of intelligent life in the universe (fi), as well as placing constraints on L. Indeed, this approach may present the best chance of finding any evidence of intelligent life beyond the Earth, as well as addressing two classes of solution to Fermi’s Paradox. The aim of this paper is to use the Earth as a test case in order to categorize the potential scenarios for complete civilizational destruction, quantify the observable signatures that these scenarios might leave behind, and determine whether these would be observable with current or near-future technology. The variety of potential apocalyptic scenarios is essentially only limited in scope by imagination and in plausibility according to our current understanding of science. However, the scenarios considered here are limited to those that: are self-inflicted (and therefore imply the development of intelligence and sufficient technology); technologically plausible (even if the technology does not currently exist); and that totally eliminate the (in the test c-uase) human civilization. Only a few plausible scenarios fulfil these criteria: (i) complete nuclear, mutually-assured destruction (ii) a biological or chemical agent designed to kill either the human species, all animals, all eukaryotes, or all living things (iii) a technological disaster such as the ‘grey goo’ scenario, or (iv) excessive pollution of the star, planet or interplanetary environment.

### No Aliens—No Intelligence

#### If life existed on a planet, then the development of intelligent life is near impossible

**Rossmo 16** [D. Kim Texas State University | “Bernoulli, Darwin, and Sagan: the probability of life on other planets” Internation Journal of Astrobiology vol. 16 issue 2 | MAW]

Life falls along a continuum of advancement: microorganisms, multicellular organisms, animals, intelligent beings, societies capable of interstellar communication. As higher life must evolve from lower life, the probability of any type of life emerging on a planet is higher than the probability for intelligent life (Sterelny & Griffiths 1999). Therefore, the more advanced the life form, the smaller its p and α values. Life first emerged on Earth 3.4 billion years ago, 1.1 billion years after its formation; humans, however, appeared only in the past 200 000 years. Given sufficient time, is it inevitable that basic life forms will evolve into intelligent life? Once simple molecules develop the ability to replicate, natural selection suggests those that adapt well will replace those that do not (Darwin 1859). However, the outcome of that process is not inevitable. Evolutionary factors such as initial conditions, environment, and random mutations all influence outcomes. Initial conditions and environment dictate what traits are favoured and thus shape natural selection. Mutations are also important, but as a rule more so in small than large populations. Intelligent life may not be inevitable, and might not even be probable (Ward & Brownlee 2000). Dennett (1995) discusses ‘good tricks’ in design space – solutions that natural selection has repeatedly found. Vision, for example, has evolved independently in multiple lineages, suggesting this is a good enough trick to justify the expectation that natural selection will most often realize it, at least where light is present. While there are several traits that fall into this category, advanced intelligence may not be one of them; it apparently failed to evolve in dinosaurs, the dominant terrestrial vertebrates for over 100 million years. Although intelligence has emerged in a number of taxa, if we define higher intelligence as something at the human level, the only evidence available to us is that it evolved in one species on one planet. Furthermore, the most intelligent life forms might not be the most adaptive for survival (Gould 1996). Consequently, complex life on other planets may not possess higher intelligence as we currently understand it.

#### Highly likely Alien life doesn’t exist, relies on a hubris to assume that our intelligence can be replicated elsewhere

**Bleier 13** [Ronald. No credentials found | “Are we alone in the universe?” *Left Curve*, pg. 88-91, 144] SS

But in 1985 I happened upon an article in Astronomy magazine entided "Intelligent Life in Space," by Professor Edmund C. Olson, which completely overturned my views. **That one article was sufficient to convince me that it was not unlikely that our own technological civilization might be the only one in existence.** Furthermore I soon came to recognize that the enormous distances separating stars and planets in outer space make it practically **impossible** that humans **will ever conduct space exploration beyond our solar system.** The October 2012 discovery of a planet orbiting one of the stars of our sun's nearest neighbors, the triple star system Alpha Centuri, about 4.4 light years away, spurred media attention to the possibilities of human interstellar exploration. A New York Times article on the subject emphasized the great distances and the challenging, if not insurmountable, logistics involved **in sending even a tiny cell phone-sized probe to the Alpha Centuri system**. For example, merely PLANNING to send such an instrument to Alpha Centuri ? - the star with the newly discovered planet - would take about a hundred years, although some hope that this could be shortened.1 The Times noted, by the way, that the newly found planet, named Alpha Centuri Bb, is so close to its huge star that it is an uninhabitable 2,192° F (1,200° C ). After the planning period, the 27 trillion mile trip itself would require 78,000 years if a space probe headed in that direction were to travel at 1 1 miles per second. Such a speed would match our fastest and most distant spacecraft, Voyager 1, which was launched in 1977 and is now, some 35 years later, about 1 1 billion miles away, fairly close to escaping the sun's influence. The Times assures us, however, that travel time to Alpha Centuri could be cut to less than a human lifespan if schemes employing existing or new and developing technology - including solar sails and thermonuclear rockets - pan out. Physicist and best-selling science writer, Dr. Mitchio Kaku, undoubtedly speaking for many, argues that it is arrogant to think that intelligence is limited to our own planet**. But there may be another kind of arrogance at play: the anthropomorphic view that our intelligence is important enough to be commonly replicated.**

### No Aliens—No Water

#### All forms of life require water- science proves that water on earth is different from liquid on other planets and it is uniquely key for survival

**Webb 15** [ Webb, Stephen. *If the Universe Is Teeming with Aliens ... Where Is Everybody?: Seventy-five Solutions to the Fermi Paradox and the Problem of Extraterrestrial Life.* Cham, Switzerland: Springer, 2015. Print.]

**Life requires water.** It’s an almost magical liquid. For a start, **pretty much everything is soluble in water: the liquid can transport the substances dissolved within it and thus convey materials around cells, organisms and ecosystems.** It has the unusual property of expanding when it freezes, meaning that ice floats on water; if water instead contracted upon freezing then the seas and lakes in cold climates would gradually fill with ice that had fallen to the bottom—a scenario that would cause problems for aquatic life. **The large temperature range over which water remains liquid, combined with water’s large heat capacity, mean that the oceans moderate Earth’s climate. Enzymes—proteins that catalyze chemical reactions and, without which, certain biological processes would occur on timescales measured in millennia rather than milliseconds—require water in their structures.** One could go on and on: **water is necessary for terrestrial life—and it’s not too much of a stretch to say that it’s a fundamental requirement of all life. Earth of course has oceans of the stuff. But the Moon doesn’t have oceans; rivers might once have flowed on Mars, but it’s a rather desiccated place nowadays; both Venus and Mercury are arid planets.** Could it be that Earth is exceptional in possessing so much liquid water? **If it turns out that a rocky planet is unlikely to be home to water oceans then we might have a part solution to the Fermi paradox.** How did Earth get its water? This remains a controversial question. One leading suggestion is that 3.85 billion years ago Earth suffered an intense cometary barrage; it was Oort Cloud comets that delivered water to our planet—water that we still drink every day. At first glance, this suggestion makes sense. Some planetologists argue that the very early Earth would have been too hot to hold on to large oceans of water, so the water we have now must have been delivered from space; and since we know that cometary nuclei contain ice, and that the Solar System contains trillions of comets, it’s not too difficult to imagine how a cometary bombardment could have watered Earth. If such a water-bearing bombardment did indeed occur, the question arises: what could have caused it? If the bombardment arose from some sort of one-off cataclysmic event then the presence of water on Earth would be a fluke. Replay the tape of planetary evolution and Earth might end up dry. Rocky planets with water might be the exception. However, before we conclude that ours is the only planetary home with running water, we need to address a couple of problems with the notion that comets watered Earth. The first problem is that **cometary water seems to be different to water here on Earth.** A water molecule consists of one oxygen atom and two hydrogen atoms—H2O. Now, the nucleus of a hydrogen atom usually contains a single proton; it’s possible, though, for a hydrogen nucleus to contain one proton and one neutron. This form of hydrogen is called deuterium. The ratio of normal hydrogen to deuterium in a water sample acts as a “fingerprint” of that water. It turns out that the deuterium abundance in comets such as Hale–Bopp, Halley and Hyakutake is about twice the abundance we see in Earth’s oceans. If these three bodies are typical of Oort Cloud comets then **it’s difficult to see how they could have delivered Earth its oceans.** However, the deuterium abundance in asteroids and planetesimals—small objects that were abundant early in the history of the Solar System and that would have collided and adhered to make the proto-Earth—is the same as we see in our oceans. Earth and planetesimals contain the same sort of water. Perhaps planetesimals are a more likely source of water than comets? The second problem is that geologists now have evidence for the presence of water at very early times. The chronology of the early Solar System is becoming increasingly refined. We know that the first solids in the protoplanetary disk, the pebbles and boulders that would collide to form Earth, condensed 4.568 billion years ago. Just 164 million years after that, at a time 4.404 billion years ago, a mineral called zircon308 crystallized in Earth’s crust. A detailed analysis of those zircons shows they were created in the presence of water. So, at the very earliest times in Earth’s history—hundreds of millions of years before a cometary bombardment event, and soon after the Moon-forming impact—there appears to have been continental crust and water. A picture is emerging, then, of water-containing planetesimals giving birth to a wet Earth. The young Earth suffered many giant impacts, but it seems these collisions didn’t boil the water off into space. The water went into the atmosphere and later, as the atmosphere cooled, it condensed to form oceans. A cycle of boiling and condensing might have happened several times. Nevertheless, this picture is subject to debate and revision, as are most of the interesting questions in science. In 2011, for example, astronomers used the Herschel Space Telescope to measure the deuterium abundance in the comet Hartley 2; they found the same ratio of deuterium to hydrogen as water here on Earth. In 2013, they followed this with a similar measurement of the comet Honda–MrkosPajdu˘sáková; they saw the same abundance.309 These are both comets from the Kuiper Belt, so it raises the possibility that it was these objects, rather than Oort Cloud comets, that brought water to Earth (or, as perhaps is more likely, delivered some fraction of Earth’s water). Geologists will surely learn more about the origin of our oceans in the next few years. At present, however, one can plausibly argue that **water oceans are a natural outcome of the process that forms rocky planets. It’s premature to conclude that Earth is unique in possessing oceans of life-giving water.**

### No Aliens—Habitability

#### Multiple rare factors required for life to exist and survive- Earth is unique

**Trosper 14** [Jaime, "The Rare Earth Hypothesis:." *Futurism.* N.p., 03 May 2014. Web. 24 July 2017.]

**The planet or moon** (perhaps a number of moons orbiting other planets hold the potential for life) **would need to be at the ideal distance from its parent star, this is called the habitable zone. Also, the star itself must meet a stringent list of requirements. It would need to be the right size and luminosity to help support the life as it evolves. It would also need to have the right sort of atmosphere and temperature, so that water wouldn’t boil or freeze over.** (On this note, a stabilized orbit is also a necessity. If the planet veers too far off course, the temperatures would be all over the place, which again, isn’t conductive to life) The habitable planet would benefit from having a gas-giant like Jupiter nearby to knock any potential harmful meteors off-course**. It would need to have the right size, mass, axial tilt and rotational speed to have ideal exposure for photosynthesis and the right gravitational pull. It would need to be in the galactic habitable zone, so it would** need to be far enough from the heavily populated galactic center – or other highly-populated area, for that matter – to **avoid any collisions, or to prevent the planet from being bombarded with gamma radiation streaming from exploding stars, or from the outbursts of a central black hole.** Taking all this into consideration, when I was first reading about the “Rare Earth” hypothesis my hope started to fade a little as it dawned on me that the checklist is quite demanding for a planet to be given even the most remote consideration of it potentially harboring life like ours. **Having said that, these are only ideal conditions for us as we are now. This seems to put aside a massive part of evolution.**

### AT: Silicon-Based Life

#### Silicon-Based Life is Basically Impossible – Titan Proves

**Jacob 15** [David T, Affiliated with the University of Cincinnati | “There is no Silicon-Based Life in the Solar System” *Silicon* vol 8, issue 1 January 2015] SS

Although Titan looks like a more suitable place for silicon to thrive, there are several reasons why silicon-based life would not be possible on Titan. **Carbon is a big reason.** Carbon is still present on Titan, and carbon still produces stronger bonds than silicon, bond energy of 346 kJ/mol compared to 222 kJ/mol. There is also the fact that silicon is mostly down deep in Titan’s core [6]. Regardless of the conditions on Titan, silicon just does not have the advantages that carbon has. Carbon forms very stable bonds with itself, but silicon-silicon bonds are slightly weaker and less stable. Handedness (chirality) is also something that silicon does not do too well. Carbon compounds can have either right or left forms, which make it possible for enzymes to register and process them as is the case with amino acids and proteins. Silicon cannot produce many compounds that exhibit handedness, **which is a crucial characteristic of inter- connected chains that support life** [2]. Silicon molecules are usually achiral, which means they can only exhibit one handedness. Carbon and oxygen pair well together. Carbon dioxide gas is the result when carbon is oxidized. When silicon, which has a powerful attraction to oxygen, is oxidized, **it produces a solid.** **This would be a big barrier to any conceivable idea of respiration** [2]. Lastly, silicon is actually pretty rare compared to carbon. The amount of carbon out in space is approximately **twenty times greater** than that of silicon [9].

#### The notion of silicon-based life is wrong

**Dessy, No date [Raymond Dessy is a professor of Chemistry at Virginia Polytechnic Institute and State University in Blacksburg, Va. “Could silicon be the basis for alien life forms, just as carbon is on Earth?”]**

Carbon, of course, is the building block of life as we know it. So is it possible that a planet exists in some other solar system where silicon substitutes for carbon? Several science fiction stories feature silicon-based life-forms--sentient crystals, gruesome golden grains of sand and even a creature whose spoor or scat was bricks of silica left behind. The novellas are good reading, but there are a few problems with the chemistry. Indeed, carbon and silicon share many characteristics. Each has a so-called valence of four--meaning that individual atoms make four bonds with other elements in forming chemical compounds. Each element bonds to oxygen. Each forms long chains, called polymers, in which it alternates with oxygen. In the simplest case, carbon yields a polymer called poly-acetal, a plastic used in synthetic fibers and equipment. Silicon yields polymeric silicones, which we use to waterproof cloth or lubricate metal and plastic parts. But when carbon oxidizes--or unites with oxygen say, during burning--it becomes the gas carbon dioxide; silicon oxidizes to the solid silicon dioxide, called silica. The fact that silicon oxidizes to a solid is one basic reason as to why it cannot support life. Silica, or sand is a solid because silicon likes oxygen all too well, and the silicon dioxide forms a lattice in which one silicon atom is surrounded by four oxygen atoms. Silicate compounds that have SiO4-4 units also exist in such minerals as feldspars, micas, zeolites or talcs. And these solid systems pose disposal problems for a living system. Also consider that a life-form needs some way to collect, store and utilize energy. The energy must come from the environment. Once absorbed or ingested, the energy must be released exactly where and when it is needed. Otherwise, all of the energy might liberate its heat at once, ~~incinerating~~ [incinerate] the life-form. In a carbon-based world, the basic storage element is a carbohydrate having the formula Cx(HOH)y. This carbohydrate oxidizes to water and carbon dioxide, which are then exchanged with the air; the carbons are connected by single bonds into a chain, a process called catenation. A carbon-based life-form "burns" this fuel in controlled steps using speed regulators called enzymes. These large, complicated molecules do their job with great precision only because they have a property called "handedness." When any one enzyme "mates" with compounds it is helping to react, the two molecular shapes fit together like a lock and key, or a shake of hands. In fact, many carbon-based molecules take advantage of right and left-hand forms. For instance, nature chose the same stable six-carbon carbohydrate to store energy both in our livers (in the form of the polymer called glycogen) and in trees (in the form of the polymer cellulose). Glycogen and cellulose differ mainly in the handedness of a single carbon atom, which forms when the carbohydrate polymerizes, or forms a chain. Cellulose has the most stable form of the two possibilities; glycogen is the next most stable. Because humans don't have enzymes to break cellulose down into its basic carbohydrate, we cannot utilize it as food. But many lower life-forms, such as bacteria, can. In short, handedness is the characteristic that provides a variety of biomolecules with their ability to recognize and regulate sundry biological processes. And silicon doesn't form many compounds having handedness. Thus, it would be difficult for a silicon-based life-form to achieve all of the wonderful regulating and recognition functions that carbon-based enzymes perform for us. All the same, chemists have worked tirelessly to create new silicon compounds, ever since Frederic Stanley Kipping (1863-1949) showed that some interesting ones could be made. The highest international prize in the silicon area is called the Kipping Award. But despite years of work--and despite all the reagents available to the modern alchemist--many silicon analogs of carbon compounds just cannot be formed. Thermodynamic data confirm these analogs are often too unstable or too reactive. It is possible to think of micro- and nano-structures of silicon; solar-powered silicon forms for energy and sight; a silicone fluid that could carry oxidants to contracting muscle-like elements made of other silicones; skeletal materials of silicates; silicone membranes; and even cavities in silicate zeolites that have handedness. Some of these structures even look alive. But the chemistries needed to create a life-form are simply not there. The complex dance of life requires interlocking chains of reactions. And these reactions can only take place within a narrow range of temperatures and pH levels. Given such constraints, carbon can and silicon can't.

## AT: Tech Scenarios

### AT: Artificial Intelligence

#### Progress in AI solves the control problem that Progress in AI causes

**Agar 16** [Nicholas Agar. Agar is a professor of ethics at the University of Wellington in the School of History, Philosophy, Political Science, and International Relations | “Don’t worry about superintelligence,” *Journal of Evolution and Technology* Volume 26 Issue 1 February 2016 | SLB]

**There seem to be strong inductive grounds for thinking that a superintelligent AI will circumvent any strategy adopted by far less intelligent human beings seeking to control it. In effect we are playing a very complex strategy game against a player that is vastly more intelligent than us**. A move may seem excellent when evaluated according to standards appropriate to our human intellects. We should nevertheless feel confident that a much more intelligent adversary will find an effective countermeasure. **This is not the correct way to assess the threat from superintelligence**. Bostrom conflates two ways to describe this threat. [A] Progress in AI is likely to yield a superintelligence that will form the goal to send humanity extinct. Once formed there’s likely to be little that we can do to prevent it from realizing that goal. [B] If a superintelligence forms the goal to send humanity extinct then there’s likely to be little that we can do to prevent it from realizing that goal. Statement A supports delay in research on AI. However, Bostrom’s various thought experiments offer no support for A. They do offer support to the conditional statement B. But the truth of B does not suggest the need to delay progress in AI. In what follows I argue we can falsify the antecedent of B. **Trends in AI are unlikely to yield artificial superintelligences that form the goal of sending humanity extinct**. I allow that we cannot reduce to zero the probability of a human-unfriendly superintelligence. **The control problem is**, nevertheless, **something that we have a rational** **expectation of solving. We shouldn’t be too concerned that we do not currently have a solution, because we know where its solution will come from. It will come from progress in AI. The same technological trends that generate the problem solve it. We should distinguish between** two types of currently unsolved technological **problems**: those **that are currently unsolved but which we should expect to solve; and** those **that are currently unsolved for which there is no rational expectation of a solution.** [1] Technological problems that are currently unsolved but which we should expect to solve **Typically we have some awareness of where the solutions will come from.** Our expectations may be supported by established trends in technology. **Sometimes we can describe the solutions in sufficient detail that we have a good sense of how to find them. These rational expectations permit us to proceed on the assumption that we will solve problems**. A rational expectation of a solution is not a logical guarantee. There may, for example, be some physical law that will prevent us from solving the problem. Or a solution that at first seemed straightforward may turn out to be so complex that it is beyond human intellects. But we may be justified in believing it unlikely that there is a law that would prevent a solution. Moreover, **we may understand the problem sufficiently well to make it reasonable to believe that we are intelligent enough to solve it.** **The problem of how to make more powerful computers falls into this category. Moore’s Law and related generalizations support the claim that the most powerful computers in ten years’ time will be more powerful than the most powerful computers today. We do not know how to make these more powerful computers today** – if we did we would make them instead of the less powerful ones that we actually make. **But we have well-supported ideas about where solutions to the problem of how to make more powerful computers will come from.** Another example of a currently unsolved but predictably soluble problem is that of significantly extending the range of the batteries that power electric cars. In 2015 the Tesla Model S 85D was the best performer at 435 kilometers on a single charge.2 The problem of making better batteries is exceptionally challenging. Suppose that no one in January 2016 can make a battery capable of powering a car over 600 kilometers on a single charge. We nevertheless know in general terms where the solution will come from. There’s an important sense in which, to solve the problem, battery designers have only to keep on doing the kinds things that they are currently doing. A rational expectation is no logical guarantee. But it seems unlikely that there are yet-to-be discovered physical laws that will limit the batteries that can be fitted in a car to ranges of less than 500 kilometers. **A feature of these unsolved but predictably soluble problems is that we should proceed with an expectation of solving them**. Those who use computers to solve very challenging problems should expect that the future will bring computers more powerful than those that exist today. **Cancer researchers whose computers are not quite powerful enough to analyze complex patterns in who gets melanoma and who doesn’t can look forward to more powerful machines to apply to the problem. Urban developers trying to work out** good locations for **future charging stations for electric vehicles are justified in assuming that the batteries of the future will power cars over longer distances than today’s batteries.** [2] Technological problems that are currently unsolved for which there is no rational expectation of a solution Consider the problem of recovering a live specimen of a Cretaceous Period Tyrannosaurus. Suppose you grant that travel backwards in time is not a logical impossibility. Technologies capable of transporting people or devices back in time and returning both them and a captive Tyrannosaur to the present may not violate any physical law and may therefore be discoverable. This problem nevertheless falls into a different category from those described above. There are no existing technological trends that point to the required time-travel technologies. We have only the vaguest and most technologically unspecific ideas about how to go back in time and retrieve a genuine Cretaceous Period Tyrannosaur. Technological progress does occasionally deliver surprises. But it would be an odd allocation of resources to begin constructing cages capable of containing large carnivorous theropods on the assumption that we will soon acquire the necessary technologies. **The control problem** belongs squarely in the first category. It **is certainly difficult**. As Bostrom’s book demonstrates, we currently lack a solution to it. **But existing trends in the development of AI give reason to expect a solution.**

### AT: Artificial Intelligence—AI Good

#### Humans should create AI, they would be beneficent and we have an ethical obligation to create future beings who will live better lives than us

**Shiller 2017** [Derek Shiller, “In Defense of Artificial Replacement,” *Bioethics* Volume 31 Number 5 2017 pp 393–399]

My particular application of the Future Beneficence Principle involves its implication that, given the choice, we should create beings with greater well-being rather than beings with substantially less well-being, when it is not too costly to us. This application parallels the Principle of Procreative Beneficence,9 which enjoins us to select the child, of the possible children [we] could have, who is expected to have the best life, or at least as good a life as the others, based on the relevant, available information. (p. 415) Savulescu originally presented his principle in the context of choices of medical intervention into normal human reproduction. It implies that we should take steps to avoid having children with traits that are harmful to their well-being, and that we should opt for children with traits that are conducive to their well-being.10 This idea can be extended to apply to the question of whether or not we should opt to have normal human progeny or to create artificially intelligent beings. If we can give artificial progeny a better life than biological progeny, Savulescus principle seems to suggest that we should forgo natural reproduction on the grounds of beneficence. We should choose to create creatures with the best life. The fact that such creatures are made of silicon and do not emerge directly from our genitals is morally irrelevant. Here is my argument: human beings live lives that are quite suboptimal. With a good design, we will be able to produce artificial creatures whose lives are much closer to being optimal. We will then be faced with the choice of continuing to populate the world with humans, or devoting resources over to creating creatures who are capable of much higher levels of well-being. Our resources are finite, and the same resources that might allow human beings to live – effort, land, energy, raw materials – could be more effectively spent on creating and sustaining artificial creatures. When that becomes the case, the beneficent thing to do is to choose that our children be artificial, rather than natural. It will not harm us too much, and it will greatly benefit future generations.

### AT: Baby Universe

#### Baby Universes are possible and save life from inevitable extinction from Universe Expansion

**Hanlon 15-** cites Paul Davies, astrophysicist at Arizona State University

[Michael Hanlon, science journalist, “Save The Universe”, 02 April, 2015, *aeon*, https://aeon.co/essays/what-can-we-do-to-save-the-universe-from-certain-death]

Right to the last, life will adapt magnificently. But in the end, the final great extinction event will get the better of it. In a billion years, our planet will be a hot, humid hell, riven by searing hurricanes, its continents mostly desert. From space, it will no longer be a pretty blue-green ball but a yellowish orb, a glint of bare rock around the equator, the skies full of dust. By 1,200,000,000AD, in a strange symmetry, the ancient Earth will start to resemble its own earliest self. No animals, no plants: just a few hardy bacteria eking out a precarious existence in superheated saline pools. Eventually the remaining seas will boil. The senile Sun will bloat and expand, engulfing Mercury and Venus and searing our planet’s surface until even the rock glows red. The Earth’s story is over. But that needn’t be the end of life in the Universe. Let us assume that our planet is not unique; that intelligent life is fairly common. Our Sun will not be the last star to die. Recent findings from NASA’s Kepler Space Telescope suggest that there might be as many as a billion Earth-like planets in the Milky Way alone. There is time left for countless civilisations to rise and fall, long after the death of old Earth. No refuge is permanent, of course. In time, the stars – all septillion of them (in the observable universe) – will stop shining. Big, hot stars such as our Sun consume hydrogen fuel in periods ranging from a few tens of millions of years to a few billion. New generations of such stars will be born long after ours runs amok. But eventually, the Universe’s supply of accessible free hydrogen will run out. The last survivors will be the red dwarfs, the commonest of stars. The remarkable thing about red dwarfs is their longevity. Some will last 20 trillion years – 4,000 times longer than our Sun. Any planets orbiting red dwarfs (and we know there are plenty of them) will, potentially, have heat and light to allow life of some kind to exist for that long. But even red dwarfs are mortal. In 100 trillion years, the very last generation of hydrogen-burning astral bodies will have been born from the few remaining gas clouds. By 200 trillion AD the last stars will go out. From now on, the Universe is almost black and impossibly cold. Life, if any survives, will have fallen on hard times indeed. Now we move into more uncharted waters. It is worth saying here that we are still not entirely sure what the ultimate fate of the cosmos might be. It used to be thought that there was enough matter (including dark matter) and energy in the Universe for its combined gravitational pull to slow down the cosmic expansion, bring it to a halt and eventually bring all the stars back together again in a reverse-rerun of the Big Bang – the so-called Big Crunch. In fact, there doesn’t seem to be quite enough stuff for this to happen. But there are other, disastrous, possibilities. In 1999, Robert Caldwell, a physicist at Dartmouth College in New Hampshire, pointed out that dark energy, which propels the Universe’s expansion, might one day be much stronger. According to some calculations, a stronger version of dark energy, called phantom energy, could literally tear apart the entire Universe, atom by atom – a disaster called the Big Rip. This could happen as ‘soon’ as 20 billion years from now. But let us for the sake of argument assume that there are no crunches or rips in our future. The downside of this relatively gentle scenario is that the future will be an impossibly gloomy and boring place. As Professor Martin Rees, the Astronomer Royal put it to me: ‘If the cosmic acceleration continues … the observable universe gets emptier and more lonely. Distant galaxies will not only move further away, but recede faster and faster until they disappear.’ As the galaxies vanish over each other’s horizons, and after the last red dwarfs die, the cosmos will be ruled by strange, even dimmer entities – ‘brown dwarfs’, lone, Jupiter-sized planets that never got hot enough to turn into stars. The heat of their interiors could keep a civilisation going for a billion billion years. Then there are the white-dwarf remnants of old dead stars, and ‘degenerate’ monsters – the black holes and neutron stars. Across swathes of space bigger than our Milky Way, the brightest objects will glow with the same energy as a 40-watt electric light bulb. By the time the Universe is a quadrillion quadrillion years old, the only power sources will be the remnants of stars and planets. Their very protons, the core building blocks of matter, will start to decay, releasing tiny puffs of energy. But even these last outposts on Eternity Road will, in the end, crumble. Entropy will win. The Universe will end, not with a bang, but with a whimper, maybe 10 googol years from now (a googol is a one with 100 noughts after it). That is, if no one tries to do anything about it. So, what can be done? Should life surrender to its sad, entropic fate, or should we (for ‘we’ are the only entities we know of who might be able to make a difference) at least begin to think about postponing – perhaps indefinitely – the death of the only home we have? It sounds ridiculous, and out of keeping with the current philosophy to ‘leave nature be’. But the truth is, we face eternal annihilation if we do nothing. We can certainly delay our demise in our Solar System. As the Sun warms, we could move outwards – to the conveniently placed Mars, or to the moons of Jupiter or Saturn. A billion years’ hence, a balmy Mars will be as warm as Earth is today. Three billion years on, and Titan, Saturn’s icy companion, might be a mild, watery paradise with a thick atmosphere and none of the deadly radiation that afflicts Jupiter’s inner moons. If we find that we are terribly attached to dear old Earth we could simply move it into a new orbit. Propelling asteroids or comets at near-miss distance would allow us to use their gravitational pull to act as a celestial tugboat, dragging the Earth out of the fiery clutches of our Sun. But that just buys us time – 3 or 4 billion years. Note that no one is assuming that anything resembling humans will be alive then. I am talking about our successors – either a replacement species, or possibly sentient machine intelligences that have taken over from thinking meat. Either way, we, or they, will need to find a new home. By then our descendants might have found common cause with extrasolar alien intelligences, assuming they exist. Far-seeing minds will know, as we do, that not even the red and brown dwarfs will last forever. From now on, the battle will not be against the heat of dying suns, but against cold. With no stars, any lifeforms or machines will have to find new ways of powering themselves and their civilisations. Lack of resources will be a huge issue – on the cosmic scale just as it is here on Earth today. Even with no phantom energy, the rate at which the Universe is expanding will keep accelerating. That’s bad news, according to Fred Adams, an astrophysicist at the University of Michigan who has written extensively about the long-term fate of the Universe: in time, the vast bulk of matter and energy that we can theoretically access will simply disappear over our event horizon. The riches of the cosmos will be causally disconnected from ‘our’ backwater forever. ‘This isolation imposes important restrictions on resources,’ Adams told me. ‘All you get [in the very distant future] is what is currently in the local group of galaxies. This constraint limits the amount of gas to make new stars, for example. As a result, life will have a harder time surviving to extremely long times.’ Fortunately, useful energy is woven into the bedrock of creation. Over long enough periods of time – and time is one thing not in short supply – the minute amounts of energy generated by processes such as proton decay can be harvested and made to do useful work. In 1960, Freeman Dyson, then a physicist at Princeton, proposed that any sensible civilisation would build great solar-panelled shells around its parent star, to ensure that none of its blaze of light went to waste. Even at this late stage in the life of the Universe, intelligent beings could build similar ‘Dyson spheres’ to harvest the trickle of energy released by black holes. Hawking radiation, a quantum artefact generated by the creation of virtual particles at the Event Horizon, is feeble stuff: a largish Black Hole would ‘glow’ at a temperature of only a few tens of billionths of a degree. But in the dark future, we will have to take what we can get. Still, even the black holes are not immortal. By radiating, they lose mass, eventually exploding – the last bursts of visible light in the Universe. The cosmos now enters what Adams calls the ‘Dark Era’. There is no atomic fusion to make light, because there are no more atoms. All that remains is very long wave radiation, plus the smallest elementary particles, smeared out over impossibly large volumes of space. Today, the average density of matter in the visible Universe is a few hydrogen atoms per cubic metre; by 1 googol AD, that figure will have fallen to one miserable electron or positron in a volume far, far bigger than today’s visible Universe. What hope for any intelligence now? Remember that, even if we or our machine descendants (or those of any alien intelligences) have constructed the sturdiest apparatus to ensure survival, nothing can outlive the evaporation of matter itself. This is where we have to think the impossible. Paul Davies, an astrophysicist at Arizona State University, argues that the answer might be simply to decamp to a new universe when the old one is no longer fit for purpose. We, or rather ‘we’, would have to start making plans for this long before the Dark Era; but moving might be our only hope. ‘Either the origin of the Universe was a natural or a supernatural event,’ Davies explained to me. ‘Assuming, as a scientist would, that it was natural, then it must be possible for a sufficiently advanced civilisation to do it, too.’ The prevailing view among cosmologists at this time is that the Big Bang was just one of many bangs scattered throughout space and time. ‘So the conditions for producing one are generic,’ Davies said. ‘In principle, we could do it too, and make a baby universe. Get it right and this baby would expand into something like our Universe is today.’ This will not be easy. Making a new universe, or tunnelling through to another, natural, part of the multiverse, would require a colossal amount of energy: think of something like the Large Hadron Collider (LHC) at CERN in Switzerland scaled up to the size of a Solar System, harnessing the power of entire stars or tamed black holes. This would tax the resources of the most advanced civilisations foreseeable, and it would be the work of millennia – probably hundreds of millennia, using machinery scarcely imaginable in its scale and complexity. It would be the greatest engineering project in history. Davies says: ‘It’s necessary for the beings to decamp to the baby universe through the umbilical wormhole before it pinches off. So this is the ultimate in emigration – getting out for good. Actually doing this, by concentrating huge amounts of energy, wouldn’t be easy, and it would certainly be expensive, but we have billions of years to save up for it, as this Universe will do okay for a while yet.’ There are other equally outlandish possibilities. A few years ago, as CERN was about to turn on its LHC, some anxious souls fretted that the machine could inadvertently create an Earth-eating black hole or – and this is pertinent here – trigger some sort of ‘phase change’ in the fabric of the cosmos itself that would create a sphere of destruction spreading out from Earth at the speed of light. Oops. The LHC, mighty as it is, was far too feeble to do anything of the sort. But build something thousands of times bigger and who knows? It might be possible to unleash a field that in some way interferes with the cosmic expansion. Freeman Dyson has suggested that by saving up a large but finite amount of energy, it should be possible to power some sort of conscious thought for a subjective eternity, even as the Universe dies a heat death. The fact that people have even considered saving – or escaping from – our dying Universe is remarkable, and a testament to the physics that can predict conditions a billion years hence better than the weather next week. The project is not really about saving the Universe, but about saving the life within it, life without which, after all, the cosmos is just gas and rocks and vacuum. It might prove that the ultimate answer to the problem of life, the universe and everything is not, as Douglas Adams joked, 42, but simply finding a way to keep the show on the road forever.

#### Cosmogenesis is a moral obligation

**Merali 17**

[Zeeya Merali, has a PhD in theoretical cosmology, “The idea of creating a new universe in the lab is no joke”, *aeon*, 14 June, 2017, https://aeon.co/ideas/the-idea-of-creating-a-new-universe-in-the-lab-is-no-joke]

Fast-forward a quarter of a century, and the notion of universe-making – or ‘cosmogenesis’ as I dub it – seems less comical than ever. I’ve travelled the world talking to physicists who take the concept seriously, and who have even sketched out rough blueprints for how humanity might one day achieve it. Linde’s referees might have been right to be concerned, but they were asking the wrong questions. The issue is not who might be offended by cosmogenesis, but what would happen if it were truly possible. How would we handle the theological implications? What moral responsibilities would come with fallible humans taking on the role of cosmic creators? Theoretical physicists have grappled for years with related questions as part of their considerations of how our own Universe began. In the 1980s, the cosmologist Alex Vilenkin at Tufts University in Massachusetts came up with a mechanism through which the laws of quantum mechanics could have generated an inflating universe from a state in which there was no time, no space and no matter. There’s an established principle in quantum theory that pairs of particles can spontaneously, momentarily pop out of empty space. Vilenkin took this notion a step further, [arguing](https://journals.aps.org/prd/abstract/10.1103/PhysRevD.27.2848) that quantum rules could also enable a minuscule bubble of space itself to burst into being from nothing, with the impetus to then inflate to astronomical scales. Our cosmos could thus have been burped into being by the laws of physics alone. To Vilenkin, this result put an end to the question of what came before the Big Bang: nothing. Many cosmologists have made peace with the notion of a universe without a prime mover, divine or otherwise. At the other end of the philosophical spectrum, I met with Don Page, a physicist and evangelical Christian at the University of Alberta in Canada, noted for his early [collaboration](https://journals.aps.org/prd/abstract/10.1103/PhysRevD.42.2655) with Stephen Hawking on the nature of black holes. To Page, the salient point is that God created the Universe *ex nihilo –* from absolutely nothing. The kind of cosmogenesis envisioned by Linde, in contrast, would require physicists to cook up their cosmos in a highly technical laboratory, using a far more powerful cousin of the Large Hadron Collider near Geneva. It would also require a seed particle called a ‘monopole’ (which is hypothesised to exist by some models of physics, but has yet to be found). The [idea](https://www.youtube.com/watch?v=kgDk-pcYTfQ) goes that if we could impart enough energy to a monopole, it will start to inflate. Rather than growing in size within our Universe, the expanding monopole would bend spacetime within the accelerator to create a tiny wormhole tunnel leading to a separate region of space. From within our lab we would see only the mouth of the wormhole; it would appear to us as a mini black hole, so small as to be utterly harmless. But if we could travel into that wormhole, we would pass through a gateway into a rapidly expanding baby universe that we had created. (A [video](https://www.youtube.com/watch?v=kgDk-pcYTfQ) illustrating this process provides some further details.) We have no reason to believe that even the most advanced physics hackers could conjure a cosmos from nothing at all, Page argues. Linde’s concept of cosmogenesis, audacious as it might be, is still fundamentally technological. Page, therefore, sees little threat to his faith. On this first issue, then, cosmogenesis would not necessarily upset existing theological views. But flipping the problem around, I started to wonder: what are the implications of humans even considering the possibility of one day making a universe that could become inhabited by intelligent life? As I discuss in my book [*A Big Bang in a Little Room*](http://www.thelittlebangtheory.com/cosmogenesis) (2017), current theory suggests that, once we have created a new universe, we would have little ability to control its evolution or the potential suffering of any of its residents. Wouldn’t that make us irresponsible and reckless deities? I posed the question to Eduardo Guendelman, a physicist at Ben Gurion University in Israel, who was one of the architects of the cosmogenesis model back in the 1980s. Today, Guendelman is engaged in [research](https://arxiv.org/abs/gr-qc/0611034) that could bring baby-universe-making within practical grasp. I was surprised to find that the moral issues did not cause him any discomfort. Guendelman likens scientists pondering their responsibility over making a baby universe to parents deciding whether or not to have children, knowing they will inevitably introduce them to a life filled with pain as well as joy. Other physicists are more wary. Nobuyuki Sakai of Yamaguchi University in Japan, one of the theorists who [proposed](https://arxiv.org/abs/gr-qc/0602084) that a monopole could serve as the seed for a baby universe, admitted that cosmogenesis is a thorny issue that we should ‘worry’ about as a society in the future. But he absolved himself of any ethical concerns today. Although he is performing the calculations that could allow cosmogenesis, he notes that it will be decades before such an experiment might feasibly be realised. Ethical concerns can wait. Many of the physicists I approached were reluctant to wade into such potential philosophical quandaries. So I turned to a philosopher, Anders Sandberg at the University of Oxford, who contemplates the moral implications of creating artificial sentient life in computer simulations. He argues that the proliferation of intelligent life, regardless of form, can be taken as something that has inherent value. In that case, cosmogenesis might actually be a moral obligation.

### AT: Baby Universe—Infinite Suffering

#### Their scenarios of infinite suffering due to infinite universes is non unique- our universe is already one among infinite universes.

**Moskowitz 12**

[Clara Moskowitz, SPACE.com Assistant Managing Editor, “**5 Reasons We May Live in a Multiverse”,** December 7, 2012 10:51am ET, https://www.space.com/18811-multiple-universes-5-theories.html]

The universe we live in may not be the only one out there. In fact, our universe could be just one of an infinite number of universes making up a "multiverse." Though the concept may stretch credulity, there's good physics behind it. And there's not just one way to get to a [multiverse](https://www.livescience.com/15530-multiverse-universe-eternal-inflation-test.html) — numerous physics theories independently point to such a conclusion. In fact, some experts think the existence of [hidden universes](https://www.space.com/10522-controversial-study-suggests-universe.html) is more likely than not. Here are the five most plausible scientific theories suggesting we live in a multiverse: 1. Infinite Universes Scientists can't be sure what the shape of space-time is, but most likely, it's flat (as opposed to spherical or even donut-shape) and stretches out [infinitely](http://www.lifeslittlemysteries.com/2124-infinity-room-ways-imagine-infinity.html). But if space-time goes on forever, then it must start repeating at some point, because there are a finite number of ways particles can be arranged in space and time. So if you look far enough, you would encounter another version of you — in fact, infinite versions of you. Some of these twins will be doing exactly what you're doing right now, while others will have worn a different sweater this morning, and still others will have made vastly different career and life choices. Because the observable universe extends only as far as light has had a chance to get in the 13.7 billion years since the Big Bang (that would be 13.7 billion light-years), the space-time beyond that distance can be considered to be its own separate universe. In this way, a [multitude of universes](http://www.lifeslittlemysteries.com/2394-parallel-universes-explained.html) exists next to each other in a giant patchwork quilt of universes. [[Visualizations of Infinity: A Gallery](http://www.lifeslittlemysteries.com/2123-visualizations-infinity.html)] 2. Bubble Universes In addition to the multiple universes created by infinitely extending space-time, other universes could arise from a theory called "eternal inflation." Inflation is the notion that the universe expanded rapidly after the Big Bang, in effect inflating like a balloon. Eternal inflation, first proposed by Tufts University cosmologist Alexander Vilenkin, suggests that some pockets of space stop inflating, while other regions continue to inflate, thus giving rise to many isolated "bubble universes." Thus, our own universe, where inflation has ended, allowing stars and galaxies to form, is but a small bubble in a vast sea of space, some of which is still inflating, that contains many other bubbles like ours. And in some of these bubble universes, the laws of physics and fundamental constants might be different than in ours, making some universes strange places indeed. 3. Parallel Universes Another idea that arises from string theory is the notion of "[braneworlds](https://www.space.com/8066-big-bang-solid-theory-mysteries-remain.html)" — parallel universes that hover just out of reach of our own, proposed by Princeton University's Paul Steinhardt and Neil Turok of the Perimeter Institute for Theoretical Physics in Ontario, Canada. The idea comes from the possibility of many more dimensions to our world than the three of space and one of time that we know. In addition to our own three-dimensional "brane" of space, other three-dimensional branes may float in a higher-dimensional space. Columbia University physicist Brian Greene describes the idea as the notion that "our universe is one of potentially numerous 'slabs' floating in a higher-dimensional space, much like a slice of bread within a grander cosmic loaf," in his book "The Hidden Reality" (Vintage Books, 2011). A further wrinkle on this theory suggests these brane universes aren't always parallel and out of reach. Sometimes, they might slam into each other, causing repeated Big Bangs that reset the universes over and over again. [[The Universe: Big Bang to Now in 10 Easy Steps](https://www.space.com/13320-big-bang-universe-10-steps-explainer.html) ] 4. Daughter Universes The theory of quantum mechanics, which reigns over the tiny world of subatomic particles, suggests another way multiple universes might arise. Quantum mechanics describes the world in terms of probabilities, rather than definite outcomes. And the mathematics of this theory might suggest that all possible outcomes of a situation do occur — in their own separate universes. For example, if you reach a crossroads where you can go right or left, [the present universe](https://www.space.com/52-the-expanding-universe-from-the-big-bang-to-today.html) gives rise to two daughter universes: one in which you go right, and one in which you go left. "And in each universe, there's a copy of you witnessing one or the other outcome, thinking — incorrectly — that your reality is the only reality," Greene wrote in "The Hidden Reality." 5. Mathematical Universes Scientists have debated whether mathematics is simply a useful tool for describing the universe, or whether math itself is the fundamental reality, and our observations of the universe are just imperfect perceptions of its true mathematical nature. If the latter is the case, then perhaps the particular mathematical structure that makes up our universe isn't the only option, and in fact all possible mathematical structures exist as their own separate universes. "A mathematical structure is something that you can describe in a way that's completely independent of human baggage," said Max Tegmark of MIT, who proposed this brain-twistin gidea. "I really believe that there is this universe out there that can exist independently of me that would continue to exist even if there were no humans."

### AT: Extreme Light Infrastructure

#### Extreme light infrastructure won’t rip a hole in space time, would require far more energy than their evidence indicates

**Vongehr 2011** [Sascha Vongehr has a PhD in nanotechnology from USC and is on the editorial board of the journal Nanotechnology as well as the science advisory board of Lifeboat Foundation, 11/8/11, "ELI Super Laser To Tear Space Time Apart So Ghost Particles Can Enter From Other Dimensions?," Science 2.0, http://www.science20.com/alpha\_meme/eli\_super\_laser\_tear\_space\_time\_apart\_so\_ghost\_particles\_can\_enter\_other\_dimensions-84405]

According to various sources, UHFF will probably be located in the UK somewhere in 2020, earliest 2017. Ten lasers will concentrate 200 petawatts of power, the equivalent of 100 thousand times the world's electric power output, into “a single point for a trillionth of a second”. Homework for science writers: Given the velocity of light and “trillions of a second”, actually they mean an attosecond, or in scientific notation 10-18 seconds, how many hours do you need to figure the length of “a single point”? Well let me help: 10-18 seconds times a few 108 meters per second equals a few 10-10 meters, which is a few atoms across. Certainly not “a single point”: this length is enormously bigger than the tiny length scales that matter in fundamental particle physics. So, what is UHFF supposed to do that is so awesome? As with the LHC and similar endeavors, “super fundamental physics” hype is created to justify the price tag. UHFF may find dark matter, which is the same empty promise as with the LHC. Since we do not know much about dark matter, dark matter may pop up anywhere unexpectedly for all we know. “We may accidentally destroy the universe” hype is heaped on top of finding all the holy grails. The LHC was sold as making black holes as well as recreating the big bang. And the UHFF? Ed Gerstner, senior editor on Nature Physics: “Physicists are planning lasers powerful enough to rip apart the fabric of space and time.” Laser physics: Extreme light People understandably become worried about making the vacuum unstable in our backyard. People do not like their world being destroyed, but the creation of panic and corrosion of public trust in science is collateral damage. Are independent media mediating that hype? “scientists claim it could allow them boil the very fabric of space ... pulling this vacuum "fabric" apart.” Science News Telegraph What about the science blogs that are supposedly better than traditional media: “they want to build a laser so powerful that it will literally rip spacetime apart ...by giving spacetime a hernia, it is hoped that theorized "ghost particles" may spill from the fissure, providing evidence for the hypothesis that extra-dimensions exist and the vacuum of space isn't a vacuum at all -- it is in fact buzzing with virtual particles ... this immense energy will punch a hole through the fabric of spacetime itself” Discovery blog So, here we go again. Apart from empty promises, they start telling people that we open portals to other dimensions, and again it is not “the media”, but the science media and scientists themselves! Luckily, none of these claims have anything to do with reality. What is UHFF actually supposed to do? I have not found a single source yet that would spell it out to the wider public in sober ways, so let me do what all those media claim to do and actually inform you soberly: ELI-UHFF will try to explore high electric field strengths to hopefully see something that can be interpreted as traces of mechanisms which theory predicts for fields which ELI will not get anywhere close to. Sock-Puppet: “That is it?” Yep Sock-puppet: “No collapse of space-time?” No, sorry, not with some light. Sock-Puppet: “But that mysterious mechanism is ultra important new stuff and can only be done by ELI, correct?” The mechanism in question is electron-positron pair creation, which should happen at the so called Schwinger limit named after Julian Schwinger. That limit is 8 times 1018 Volt per meter, which needs light intensities exceeding 1030 Watt per cm2 and is unattainable by ELI’s mere 10²³ Watt per cm². Electron-positron pair creation is well known from particle accelerators where these high fields turn up implicitly in the reactions triggered by particle collisions. HiPER, the High Power laser Energy Research facility dedicated to laser driven fusion, promised the exact same thing.

#### Extreme light infrastructure experiments don’t last long enough to light a candle, much less rip space time apart. Other experiments already have released more energy at one time

**Hecht 2011** [Jeff Hecht, 4-25-2011, "Short Sharp Science: World's most powerful lasers get the green light," No Publication, https://www.newscientist.com/blogs/shortsharpscience/2011/04/worlds-most-powerful-lasers-ge.html]

The European Commission has approved plans to build a trio of lasers that will each dwarf the power of existing lasers, the website Czechposition reports. The project, called the Extreme Light Infrastructure, will lay the groundwork for building an even more powerful laser that could try to pull "virtual" particles out of the vacuum of space-time. The three new lasers – one each in the Czech Republic, Hungary, and Romania – are set to be completed by 2015. Each will fire pulses that reach a power of 10 petawatts (1016 watts) – the equivalent of several hundred times the power used by human civilisation. The pulses will last only about 1.5 x 10-14 seconds, less than a tenth the time it takes light to cross the diameter of a human hair. Because the pulses are so short, they contain orders of magnitude less energy than the laser pulses at the National Ignition Facility in California, which last 2.0 x 10-8 seconds. But during that flickering instant, the Extreme Light Infrastructure pulses will deliver 20 times the power of NIF's.

### AT: Grey Goo

#### Grey goo isn’t possible, multiple warrants.

**Whatmore 2006** [Roger W. Whatmore, 8-1-2006, "Nanotechnology—what is it? Should we be worried?," OUP Academic, https://academic.oup.com/occmed/article/56/5/295/1452235/Nanotechnology-what-is-it-Should-we-be-worried]

First, consider the Drexlerian dystopia in which a rogue ‘molecular assembler’ ostensibly created for the betterment of mankind goes out of control and reduces everything to a ‘grey (or green)-goo’. Many highly rated, first-class scientific minds have stated that the assembler is not possible for many reasons. These include the ‘sticky fingers’ problem, whereby atoms picked up by an assembler would bond to the manipulator, making it impossible to place them where intended; problems with the storage and transmission of the huge amount of information needed and the vast complexity of the design required to make anything of this type, which would be far greater than the complexity of a modern microprocessor. The assembler concept needs to stay where it belongs, firmly in the realms of science fiction. There are very real ‘self-assemblers’ all around us in the form of viruses and bacteria that owe nothing to nanotechnology but which pose a substantial threat, which is increasing, due to our farming practices, profligate use of antibiotics and cheap international air travel. The creation of this hazard cannot be laid at the door of nanotechnology, although some of the nanoscale techniques evolved for nanotechnology may well be able to help with combating it.

### AT: Higgs Field Decay

#### Quantum tunneling leading to a decay of the metastable state of the Higgs field is unlikely to happen and is unlikely to destroy the universe or effect the earth, as well as not being something the human race has control over

#### Siegel 14 [Ethan, Theoretical Astrophysicist, Cosmologist, Science Writer / Communicator / Editor, and Professor at Lewis and Clark Collage | “How to Destroy the Entire Universe,” <https://medium.com/starts-with-a-bang/how-to-destroy-the-entire-universe-5bd32cf6f985>, MS]

“Don’t be too proud of this technological terror you’ve constructed. The ability to destroy a planet is insignificant next to the power of the Force.” -Darth Vader If you’re out to destroy things, you’ve got plenty of options. For a modest-sized clump of matter — like say, planet Earth — there are a number of ways, many of which are completely natural, for the Universe to obliterate it. Bring our world close enough to a large black hole, and it will simply be ripped apart and devoured. Bring it into close contact with a star, and it will similarly be swallowed, even if that star is as diffuse as a red giant. Allow it to exist too close to a supernova or a hypernova, and not only will the surface surely be fried, but the entire world could be broken up into very small pieces depending on the orientation of the blast. Or, for those of you who are more the DIY type, you could simply bring an asteroid’s worth of antimatter down to the planet’s core, where the matter/antimatter annihilation will produce more than enough energy to reduce the planet to no more than a dissociated pile of rubble. But that’s simply a single planet, in a Universe consisting of billions-to-trillions of stars and planets in each galaxy, where there are hundreds of billions of galaxies in the Universe. What if we wanted to destroy it all? Recently, Stephen Hawking’s new book promoted a scenario that the Higgs field — the field responsible for giving rest mass to all the fundamental particles in the Universe — might spontaneously transition from its present, metastable state to the true ground state, destroying the Universe in the process. Sounds like something worth looking into, doesn’t it? Let’s start by explaining how the Higgs field works. Imagine you’ve got a ball at the very top of a big mountain peak, where if you move any distance in any direction, you’re going to roll down the mountain. Any direction you begin rolling in is going to take you down towards a valley, but in some directions, the valleys are at lower-or-higher elevations than others. The direction your ball begins rolling, at least to start, is totally random, and so which valley you land in is going to be random as well. Unless you’re very, very lucky — like landing in the winning slot in the ultimate game of Plinko — you’re not going to wind up in the lowest possible valley, just the lowest one in the vicinity of the direction you initially chose. There’s a strong possibility that the potential that describes the Higgs field looks a lot like this mountainous picture, and that the Universe we inhabit, complete with the particle masses we observe, currently lives in one of these metastable valleys: one where the elevation (the value of the potential) is lower than all the surrounding regions, but not necessarily in the lowest overall state. In the picture we just painted with a ball rolling down a mountain slope, it will remain wherever it came to rest, because that’s a classical system. But the Higgs field — and the Universe in general — is a quantum system, which means that there’s a **small**, finite but non-zero probability that, at any given time, the value of the Higgs field in our Universe could quantum tunnel into a lower, more stable valley. That’s the situation that Hawking is describing, and even though **the probability of that occurring is very, very small**, it is possible, and — if this is, in fact, how our Universe looks — it could literally happen at any given time. But is this the situation that does, in fact, describe our Universe? What would happen to our Universe if this tunneling to a lower-energy state happened? Would it, in fact, be destroyed? Or would the changes that occur leave the Universe intact, if only a little different than before? First off, it’s a very contentious claim to say that the Higgs field has settled into a metastable state. While our best calculations say that the Higgs may become unstable at energies in excess of 10^11 GeV (where a GeV is the amount of energy required to accelerate an electron from rest to a potential of one billion Volts), those are based on mass measurements of bosons such as the Higgs, W-boson as well as the top quark, that still have significant uncertainties on them. Within the measurement uncertainty, the **Higgs may yet turn out to be truly stable, meaning that we already may be in the lowest part of the valley**. In addition, there are strong reasons to believe that the theory of asymptotic safety describes gravity, and therefore predicts a value for the **Higgs mass that’s perfectly stable**, and consistent with what we observe. If this is the case, then the Higgs isn’t metastable, and the whole issue is moot. Second off, what would happen if this scenario were true, and some place in the Universe made the transition to a more stable state? **It would be most likely to happen not here on Earth**, nor even in our high-energy particle colliders, but near a supernova, hypernova, active galactic nucleus or supermassive black hole. It’s the highest energy locations in the Universe that are far more likely to undergo this quantum transition, where energies of approximately 10^10 GeV and above are routinely achieved. For comparison, the highest energies achieved at the LHC are only around 10^4 GeV, which means the odds of the transition happening by us are far lower. If the transition happened, the laws of physics would instantly change, with properties like the masses of particles, the strength of interactions and the sizes of atoms changing instantaneously where the Higgs field achieved this lower value. In addition, the lower value of the Higgs field would begin to take over the Universe, with the transition propagating outward at the speed of light. This is both good and bad for us. It’s bad because we’d never be able to see it coming; all the observable signals of the Universe propagate no faster than the speed of light in vacuum, and so if the transition is propagating at that speed, we’d have no signal of it before it was on top of us. But it’s also good, because the Universe is accelerating in its expansion, meaning that — for 97% of the observable Universe — a signal propagating at the speed of light will never reach us. **So even if the transition happens somewhere in our Universe, it’s unlikely to affect us.** And finally, if the Universe turns out to be metastable but only very slightly so, the changes in the laws of physics, the sizes of atoms, etc., might be so small that — although they’ll be perceptible to physicists experimenting with them and probing the laws and properties to high-precision — it might not destroy anything, but simply impart to them slightly different properties. So although **this might be a possible way to destroy the Universe, it’s very unlikely**, **it might not be a possible way to destroy it, it might not even affect us if it does happen, and it’s also something we have really no control over.** But **if you wanted to destroy the Universe, relying on the Higgs is a fool’s game**. The smart money is to bet on cosmic inflation, and to remember that the only reason our Universe exists as it does is because inflation came to an end. If we could reactivate it — if we could create a new inflationary epoch — the ultra-rapid expansion of the Universe that would ensue, and the incredibly intense energy intrinsic to space itself, would push apart not only the galaxies, but solar systems, people, cells, molecules and even individual atoms. So how would that work? Inflation was the state that existed prior to our Universe being filled with matter and radiation; prior to our Universe being in a hot, dense, expanding-and-cooling state; prior to the Big Bang. All the energy that exploded into the matter-and-radiation at the moment of the Big Bang came from somewhere, and inflation tells us that the “where” it came from was from energy intrinsic to space itself. The energy intrinsic to space itself now is much lower, at least a factor of 10^27 and possibly as much as 10^31 times smaller than it was during inflation. But if we can achieve those incredibly high energies again — and do keep in mind that these are higher energies by far than any known energy source in the Universe achieves — we could perhaps restore a state of inflation to our Universe, destroying everything within it and hitting the cosmic reset button. All we’d need to do, if we wanted to try, is create ultra-high energy collisions with an energy of between 10^15-and-10^19 GeV, and hope that the transition to an inflationary state occurs once again. Although this isn’t right now practically achievable with current technology, we know exactly what we’d need to do to make this happen. You see, we know how to accelerate particle/antiparticle pairs in opposite directions in a circle, and we know that the bigger the magnetic field and the larger the radius of the circle, the faster we can get the particles to go, and the higher energies we can achieve. The old Tevatron at Fermilab achieved energies of about 10^3 GeV per particle, resulting in up to 2 × 10^3 GeV released during a particle-antiparticle collision operating under this principle, and the LHC (doing particle-particle collisions instead) is poised to reach about 7 × 10^3 GeV per particle, giving us up to 1.4 × 10^4 GeV per collision. Ignoring the phenomenon of synchrotron radiation (which we can compensate for by building a larger radius ring anyway), the formula for a particle’s approximate energy is given by an incredibly simple relation: take the strength of the maximum magnetic field (in Tesla), multiply by the radius of the ring (in kilometers), and divide by four. That is the maximum energy of your particle in GeV. So if we want to reach 10^19 GeV-per-particle, the approximate Planck energy, all we’d need to do is build a machine identical to the LHC in all ways, except instead of a ring that’s about 4.1 km in radius, we’d need one that was 5.9 × 10^14 km in radius. Yes, that’s very, very big, but it isn’t impossibly big. We’re not talking about building something the size of the Universe, but rather about building something only about four million times the size of Earth’s orbit around the Sun. And that’s being very conservative, assuming it takes those incredibly high energies to restore inflation. It could happen at a factor of 1000 or even 10,000 less in energy, which means that much smaller of a ring. Alternatively, we could achieve practical improvements in electromagnet technology, reducing the radius of a ring even further. So cheer up! Destroying the entire Universe, and pushing the cosmic reset button, isn’t something we have to wait around for, and isn’t even something that’s totally out of our control. We have the science today to make it happen; the only challenge is the materials, the engineering, and the money. Put those all together, and the end of the Universe — and the birth of an entire new one — is yours!

### AT: LHC Experiments

#### Cosmic rays non-unique their particle accelerator scenarios --

**CERN No Date** ( European research organization that operates the largest particle physics laboratory in the world. “The safety of the LHC,” http://press.cern/backgrounders/safety-lhc

The LHC, like other particle accelerators, recreates the natural phenomena of cosmic rays under controlled laboratory conditions, enabling them to be studied in more detail. Cosmic rays are particles produced in outer space, some of which are accelerated to energies far exceeding those of the LHC. The energy and the rate at which they reach the Earth’s atmosphere have been measured in experiments for some 70 years. Over the past billions of years, Nature has already generated on Earth **as many collisions as about a million LHC experiments** – and the planet **still exists**. Astronomers observe an enormous number of larger astronomical bodies throughout the Universe, all of which are also struck by cosmic rays. The Universe as a whole conducts more than 10 million million LHC-like experiments per second. The possibility of any dangerous consequences contradicts what astronomers see - stars and galaxies still exist.

### AT: Magnetic Monopoles

#### No monopoles – they’re just hypothetical and the LHC can’t make them

**Orwig 15** (Jessica Orwig, senior video producer at Business Insider. She has a Master of Science in science and technology journalism from Texas A&M University and a Bachelor of Science in astronomy and physics from The Ohio State University."Here's the truth behind the strange phenomena that caused 2 men to sue the world’s largest particle lab," Apr. 1, 2015. www.businessinsider.com/will-the-lhc-destroy-the-earth-2015-4)

In nature, magnets come with two ends — a north pole and a south pole. But in the late 19th Century physicist Pierre Curie, husband to Marie Curie, predicted that there's no reason why a particle with just one magnetic pole could not exist. More than a century later, however, this particle, called a magnetic monopole, has never been made in the lab or observed in nature. So**, it's purely hypothetical**. But that didn't stop Wagner from suggesting that a powerful machine like the LHC could make history by creating the first ever magnetic monopole that could destroy Earth. "Such particle might have the ability to catalyze the decay of protons and atoms, causing them to convert into other types of matter in a runaway reaction," he and Sancho wrote. The theory that a monopole could destroy protons — the subatomic building blocks of all matter in the universe — **is speculative at best**, CERN physicists explain. But let's say that theory is right. Well, these theories also predict that such a particle would have a certain mass, which happens to be **too heavy for anything the LHC would create.** So, suffice it say: **We're safe.** "The continued existence of the Earth and other astronomical bodies therefore rules out dangerous proton-eating magnetic monopoles light enough to be produced at the LHC," CERN physicists explain. Once the LHC is turned back on, physicists will spend the next few months ramping it up to maximum power, which will be about twice the energy it had during its first run. That's not going to change the fact that the chances of the LHC cooking up Earth-destroying mini black holes, strangelets, or magnetic monopoles are **next-to-nothing.** If you're still not convinced, or the slightest bit worried, check out CERN's website regarding "The Safety of the LHC" where experts in astrophysics, cosmology, general relativity, mathematics, particle physics, and risk analysis have expressed their opinions on the machine's safety.

#### And, cosmic rays should non-unique this scenario – there’s no impact even if they’re created

**CERN No Date** ( European research organization that operates the largest particle physics laboratory in the world. “The safety of the LHC,” http://press.cern/backgrounders/safety-lhc

Magnetic monopoles are hypothetical particles with a single magnetic charge, either a north pole or a south pole. Some speculative theories suggest that, if they do exist, magnetic monopoles could cause protons to decay. T**hese theories also say that such monopoles would be too heavy to be produced at the LHC**. Nevertheless, if the magnetic monopoles were light enough to appear at the LHC, cosmic rays striking the Earth’s atmosphere would **already be making them**, and the Earth would very effectively **stop** and **trap** them. The continued existence of the Earth and other astronomical bodies therefore rules out dangerous proton-eating magnetic monopoles light enough to be produced at the LHC.

### AT: Mini Black Holes

#### No mini-black holes – Hawking radiation dissolves them before anything can happen

**Orwig 15** (Jessica Orwig, senior video producer at Business Insider. She has a Master of Science in science and technology journalism from Texas A&M University and a Bachelor of Science in astronomy and physics from The Ohio State University."Here's the truth behind the strange phenomena that caused 2 men to sue the world’s largest particle lab," Apr. 1, 2015. [www.businessinsider.com/will-the-lhc-destroy-the-earth-2015-4](http://www.businessinsider.com/will-the-lhc-destroy-the-earth-2015-4))

Death by black hole Black Hole Artist's view of a radiating black hole.NASA Black holes are extremely dense compact objects with a mass range anywhere between 4 to 170 million times the mass of our sun. While black holes are generally huge, it's completely possible, at least in theory, that a small amount of matter, on the order of tens of micrograms, could be packed densely enough to make a black hole. This would be an example a microscopic black hole. So far, no one has made or observed a microscopic black hole — not even the LHC. But before it was turned on for the first time in 2008, Wagner and Sancho feared that by accelerating subatomic particles to 99.99% the speed of light and then smashing them together, it would create a particle mash-up so dense as to spawn a black hole. The physicists at CERN report that Einstein's theory of relativity predicts that it's impossible for the LHC to produce such exotic phenomena. But, Wagner and Sancho argued, what if Einstein was wrong? Even so, another theory, developed by world-renowned astrophysicist Stephen Hawking, predicts that even if a a microscopic black hole formed inside of the LHC , it would instantly disintegrate, posing no threat to Earth's existence. In 1974, Hawking predicted that black holes don't just gobble stuff up, they also spit it out in the form of extremely high-energy radiation, now known as Hawking radiation. According to the theory, the smaller the black hole, the more Hawking radiation it expels into space, eventually wasting away to nothing. Therefore, a microscopic black hole, being the smallest kind, would disappear before it could wreak havoc and destruction. This could also by why we've never seen a micro black hole.

#### Mini-black holes dissolve immediately and natural particle collisions disprove their impact

**CERN No Date** ( European research organization that operates the largest particle physics laboratory in the world. “The safety of the LHC,” http://press.cern/backgrounders/safety-lhc

Nature forms black holes when certain stars, much larger than our Sun, collapse on themselves at the end of their lives. They concentrate a very large amount of matter in a very small space. Speculations about microscopic black holes at the LHC refer to particles produced in the collisions of pairs of protons, each of which has an energy comparable to that of a mosquito in flight. Astronomical black holes are much heavier than anything that could be produced at the LHC. According to the well-established properties of gravity, described by Einstein’s relativity, **it is impossible** for microscopic black holes to be produced at the LHC. There are, however, some speculative theories that predict the production of such particles at the LHC. All these theories predict that these particles would **disintegrate immediately**. Black holes, therefore, would have no time to start accreting matter and to cause macroscopic effects. Although theory predicts that microscopic black holes decay rapidly, even hypothetical stable black holes can be shown to be harmless by studying the consequences of their production by cosmic rays. Whilst collisions at the LHC differ from cosmic-ray collisions with astronomical bodies like the Earth in that new particles produced in LHC collisions tend to move more slowly than those produced by cosmic rays, one can still demonstrate their safety. The specific reasons for this depend whether the black holes are electrically charged, or neutral. Many stable black holes would be expected to be electrically charged, since they are created by charged particles. In this case they would interact with ordinary matter and be stopped while traversing the Earth or Sun, whether produced by cosmic rays or the LHC. The fact that the Earth and Sun are still here rules out the possibility that cosmic rays or the LHC could produce dangerous charged microscopic black holes. If stable microscopic black holes had no electric charge, their interactions with the Earth would be very weak. Those produced by cosmic rays would pass harmlessly through the Earth into space, whereas those produced by the LHC could remain on Earth. However, there are much larger and denser astronomical bodies than the Earth in the Universe. Black holes produced in cosmic-ray collisions with bodies such as neutron stars and white dwarf stars would be brought to rest. The continued existence of such dense bodies, as well as the Earth, rules out the possibility of the LHC producing any dangerous black holes.

### AT: Mini Black Holes—Earth Accretion Scenario

#### No risk of black holes swallowing the earth – it’d take longer than the lifetime of the solar system – assumes ridiculous future accelerators

**Sokolov & Pshirkov 16** (A.V. Sokolov, Institute for Nuclear Research of the Russian Academy of Sciences, Physics Department, Lomonosov Moscow State University, and Institute of Theoretical and Experimental Physics; and M. S. Pshirkov, Sternberg Astronomical Institute. “Future 100 TeV colliders’ safety in the context of stable micro black holes production,” arXiv preprint arXiv:1611.04949 (2016) )

In this article we have examined the safety of proposed 100 TeV colliders in the context of the production of stable micro black holes in models with extra dimensions. The models with more than 6 dimensions even in the worst case scenario yield Earth’s accretion times **larger than the lifetime of the Solar system.** A theory with five dimensions could be consistent with existing experimental constraints on the size of extra dimensions and yield in the worst case scenario accretion times smaller than the lifetime of the Solar system only with fine-tuning of the warp-factor, given by the inequalities (4). Thus, the study of the accretion times allowed us to limit our further research with the similar cases of 5 and 6 dimensions with the preference to the case of 6 dimensions. The calculation of the number of the neutral black holes trapped inside the Earth for the integrated luminosity L = 104 fb−1 of the future 100 TeV collider and the astrophysical constraints from the observational data on the lifetime of the white dwarfs sug**gest that the risks from the neutral micro black holes are tiny**. Indeed, as it is shown in Fig. 7, astrophysical bounds on the Planck mass predict that the number of the trapped neutral black holes should be **less than 1** (more precisely, the probability that at least one black hole will be trapped inside the Earth during the whole time of the exploitation of the collider **is less than 16%).** Taking into consideration all the peculiarities of the theory required (the absence of the Hawking radiation while the presence of the Schwinger discharge, see also [29]) and the needed fine-tuning of the Planck mass (M6 ∼ 7.4 − 9.0 TeV), **we see that there is practically no danger.** The constraints can 14 be improved via observation of the long-lived neutron stars in the Central Molecular Zone and clarification of the cosmic ray composition below GZK-limit. The clarification of the value of the proton fraction in the cosmic rays below GZK-limit will also make a robust constraint on the charged micro black holes: in case this fraction is larger than 10−5 there is **definitely no risk from these black holes at the 100 TeV collider**. More than that, the first years of exploitation of 100 TeV collider (while the integrated luminosity is still small) will strengthen the constraints on the value of the Planck mass. Needless to say, any slightly less ambitious projects, such as, e.g. the Future Super Proton-Proton Collider [30] with the energy 70 TeV and the integrated luminosity 30 ab−1 , **will pose no danger** but will greatly improve the constraints on the parameters of the extra-dimensional theories.

### AT: Observer Effect

#### The observer effect isn’t scalable to large systems like universes –their scenario is a joke

**Inglis-Arkell 14** (Esther Inglis-Arkell, senior reporter at io9, “We might be destroying the universe just by looking at it,”2/03/14, http://io9.gizmodo.com/we-might-be-destroying-the-universe-just-by-looking-at-1514652112)

The problem is, when we observe a system, we can keep it in a certain state. Studies have shown that repeatedly observing the state of an atom set to decay can keep that atom in its higher-energy state. When we observe the universe, especially the "dark" side of the universe, we might be keeping it in its higher-energy state. If the process of collapse happens when it is in that state, the universe will cease to exist. If we stop looking, and the universe quietly shifts to a state at which its decay is slower, then we're all saved. The more we look at the universe, the more likely it is to end. The Unsettling Truth At least that was the theory that Lawrence Krauss, a well-known physicist and author, playfully put forward. He was applying the idea of quantum mechanics in small systems, like atoms, to large systems, like the universe. **It's a fun idea, but not practical reality**. Although Schrödinger's cat is a good thought experiment, the cat doesn't need us to observe it in order to die, and the universe doesn't need it either. (Even if it did, humanity probably isn't the only race looking out at the universe. If we see our little bubble collapsing, we could easily blame it on curious extraterrestrials and their observations.) Krauss re-stated his position after his paper on the subject came out and made a bit of a stir. He doesn't truly believe that we might end the universe by looking at it too closely. The truth is even more unsettling. The data that led to the false vacuum universe theory came from observing a supernova in 1998. Given the data about the supernova, Krauss believes that the universe is likely to be in its high-rate-of-decay state. So although we might not be the reason the universe ceases to be, we still might be the victims of its collapse.

### AT: Strangelets

#### No impact to strangelets – can’t bind or interact with normal matter

**Orwig 15** (Jessica Orwig, senior video producer at Business Insider. She has a Master of Science in science and technology journalism from Texas A&M University and a Bachelor of Science in astronomy and physics from The Ohio State University."Here's the truth behind the strange phenomena that caused 2 men to sue the world’s largest particle lab," Apr. 1, 2015. www.businessinsider.com/will-the-lhc-destroy-the-earth-2015-4)

Strange matter is made up of individual, hypothetical particles, called strangelets, which are different from the normal matter that make up everything we see around us. Wagner and Sancho worried that this strange matter could fuse with normal matter "eventually converting all of Earth into a single large 'strangelet' of huge size," they write in their lawsuit. However, the precise behavior of strange matter, or even a single strangelet, is unclear, which is partly why these particles have been suggested as candidates for the mysterious material called dark matter the permeates the universe. To support that theory, physicists at the Brookhaven National Laboratory in New York, have been trying to create a strangelet particle with Relativistic Heavy Ion Collider since the turn of the century. So far, nothing that resembles a strangelet has popped up. And because of the energies and types of particles that the LHC collides, Brookhaven has a better chance of making this strange matter. If it succeeded, the concern is that the strangelets would bind with normal matter in a runaway reaction that would transform you, me, and everything on Earth into a clump of strange matter. Whether we would survive such a transformation and how that would change things is anyone's guess. But that unknown is scary enough. Physicists at CERN, however, say that if Brookhaven succeeded in making a strangelet, its chances of interacting and binding with normal matter are **slim**: "It is difficult for strange matter to stick together in the high temperatures produced by such colliders, rather as ice does not form in hot water," they explain on their website.

#### Strangelets can’t form in particle accelerators – temperature and quark density

**CERN No Date** ( European research organization that operates the largest particle physics laboratory in the world. “The safety of the LHC,” http://press.cern/backgrounders/safety-lhc

Strangelet is the term given to a hypothetical microscopic lump of ‘strange matter’ containing almost equal numbers of particles called up, down and strange quarks. According to most theoretical work, strangelets should change to ordinary matter within a thousand-millionth of a second. But could strangelets coalesce with ordinary matter and change it to strange matter? This question was first raised before the start up of the Relativistic Heavy Ion Collider, RHIC, in 2000 in the United States. A study at the time **showed that there was no cause for concern**, and RHIC has now run for eight years, searching for strangelets without detecting any. At times, the LHC will run with beams of heavy nuclei, just as RHIC does. The LHC’s beams will have more energy than RHIC, but this **makes it even less likely that strangelets could form**. It is difficult for strange matter to stick together in the high temperatures produced by such colliders, rather as ice does not form in hot water. In addition, quarks will be more dilute at the LHC than at RHIC, making it more difficult to assemble strange matter. Strangelet production at the LHC is therefore less likely than at RHIC, and experience there has already validated the arguments that strangelets cannot be produced.

#### Even if they destroy the universe, other civs trigger the impact -- BuT wHAt AbOuT thE ALiEnS?!?!?

**Posner 2004** [Posner, Richard A.. Catastrophe : Risk and Response, Oxford University Press, 2004. ProQuest Ebook Central, <http://ebookcentral.proquest.com/lib/utxa/detail.action?docID=271136>. Pp. 31]

The possible catastrophes examined by the assessors were not limited to a strangelet disaster. They included creating a black hole that would swallow the earth and maybe the rest of our solar system as well, and destroying the entire universe by causing a phase transition. What we call “space” may conceivably “exist in different ‘phases,’ rather as water can exist in three forms: ice, liquid, and steam. . . . Some [physicists] have speculated that the concentrated energy created when [subatomic] particles crash together could trigger a ‘phase transition’ that would rip the fabric of space itself,” destroying all the atoms in the entire universe.48 However, these consequences seem much less likely even than a strangelet disaster. One minor though intriguing reason for thinking this is that if there is intelligent life elsewhere in the universe, as seems highly likely from the sheer number of planets (see the introduction), some civilization more advanced than our own would already have built a particle accelerator as powerful as RHIC, precipitating a phase transition that would have destroyed the universe.

### AT: Space Exploration

#### The neg assumes that we enter space with an intent to destroy but ignore all the good that science has produced when the values pushing them forward have been altruistic. Instead we need to spearhead space exploration with collaboration and the drive for knowledge to allow for the safe and intellectual discovery of space.

**Gantz 15** [George, Stanford University, BS in Mathematics and Honors Humanities, Author of Spiral Inquiry, an exploration of Science, Faith and Philosophy | “The Tip of the Spear” How Should Humanity Steer the Future? The Frontiers Collection. Springer, Cham pg. 140-142 | MAW]

Human civilization is being challenged from within by accelerating technological progress and complexity, and may be challenged from without by first contact with extraterrestrial life. Historically the human response to challenge was often violence—hoisting a spear or other weapon in combat or conquest. However, the spear has also served humanity for both hunting and defense. While recent military jargon may have trivialized the “tip of the spear” analogy, it may yet have some value in our consideration of humanity’s global emergence and potential first contact. Indeed, it is appropriate to ask what powers the spear of human civilization towards its unknown future, and how should we arm the tip? The driving force of humanity’s remarkable advance from the Pleistocene to the Anthropocene, including the mastery of fire, was the collective and shared learning about the world and the adaptation of that knowledge to our needs and desires. The human species has a passion for knowing, derived from necessity and enabled by bodies and brains of immense complexity and sophistication. That passion has found its greatest outlet in the empirical scientific discoveries of recent centuries. Yet those discoveries would have remained unexplored or unexploited without a corresponding institutional framework supporting freedom of thought and expression, dissemination and critical review of ideas and market demonstration, development and deployment. Universities replaced palaces. Free states replaced city-states. Trade in goods and ideas became global. The scientific community became a network of professionals that shared common goals and methods and achieved profound knowledge of the physical world. The foundation for all these achievements is the human empathic qualities that enable such cooperation. It is essential that our human civilization remain committed to the pursuit of empirical knowledge. This will continue to be the power behind the spear. However, this pursuit is fundamentally dependent on maintaining institutional behaviors that support global cooperation. Trust, honesty, openness to criticism and new ideas, mutual respect and a passionate commitment to empirical truth have been essential to science and those qualities remain critical for sustained cooperation to exist within the scientific community. But is the fitness landscape for the scientific enterprise today selecting for these behaviors? Are the rewards and disincentives, the signaling and feedback loops, the administration and enforcement mechanisms within the enterprise properly aligned to achieve maximally cooperative behaviors? Or is the landscape of increasing specialization and fragmentation and increasingly steep incentives for being novel and being first, tending to undermine both cooperation and, ultimately, progress? Is the global institutional framework within which science does its work appropriately sympathetic and collaborative? Or is politicization and polarization undermining efficiency and fraying the shared moral framework under which it operates? It may be difficult to answer these questions. Nevertheless, we must answer them. Humanity is the first species to have worked its way out of the confines of the natural fitness landscape—and we have the capability to design our own. This offers new degrees of freedom, and also brings with it responsibility for the consequences. For example, if we design, or fail to reform, institutions that do not engage in pro-social cooperation and that practice or enable cheating or defection, thereby undermining trust, then we risk having such institutions outrun their rivals in a winner-take-all competition. All of human civilization to this point would be in jeopardy, and we would have no one to blame but ourselves. However, if we embrace the centrality of cooperation to our evolutionary success and infuse it into our design of the fitness landscapes that determine future institutional success or failure, then we can take control of the future. As we address this challenge, we must recognize that humanity is multi-dimensional and our interests extend beyond the material to include aesthetic, cultural, civic and spiritual aspirations. Institutions have evolved in all these dimensions, and their qualities, as in the case of science, have been shaped by human relationships. Institutions reflecting and reinforcing empathic qualities, whether families, tribes, cities, kingdoms, nations, religions, social movements or voluntary associations, benefit from cooperative behaviors, build social capital, and tend to thrive. (For example, efficient global markets are impossible to achieve without trusting relationships [22].) Those that do not, such as despotic autocracies, carry within a weakness in human bonding that undermines flexibility, responsiveness and information flow, all of which are essential for long term institutional success in satisfying human needs and aspirations. These institutions also form networks and interact with each other. The institution of science, for example, depends on supportive economic and political institutions, and it, in turn, influences civic and cultural life. Ultimately, human civilization is the totality of human institutions and their collective behavior. As in other complex systems, institutions signal and respond, and the resulting behaviors are tested in a global fitness environment. Cooperative responses create synergies that lead to efficiencies and improved fitness—and therefore institutions that reinforce empathic behaviors should be respected as part of the global institutional framework that has also enabled science. Competitive or conflicting responses create frictions that can undermine or destroy—such institutional conflicts should be subject to negative selection pressure. The 20th century has clear examples of both collaboration and conflict. Autocratic government paired with communist ideology contributed to the rise of Stalinism. Parochial nationalism and secular idealism contributed to Nazism. Thankfully, both failed to achieve their goal of global conquest. However, the competitive conflicts of World War II and the Cold War that defeated them resulted in massive loss of human life and waste of global resources. On the other hand, some collaborative global institutions have flourished. Science is a largely borderless enterprise that accumulated sufficient civic and economic support to build, among other things, the Hubble Telescope, the Human Genome Project and the Large Hadron Collider. In addition, market economies have thrived as global cooperation expanded—the flow of goods and services has evolved into an unrecognizably complex web of materials, components and services that defy efforts to comprehend it [23]. The United Nations is an example of a nascent synergism that continues to be tested in a fitness landscape that includes global political and economic conflicts. Science does not always serve in an empathic capacity. Nuclear armament, with its potential for causing human extinction, is a clear example. Less clear is the role science may play in fostering particular ideologies such as determinism and materialism, metaphysical worldviews that arguably challenge the efficacy of human empathy and undermine the emotional and psychological foundation of other key human institutions—including religions—that promote empathy. Has science as an institution contributed to existential alienation, the rise of unfettered commercialism or declines in social capital and shared moral frameworks? It is clear that the qualities that propelled humanity and its institutions forward are the empathic qualities of trust, honesty, mutual respect and shared commitment. To this list we should add the corollary attribute of **humility**. As Francis Bacon put it more than four hundred years ago, referring to both science and religion, “let men endeavor an endless progress or proficiency in both; only let men beware that they apply both to charity, and not to swelling” [24]. Without these empathic qualities, the human race would never have advanced and likely would not have survived. Without them, it is unlikely that we will survive. While the evolutionary theories cited in this essay may be new, the idea that empathy is the foundation of human civilization is not. Indeed, one formulation of the behavioral foundations for human cooperation was promulgated thousands of years ago, in the Decalogue [25]. Both the Buddhist and Christian traditions emphasize compassion and love, respectively. Christianity specifically commands, “Love your neighbor as yourself” [26]. The advance of our human enterprise will be powered by empirical knowledge, but the tip of the spear should be armed with our empathic qualities, ensuring that it is a tool of advancement and not destruction, a probe rather than a weapon. As a civilization we must aspire to practice empathy and to build empathic qualities into our institutions. We must design the fitness landscape for humanity’s future in ways that reward cooperation and collaboration and discipline cheating, dishonesty and other moral defections—thereby reinforcing the qualities of trust, honesty, mutual respect, humility and shared commitment. In so doing we will ensure the success of our collective enterprise as a whole and an optimal outcome from interactions with civilizations we have yet to meet.

#### Multiple Obstacles for space colonization—won’t happen

**Beckstead 14**[Nick, Future of Humanity Institute - FHI. "Will we be able to colonize other stars? Notes on a Preliminary Review." *The Future of Humanity Institute.* N.p., 02 Nov. 2016. Web. 26 July 2017.]

I investigated this question because of its potential relevance to existential risk and the long-term future more generally. There are a limited number of books and scientific papers on the topic and the core questions are generally not regarded as resolved, but the people who seem most informed about the issue generally believe that space colonization will eventually be possible. I found no books or scientific papers arguing for in-principle infeasibility, and believe I would have found important ones if they existed. The blog posts and journalistic pieces arguing for the infeasibility of space colonization are largely unconvincing due to lack of depth and failure to engage with relevant counterarguments. **The potential obstacles to space colonization include: very large energy requirements, health and reproductive challenges from microgravity and cosmic radiation, short human lifespans in comparison with great distances for interstellar travel, maintaining a minimal level of genetic diversity, finding a hospitable target, substantial scale requirements for building another civilization, economic challenges due to large costs and delayed returns, and potential political resistance.** Each of these obstacles has various proposed solutions and/or arguments that the problem is not insurmountable**. Many of these obstacles would be easier to overcome given potential advances in AI, robotics, manufacturing, and propulsion technology. Deeper investigation of this topic could address the feasibility of the relevant advances in AI, robotics, manufacturing, and propulsion technology. My intuition is that such investigation would lend further support to the conclusion that interstellar colonization will eventually be possible.** Note: This investigation relied significantly on interviews and Wikipedia articles because I’m unfamiliar with the area, there are not many very authoritative sources, and I was trying to review this question quickly.

### AT: Space Exploration—Terraforming

#### Terraforming doesn’t work

**Milligan 16** (Tony Milligan, researcher at Cambridge University. | “Common origins and the ethics of planetary seeding,” International Journal of Astrobiology, published 2016, page 306.) ELJC

So where does this leave us? In relation to goals (i) and (ii), the goals of spreading our kind of life or microbial life, it does seem at least conceivable that we might justifiably appeal to shared origins as a reason for favouring seeding with terrestrial microbes rather than non-terrestrial microbes. However, **in no case do the reasons for this appear to be strong enough to act as an automatic silencer for rival considerations such as the likelihood of success,** the enhancement of diversity or even considerations of justice. Should we disrupt a nearby world and corrupt the sustaining environment for a microbial life form, this might function as a reason to try and give this lifeform a chance of survival elsewhere. If the Earth was too dangerous an option, a process of seeding would then be tempting. But what is conspicuous about all of these potential, and to some extent competing, reasons for deciding one way or the other (likelihood of success, origins, spreading diversity, making amends for injustice) is that they compete without silencing or overwhelming. And this might remove any misleading suspicion that an acceptance of value considerations in contexts of this sort must always be too demanding. Instead, as in more familiar ethical contexts, the give and take of conflicting reasons and of practical wisdom seems to hold sway.

### AT: Space Exploration—No Colonization

#### Multiple Obstacles for space colonization- Deeper study in technological fields is the only way for space colonization to be possible

**Beckstead 14**[Nick, Future of Humanity Institute - FHI. "Future of Humanity Institute." *The Future of Humanity Institute.* N.p., 02 Nov. 2016. Web. 26 July 2017.]

I investigated this question because of its potential relevance to existential risk and the long-term future more generally. There are a limited number of books and scientific papers on the topic and the core questions are generally not regarded as resolved, but the people who seem most informed about the issue generally believe that space colonization will eventually be possible. I found no books or scientific papers arguing for in-principle infeasibility, and believe I would have found important ones if they existed. The blog posts and journalistic pieces arguing for the infeasibility of space colonization are largely unconvincing due to lack of depth and failure to engage with relevant counterarguments. **The potential obstacles to space colonization include: very large energy requirements, health and reproductive challenges from microgravity and cosmic radiation, short human lifespans in comparison with great distances for interstellar travel, maintaining a minimal level of genetic diversity, finding a hospitable target, substantial scale requirements for building another civilization, economic challenges due to large costs and delayed returns, and potential political resistance.** Each of these obstacles has various proposed solutions and/or arguments that the problem is not insurmountable**. Many of these obstacles would be easier to overcome given potential advances in AI, robotics, manufacturing, and propulsion technology. Deeper investigation of this topic could address the feasibility of the relevant advances in AI, robotics, manufacturing, and propulsion technology. My intuition is that such investigation would lend further support to the conclusion that interstellar colonization will eventually be possible.** Note: This investigation relied significantly on interviews and Wikipedia articles because I’m unfamiliar with the area, there are not many very authoritative sources, and I was trying to review this question quickly.

#### We can’t colonize- we have enough problems on earth already

**Schwartz 13** (James Schwartz, researcher for the Indiana University Press | “On the Moral Permissibility of Terraforming,” published by the Indiana University Press, published 2013, page 4.)ELJC

Space exploration has for quite some time been the subject of disapprobation from those espousing environmentalism. A persistent environmentalist sentiment is that humans have mismanaged and over industrialized Earth’s resources. This malfeasance is made possible through the advancement of technology, allowing humans to exert an increasingly dominant influence over nature. **Progress can only be made by changing society’s attitude toward the environment.** The pursuit of space exploration is an activity on a par with the highest technological endeavors and so does not represent any kind of meaningful progress in relation to the environmental crisis. “**Why expend so much energy studying space**,” it is asked, “**when there are so many problems to solve here on Earth?**” An emblematic case of this tension arose in the 1970’s when the work of Princeton physicist Gerard O’Neill caught the attention of the United States government. O’Neill’s findings indicated that it would be possible to construct miles-long cylindrical habitats out of resources extracted from Lunar regolith. These habitats could be placed in orbit around the stable Lagrange-points of the Earth-Moon system, spun for gravity, and could house miniature Earth-like ecosystems capable of supporting thousands of human inhabitants. Colonists could be put to work creating and maintaining solar energy collectors that could beam solar energy to Earth without interruption. O’Neill’s space colonies would therefore provide solutions both to the human overpopulation problem and to the energy crisis. **Environmentalists were not impressed with the promises of** O’Neill’s **space colonies.**3 With one or two notable exceptions, reactions ranged from skepticism to outrage. The skeptical responses accused O’Neill of grossly overestimating the ease with which his colonies could be constructed, as well as overstating the ease with which humans could create stable Earth-like ecosystems inside these structures. Perhaps more germane to the present discussion is the sense of outrage present in some reactions.

### AT: Terraforming Bad

#### There is no justification for preserving the environments of other planets.

**Huebert and Block 2007** [J. H. Huebert, J.D., Chicago University, and Walter Block, College of Business Administration, Loyola University, New Orleans, 2007. Space Environmentalism, Property Rights, and Law, The University of Memphis Law Review, pg. 281-309]

To speak of a "pristine" environment outside of the planet Earth is a rather strange thing to do, given how utterly unpleasant the rest of the solar system (and, as far as anyone knows, the universe) is. The planet Mercury, for example, has no atmosphere, and portions of its surface become hot enough to melt tin. Other parts, however, remain cold enough to keep ice from crashed comets perpetually frozen—and there is nothing remotely pleasant in between. Mercury is, in one writer's words, "geologically dead. It has not changed significantly in several billion years."37 Venus is even worse—"a good substitute for Hell."38 Its atmosphere is a "choking shroud of almost pure carbon dioxide" (a gas much hated by environmentalists on Earth) complemented by "thick clouds of battery acid."3 9 Its atmospheric pressure is ninety two times that which exists on the earth's surface, so any visiting astronaut in a spacesuit would be "crushed instantly."40 And the mean surface temperature is 480 degrees Celsius—even hotter than Mercury, and hot enough "to melt tin, zinc, and lead."41 Earth's moon is relatively less hateful, but it has no atmosphere, of course, and "has never supported liquid water," let alone life.42 "Mars is not alive. It is dead, and looks as if it has been that way for a long time. No conclusive evidence for life there, either now or in the past, has ever been found/'4 3 Its atmosphere consists mostly of deadly carbon dioxide,44 and its mean surface temperature is negative twenty-three degrees Celsius.45 The planets farther out are even worse, so bad that it is difficult to imagine that they could be of any use at all to humans, except perhaps as something for tourists to fly past and admire. Jupiter, Saturn, Uranus, and Neptune are covered in extremely cold, giant, stormy mixes of toxic liquids and gasses.46 Tiny Pluto apparently no longer counts as a planet,47 and has a surface temperature of negative 230 degrees Celsius and an atmosphere of nitrogen (good) and methane (poison).48 There is talk of a tenth planet, but we are not competent to pronounce on its status.49 Some of these distant planets' moons might be of some use to humans, but are nonetheless wholly inhospitable. For example, one of Jupiter's moons, Europa, is covered in water ice, and may have liquid water and possibly some sort of microscopic life beneath its frozen surface. And Saturn's moon Titan has, like Earth, a mostly nitrogen atmosphere—at negative 180 degrees.50 Where there is no atmosphere, as on the moon, the environment is far from healthy. Spaceships and spacesuits must be well shielded to protect against the sun's radiation. "A hypothetically unprotected astronaut would receive (in the absence of solar flares) about 10 rems of radiation per year. In comparison, the average person on the face of the earth receives only about .1 rems of radiation per year from background sources (e.g., from the earth and from space)."51 The presence of solar flares makes matters much worse—their high-energy protons "can cause the release of lethal doses of secondary radiation, such as gamma rays, when they collide with spacecraft."52 All of that may sound bad, but in fact the space environment is only going to become worse, much worse, even if we humans never reach other celestial bodies. That is because, as the eons pass, our sun will eventually change to a "subgiant" star, then a Red Giant, then a nebula, then a White Dwarf, then a Black Dwarf. In the end, all of the planets, including Earth, will lose their atmospheres and exist at a temperature just a few degrees above absolute zero, the coldest temperature possible.53 Thus, in sum, the space environment is so bad right now that, from anything other than a rock-and-dirt-worshiping perspective, it could not get much worse—except that billions of years from now, it will get worse, and there is nothing anyone can do about that.

### AT: Vacuum Decay

#### Their impacts are non unique in two ways- first, there are more probable ways that the universe could end that don’t need human involvement, and second, vacuum decay will happen anyway even without human involvement

**Trosper 14**

[Jaime Trosper, freelance writer, who finds great joy in sharing the wonders of universe with others, “4 Ways The Universe Might End”, Futurism, March 3, 2014, <https://futurism.com/four-ways-the-universe-could-end/>, SZ]

But we know that it is coming. At the very least, it will happen when the Sun transitions into a red giant. The end of everything else, though, is a little bit more difficult to predict, but that hasn’t stopped scientists from speculating and theorizing. With that in mind, here are four popular theories on how the universe might end. Note: Astrophysicists believe that the ultimate fate of the universe depends on three things: the universe’s overall shape, its density, and the amount of dark energy within it. The first two scenarios below hinge upon the universe existing in a “flat” or “open” system (one that is negatively curved, similar to the surface of a saddle). The Big Rip I’m sure many of you are familiar with dark energy and, more specifically, the role it plays in the accelerated expansion of the universe. One theory of how the universe could potentially end relies on the assumption that the expansion of the universe will continue indefinitely until the galaxies, stars, planets, and matter (potentially even the subatomic building blocks that comprise all matter) can no longer hold themselves together, at which point they rip apart. This theory is called the Big Rip, and it could result in your next door neighbor (or cat) being ripped apart, too. In this model, if the universe’s density is found to be less than [critical density](http://io9.com/5919193/the-big-rip-theory-says-the-universe-could-end-in-tearshttp:/) (the boundary value between open models that expand forever and closed models that re-collapse), the expansion of the universe will continue, as well as the accelerating expansion that is driving the galaxies apart at high speeds. If the density of the universe ever becomes equal to its critical density, it will continue to expand, but the expansion would eventually start to decrease gradually. Finally, if the critical density were to become greater than the density of the universe, the expansion would halt and the universe would start to collapse back in on itself, resulting in a gravitational singularity: one that could ultimately trigger the next big bang. [According to Robert Caldwell](http://arxiv.org/pdf/astro-ph/0302506.pdf), a theoretical physicist from Dartmouth College, if the Big Rip won out over all of the apocalyptic scenarios put forth in this piece, the event would occur in some odd 22 billion years, when the Sun has already transitioned from a main-sequence star to a red-giant (potentially incinerating Earth as a result) and then into a white dwarf. If Earth did manage to survive intact, the planet would explode about 30 minutes before the grand finale. The Big Freeze Another popular scenario for the end of the universe that relies on deciphering the true nature of dark energy is [the Big Freeze](http://www.whillyard.com/science-pages/big-freeze.html) (also referred to as Heat Death or the Big Chill). In this scenario, the universe continues to expand at an ever-increasing speed. As this happens, the heat is dispersed throughout space while clusters, galaxies, stars, and planets are all pulled apart. It will continue to get colder and colder until the temperature throughout the universe reaches absolute zero (or a point at which the universe can no longer be exploited to perform work). Similarly, if the expansion of the universe continued, planets, stars, and galaxies would be pulled so far apart that the stars would eventually lose access to raw material needed for star formation, thus the lights would inevitably go out for good. This is the point at which the universe would reach a maximum [state of entropy](https://futurism.com/time-examining-the-wibbly-wobbly-timey-wimey-stuff/). Any stars that remained would continue to slowly burn away, until the last star was extinguished. Instead of fiery cradles, galaxies would become coffins filled with remnants of dead stars. It has been said that intelligent civilizations in the very distant future will look into the sky and think they are alone. Everything will be so far away, the light from distant stars and galaxies [could never reach them](https://futurism.com/the-future-of-the-universe/) due to the expansion of the universe. Many astronomers and physicists alike believe this may be one of the [most probable scenarios](http://www.universetoday.com/36917/big-freeze/) thought up at the present moment. The Big Crunch [The Big Crunch](http://science.howstuffworks.com/dictionary/astronomy-terms/big-crunch6.htm) is thought to be the direct consequence of the Big Bang. In this model, the expansion of the universe **doesn’t** continue forever. After an undetermined amount of time (possibly trillions of years), if the average density of the universe was enough to stop the expansion, the universe would begin the process of collapsing in on itself. Eventually, all of the matter and particles in existence would be pulled together into a super dense state (perhaps even into a black hole-like singularity). Furthermore, such an event might have already happened before. Some scientists have theorized that the universe we see is the result of a cyclic repetition of the Big Bang, where the first cosmological event came about after the collapse of a previous universe. This is something called [conformal cyclic cosmology.](https://futurism.com/sir-roger-penrose-alternate-theory-of-the-big-bang/) Unlike the first two scenarios, this model relies on the geometry of the universe being “closed” (like the surface of a sphere). Truly, an event like this would be like a single breath. The universe would “breathe out” the Big Bang, and “breathe in” the Big Crunch. This could be due to either a reversal of dark energy’s current expansion effect or as the result of gravity collecting the entirety of spacetime into a single point. Similar to this theory (and the Big Bang) is that of the Big Bounce. A sort of symmetry is proposed here: the universe is in a continuous cycle of expanding out and then collapsing onto itself. Effectively, we could be one of many iterations of the universe. Perhaps even more eerie to think about is the idea that maybe each time the universe resets, it plays out the same way. Perhaps the you that is currently reading this article right now is just one you out of 10^googleplex versions that existed before. Ultimately, the universe may be like the mythical phoenix. In death, it is reborn. The Big Slurp I saved the best scenario (or worst, depending on your outlook) for last: [the Big Slurp.](https://futurism.com/the-big-slurp/) This theory surfaced not too long ago, after revelations were released about the true nature of the [Higgs Boson](http://tinyurl.com/fqtq-countdown-1) (most of you probably remember it as the particle believed to play a role in granting mass to elementary particles). In this model, if the Higgs Boson particle weighs in at a certain mass, it could indicate that the vacuum of our universe may be [inherently unstable](http://www.bbc.co.uk/news/science-environment-21499765), perhaps existing in a perpetual “[metastable’ state](http://phys.org/news/2013-02-higgs-mass-universe.html) — something that has been discussed at length many times before. If this were the case, our universe might experience a catastrophic event when a “bubble” from another alternate universe appears in ours. If said bubble exists in a lower-energy state than our bubble. the universe could be completely annihilated. I should note that this is disastrous because it could cause of all the protons in all matter found in our universe to decay. By proxy, so would we. If that doesn’t sound unpleasant enough, this sort of a [vacuum metastability event](http://phys.org/news/2010-12-theoretical-physics-breakthrough-antimatter-vacuum.html) could happen at virtually any moment, anywhere in our universe. The bubble could pop over and start expanding at light-speed until it swallowed us entirely. Truly, none of these scenarios sound very fun.

#### Calm yourselves- physics will save the day, but even if it doesn’t, vacuum decay will kill everyone anyway, regardless of humanity’s actions

**Mack 15**

[Katie Mack, astrobiologist at the University of Melbourne, “Vacuum decay: the ultimate catastrophe”, 14 September 2015, Cosmos, <https://cosmosmagazine.com/physics/vacuum-decay-ultimate-catastrophe>, 14 September 2015, SZ]

The possibility of vacuum decay has come up a lot lately because measurements of the mass of the Higgs boson seem to indicate the vacuum is metastable. But there are good reasons to think some new physics will intervene and save the day. One reason is that the hypothesised inflationary epoch in the early Universe, when the Universe expanded rapidly in the first tiny fraction of a second, probably produced energies high enough to push the vacuum over the edge into the true vacuum. The fact that we’re still here indicates one of three things. Inflation occurred at energies too low to tip us over the edge, inflation did not take place at all, or the Universe is more stable than the calculations suggest. If the Universe is indeed metastable, then, technically, the transition could occur through quantum processes at any time. But it probably won’t – the lifetime of a metastable universe is predicted to be much longer than the current age of the Universe.

#### Saying that humans will cause vacuum decay is like saying that our opponents have brains- if vacuum decay really were that likely we wouldn’t exist

**Palmer 14 [Roxanne Palmer,** Science journalist for the International Business Times**, “**WILL THE HIGGS BOSON DESTROY THE UNIVERSE IN A COSMIC DEATH BUBBLE?”, *WORLD SCIENCE FESTIVAL,* [HTTP://WWW.WORLDSCIENCEFESTIVAL.COM/2014/09/WILL-HIGGS-BOSON-DESTROY-UNIVERSE-COSMIC-DEATH-BUBBLE/](http://www.worldsciencefestival.com/2014/09/will-higgs-boson-destroy-universe-cosmic-death-bubble/), Sep 8, 2014, SZ]

Some context: over the weekend, several press outlets took a chunk of Stephen Hawking’s latest book and [ran a bit](http://www.theaustralian.com.au/news/world/god-particle-could-destroy-the-universe-says-stephen-hawking/story-fnb64oi6-1227050481513?nk=00e7e5283b0e808fe4ee87ae5f5aa365) [off the deep end](http://www.express.co.uk/news/nature/508102/End-of-the-world-Stephen-Hawking-God-particle-Higgs-boson-destroy-universe) with it, reporting that the “God Particle” was going to wipe out the universe. Here’s what Hawking wrote in the preface to the upcoming book Starmus: “The Higgs potential has the worrisome feature that it might become metastable at energies above 100bn gigaelectronvolts (GeV). This could mean that the universe could undergo catastrophic vacuum decay, with a bubble of the true vacuum expanding at the speed of light. This could happen at any time and we wouldn’t see it coming.” (And note that Hawking says Higgs potential, not Higgs boson. Those are different things: the Higgs potential refers to the potential energy of the Higgs field; the Higgs boson is a particle that is a manifestation of that same field.) How does this all relate to the end of the universe? Before the Higgs boson was discovered, scientists wondered if we live in a stable universe, an unstable one, or one that’s metastable—stable for an extended time period, but not at the absolutely most stable point it could be at. Now that the Higgs boson has been discovered and the first measurements of its mass made, scientists think that we’re probably living in a metastable state. Basically, our universe seems to be comfortably tucked in a valley of energy states, but it’s still not the lowest ground around. If something pushes us up and over the side of our valley (or tunnels through the valley wall), we could fall into new and lower territory. The process of transitioning to a lower energy state is sometimes called “vacuum decay.” If it occurred at any point in the universe, the bubble of this new vacuum state would expand outward at the speed of light. We wouldn’t have any warning until we were obliterated very suddenly. But getting to this new state requires an intense amount of energy—which is one of the reasons why Katie Mack, a theoretical astrophysicist at the University of Melbourne, thinks it’s extremely unlikely that we’ll be swallowed up by a cosmic death bubble any time soon. If the universe was going to fall to that lower energy state, “it would have done that in the very early universe, which was a very energetic time; the energy from [inflation](http://www.worldsciencefestival.com/2014/06/ripples-big-bang-inflation-debate-makes-waves-physics/) would have kicked us into the other vacuum in the tiniest fraction of a second,” Mack says. The gargantuan energy levels thought to be necessary for this transition can also occur in cosmic ray collisions, Mack says, but building a particle collider that packs that kind of power is well beyond human capabilities at this time (Hawking himself notes in Starmus that such a collider would have to be larger than Earth). So discovering the Higgs boson or turning on the Large Hadron Collider makes it no more likely that vacuum decay will occur. Even so, our metastable universe does have the potential to drop further down. But most physicists think that this decay won’t happen for eons, [if it happens at all.](http://www.scientificamerican.com/article/how-the-higgs-boson-might-spell-doom-for-the-universe/) Further experiments and new calculations could also reveal that the universe is more stable than previously thought. “Everything Hawking says is true; the Higgs potential is what governs what vacuum state we’re in, and we can transition,” Mack says. “But it’s really unlikely that would happen. Meanwhile, I’ve been trying to defend the poor little Higgs boson—it’s not out to hurt us.”

### AT: Vacuum Decay—No False Vacuum

#### Recent studies suggest that either the universe is in a truly stable state or the Higgs field is stable enough to last billions of years

**Byrne 2015** [Michael Byrne, 11-15-2015, "Maybe the Whole Universe Won't Suddenly Collapse Into an Uninhabitable Void," https://motherboard.vice.com/en\_us/article/wnxqqx/maybe-the-whole-universe-wont]

It's an idea that's out there: The universe as we know it might just all of a sudden destabilize and tumble into an entirely new sort of physical reality. The forces that make our worlds what they are would be gone, and so too would particles and reactions and masses and light itself. Some new stuff would take its place, but that wouldn't matter very much to us because we would be gone in the deepest, truest sense imaginable. Not even star stuff.Conspiracy theorist-types are fans of this idea—or a ghastly mangling of it, rather—and maybe some internet garbage about the Higgs boson destroying the universe has come across your radar. This is what said types are referring to (however incorrectly) and it's not entirely just pulled from someone's ass. It may, however, prove to be even more unlikely than (some) physicists had previously thought. This argument is outlined in a recent study in the Physical Review Letters, courtesy of Russian physicist Andrey Pikelner and his team, and an accompanying American Physical Society Viewpoint: The vacuum might be stable after all, and not just "metastable." The very settled-looking universe around us and all of its forces and particles might truly chill forever. The universe is a vacuum filled by the Higgs field. You can just look at it is some energy that hangs out everywhere and when particles interact with it, they wind up with mass. This energy has a value or potential, but it might not be the only possible value. It might be a local minimum, or a false vacuum, and some big event might come along one day and knock us out of that local minimum. The universe would then settle at a new minimum, either another local minimum (metastable) or the one true minimum (stable). "If the Universe lies in the only (or deepest) minimum of the potential, then its future is not threatened," Alexander Kusenko, a physicist at the University of California, Los Angeles, writes. "However, it is also possible that the current minimum is "local" and a deeper minimum exists, or the potential has a bottomless abyss separated from the local minimum by a finite barrier. In these cases, the Universe will eventually tunnel out into some other state, in which life as we know it might be impossible. Of course, the probability of such a catastrophic event must be small, because the Universe has remained in its present state for over ten billion years." The Higgs boson discovery confirmed that the ground energy state of the universe depends on the potential of the Higgs field. As Kusenko explains, we should be able to calculate whether or not we're in a true ground state or just a stopping-off point based on the masses of the Higgs boson and the top quark. The current mass estimates of the Higgs boson, around 125 giga-electron-volts, imply that things could go either way. The Pikelner study calculates the Higgs potential with what Kusenko assures us is the most reliable analysis to date. Basically, if current values for the Higgs boson and other Standard Model particles are mostly correct, absolute stability is possible. This depends on those values not changing and that some emerging New Physics doesn't screw everything up, which it probably will. But, even if the universe is metastable, we shouldn't expect things to go haywire for many billions of years, so rest easy-ish.

# \*\*\*Accelerationism K\*\*\*

## Sample 1NC’s

### 1NC—Agamben

#### The affirmative valorizes a ‘folk politics’ of immediacy and localism that plays directly into the hand of neoliberal hegemony --- their politics study and desertion is a mere withdrawal from politics, an individualized moment of resistance that can never scale up to challenge capitalist realism.

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

What is folk politics? Folk politics names a constellation of ideas and intuitions within the contemporary left that informs the common-sense ways of organising, acting and thinking politics. It is a set of strategic assumptions that threatens to debilitate the left, rendering it unable to scale up, create lasting change or expand beyond particular interests. Leftist movements under the sway of folk politics are not only unlikely to be successful – they are in fact **incapable of transforming capitalism**. The term itself draws upon two senses of ‘folk’. First, it evokes critiques of folk psychology which argue that our intuitive conceptions of the world are both historically constructed and often mistaken. 11 Secondly, it refers to ‘folk’ as the locus of the small-scale, the authentic, the traditional and the natural. Both of these dimensions are implied in the idea of folk politics. As a first approximation, we can therefore define folk politics as a collective and historically constructed political common sense that has become out of joint with the actual mechanisms of power. As our political, economic, social and technological world changes, tactics and strategies which were previously capable of transforming collective power into emancipatory gains have now become drained of their effectiveness. As the common sense of today’s left, folk politics often operates intuitively, uncritically and unconsciously. Yet common sense is also historical and mutable. It is worth recalling that today’s familiar forms of organisation and tactics, far from being natural or pregiven, have instead been developed over time in response to specific political problems. Petitions, occupations, strikes, vanguard parties, affinity groups, trade unions: all arose out of particular historical conditions. 12 Yet the fact that certain ways of organising and acting were once useful does not guarantee their continued relevance. Many of the tactics and organisational structures that dominate the contemporary left are responses to the experience of state communism, exclusionary trade unions, and the collapse of social democratic parties. Yet the ideas that made sense in the wake of those moments no longer present effective tools for political transformation. Our world has moved on, becoming more complex, abstract, nonlinear and global than ever before. Against the abstraction and inhumanity of capitalism, folk politics aims to bring politics down to the ‘human scale’ by emphasising **temporal, spatial and conceptual immediacy**. At its heart, folk politics is the guiding intuition that immediacy is always better and often more authentic, with the corollary being a deep suspicion of abstraction and mediation. In terms of temporal immediacy, contemporary folk politics typically remains reactive (responding to actions initiated by corporations and governments, rather than initiating actions); 13 ignores long-term strategic goals in favour of tactics (mobilising around single-issue politics or emphasising process); 14 prefers practices that are often inherently fleeting (such as occupations and temporary autonomous zones); 15 chooses the familiarities of the past over the unknowns of the future (for instance, the repeated dreams of a return to ‘good’ Keynesian capitalism); 16 and expresses itself as a predilection for the voluntarist and spontaneous over the institutional (as in the romanticisation of rioting and insurrection). 17 In terms of spatial immediacy, folk politics privileges the local as the site of authenticity (as in the 100-miles diet or local currencies); 18 habitually chooses the small over the large (as in the veneration of small-scale communities or local businesses); 19 favours projects that are un-scalable beyond a small community (for instance, general assemblies and direct democracy); 20 and often rejects the project of hegemony, valuing **withdrawal or exit** rather than building a broad counter-hegemony. 21 Likewise, folk politics prefers that actions be taken by participants themselves – in its emphasis on direct action, for example – and sees decision-making as something to be carried out by each individual rather than by any representative. The problems of scale and extension are either ignored or smoothed over in folk-political thinking. Finally, in terms of conceptual immediacy, there is a preference for the everyday over the structural, valorising personal experience over systematic thinking; for feeling over thinking, emphasising individual suffering, or the sensations of enthusiasm and anger experienced during political actions; for the particular over the universal, seeing the latter as intrinsically totalitarian; and for the ethical over the political – as in ethical consumerism, or moralising critiques of greedy bankers. 22 Organisations and communities are to be transparent, rejecting in advance any conceptual mediation, or even modest amounts of complexity. The classic images of universal emancipation and global change have been transformed into a prioritisation of the suffering of the particular and the authenticity of the local. As a result, any process of constructing a universal politics is rejected from the outset. Understood in these ways, we can detect traces of folk politics in organisations and movements like Occupy, Spain’s 15M, student occupations, left communist insurrectionists like Tiqqun and the Invisible Committee, most forms of horizontalism, the Zapatistas, and contemporary anarchist-tinged politics, as well as a variety of other trends like political localism, the slow-food movement, and ethical consumerism, among many others. But no single position embodies all of these dispositions, which leads us to a first qualification: as an uncritical and often unconscious common sense, folk politics comes to be instantiated to varying degrees in concrete political positions. That is to say, folk politics does not name an explicit position, but only an implicit tendency. The ideas that characterise this tendency are widely dispersed throughout the contemporary left, but some positions are more folk-political than others. This brings us to a second important qualification: the problem with folk politics is not that it starts from the local; all politics begins from the local. The problem is rather that folk-political thinking is content to remain at (and even privileges) that level – of the transient, the small-scale, the unmediated and the particular. It takes these to be sufficient rather than simply necessary moments. Therefore, the point is not simply to reject folk politics. Folk politics is a necessary component of any successful political project, but it can only be a starting point. A third qualification is that folk politics is only a problem for particular types of projects: those that seek to move beyond capitalism. Folk-political thinking can be perfectly well adapted to other political projects: projects aimed solely at resistance, movements organised around local issues, and smallscale projects. Political movements based around keeping a hospital open or preventing evictions are all admirable, but they are importantly different from movements trying to challenge neoliberal capitalism. The idea that one organisation, tactic or strategy applies equally well to any sort of struggle is one of the most pervasive and damaging beliefs among today’s left. Strategic reflection – on means and ends, enemies and allies – is necessary before approaching any political project. Given the nature of global capitalism, any postcapitalist project will require an ambitious, abstract, mediated, complex and global approach – one that folk-political approaches are incapable of providing. Combining these qualifications, we can therefore say that folk politics is necessary but insufficient for a postcapitalist political project. By emphasising and remaining at the level of the immediate, folk politics lacks the tools to transform neoliberalism into something else. While folk politics can undoubtedly make important interventions in local struggles, we deceive ourselves when we think these are turning the tide against global capitalism. They represent, at best, temporary respite against its onslaught. The project of this book is to begin outlining an alternative – a way for the left to navigate from the local to the global, and synthesise the particular with the universal. Such an alternative cannot simply be a conservative reversion to the working-class politics of the last century. It must instead combine an updated way of thinking politics (a shift from immediacy to structural analysis) with an upgraded means of doing politics (which directs action towards building platforms and expanding scales).

#### Wallowing in impotentiality is catastrophically misguided --- the crises of global climate change, automation, and austerity require the weaponization of potentiality against power --- only a biopolitics against biopower can unleash the latent productivity of cognitive labor to create a counter-hegemonic reclamation of the imagination.

**Negri 14** (Antonio Negri, OG, “Some Reflections on the #Accelerate Manifesto,” in *#ACCELERATE: The Accelerationist Reader,* Urbanomic. 2014.)

The Manifesto for an Accelerationist Politics (MAP) opens with a broad acknowledgment of the dramatic scenario of the current crisis: Cataclysm. The denial of the future. An imminent apocalypse. But don't be afraid! There is nothing politico-theological here. Anyone attracted by that should not read this manifesto. There are also none of the shibboleths of contemporary discourse. or rather. only one: the collapse of the planet's climate system. But while this is important. here it is completely subordinated to industrial policies, and approachable only on the basis of a criticism of those. What is at the center of the Manifesto is 'the increasing automation in production processes, including the automation of "intellectual labor"', which would explain the secular crisis of capitalism.1 Catastrophism? A misinterpretation of Marx's notion of the tendency of the rate of profit to fall?2 I wouldn't say that. Here, the reality of the crisis is identified as neoliberalism's aggression against the structure of class relations that was organized in the welfare state of the eighteenth and twentieth centuries; and the cause of the crisis lies in the obstruction of productive capacities by the new forms capitalist command had to assume against the new figures of living labor. In other words, capitalism had to react to and block the political potentiality of post-Fordist labor. This is followed by a harsh criticism of both right-wing governmental forces, and of a good part of what remains of a Left-the latter often deceived (at best) by the new and impossible hypothesis of a Keynesian resistance, unable to imagine a radical alternative. Under these conditions, the future appears to have been cancelled by the imposition of a complete paralysis of the political imaginary. We cannot come out of this condition spontaneously. Only a systematic class-based approach to the construction of a new economy, along with a new political organization of workers, will make possible the reconstruction of hegemony and will put proletarian hands on a possible future. There is still space for subversive knowledge! The opening of this manifesto is adequate to the communist task of today. It represents a decided and decisive leap forward-necessary if we want to enter the terrain of revolutionary reflection. But above all, it gives a new 'form' to the movement, with 'form' here meaning a constitutive apparatus that is full of potentiality, and that aims to break the repressive and hierarchical horizon of statesupported contemporary capitalism. This is not about a reversal of the state-form in general; rather, it refers to **potentiality against power** - **biopolitics against biopower**. It is under this premise that the possibility of an emancipatory future is radically opposed to the present of capitalist dominion. And here, we can experiment with the 'One divides into Two' formula that today constitutes **the only rational premise of a subversive praxis** (rather than its conclusion).3 WIT H I N A N D AGAINST T H E T E N D E N CY OF CAPITALISM Let's have a look at how the MAP theory develops. Its hypothesis is that the liberation of the potentiality of labor against the blockage determined by capitalism must happen within the evolution of capitalism itself. It is about pursuing economic growth and technological evolution (both of which are accompanied by growing social inequalities) in order to provoke a complete reversal of class relations. Within and against: the traditional refrain of Operaism returns.4 The process of liberation can only happen by accelerating capitalist development, but-and this is important-without confusing acceleration with speed,5 because acceleration here has all the characteristics of an engine-apparatus, of an experimental process of discovery and creation within the space of possibilities determined by capitalism itself. In the Manifesto, the Marxian concept of 'tendency' is coupled with a spatial analysis of the parameters of development: an insistence on the territory as 'terra', on all the processes of territorialization and deterritorialization, that was typical of Deleuze and Guattari. The fundamental issue here is the power of cognitive labor that is determined yet repressed by capitalism; constituted by capitalism yet reduced within the growing algorithmic automation of dominion; ontologically valorized (it increases the production of value), yet devalorized from the monetary and disciplinary point of view (not only within the current crisis but also throughout the entire story of the development and management of the state-form). With all due respect to those who still comically believe that revolutionary possibilities must be linked to the revival of the working class of the twentieth century, such a potentiality clarifies that we are still dealing with a class, but a different one, and one endowed with a higher power. It is the class of cognitive labor. This is the class to liberate, this is the class that has to free itself. In this way, the recovery of the Marxian and Leninist concept of tendency is complete. Any 'futurist' illusion, so to speak, has been removed, since it is class struggle that determines not only the movement of capitalism. but also the capacity to turn its highest abstraction into a solid machine for struggle. The MAP's argument is entirely based on this capacity to liberate the productive forces of cognitive labor. We have to remove any illusion of a return to Fordist labor; we have to finally grasp the shift from the hegemony of material labor to the hegemony of immaterial labor. Therefore, considering the command of capital over technology, it is necessary to attack 'capital's increasingly retrograde approach to technology'.6 Productive forces are limited by the command of capital. The key issue is then to **liberate the latent productive forces**, as revolutionary materialism has always done. It is on this 'latency' that we must now dwell. But before doing so, we should note how the Manifesto's attention turns insistently to the issue of organization. The MAP deploys a strong criticism against the 'horizontal' and 'spontaneous' organizational concepts developed within contemporary movements, and against their understanding of 'democracy as process. '7 According to the Manifesto, these are mere fetishistic determinations of democracy which have no effectual (destituent or constituent) consequences on the institutions of capitalist command. This last assertion is perhaps excessive, considering the current movements that oppose (albeit with neither alternatives nor proper tools) financial capital and its institutional materializations. When it comes to revolutionary transformation, we certainly cannot avoid a strong institutional transition, one stronger than any transition democratic horizontalism could ever propose. **Planning is necessary** - either before or after the revolutionary leap-in order to transform our abstract knowledge of tendency into the constituent power of postcapitalist and communist institutions to come. According to the MAP, such 'planning' no longer constitutes the vertical command of the state over working class society; rather, today it must take the form of the convergence of productive and directional capacities into the Network. The following must be taken as a task to elaborate further: planning the struggle comes before planning production. We will discuss this later. TH E R EA P P R O P R IATI O N O F F I X E D CAPITAL Let's get back to us. First of all, the 'Manifesto for an Accelerationist Politics' is about unleashing the power of cognitive labor by tearing it from its latency: 'We surely do not yet know what a modern technosocial body can do!' Here, the Manifesto insists on two elements. The first element is what I would call the 'reappropriation of fixed capital' and the consequent anthropological transformation of the working subject.8 The second element is sociopolitical: such a new potentiality of our bodies is essentially collective and political. In other words, the surplus added in production is derived primarily from socially productive cooperation. This is probably the most crucial passage of the Manifesto.9 With an attitude that attenuates the humanism present in philosophical critique, the MAP insists on the material and technical qualities of the corporeal reappropriation of fixed capital. Productive quantification, economic modeling, big data analysis, and the most abstract cognitive models are all **appropriated by worker-subjects through education and science**. The use of mathematical models and algorithms by capital does not make them a feature of capital. It is not a problem of mathematics-**it is a problem of power**. No doubt, there is some optimism in this Manifesto. Such an optimistic perception of the technosocial body is not very useful for the critique of the complex human-machine relationship, but nonetheless this Machiavellian optimism helps us to dive into the discussion about organization, which is the most urgent one today. Once the discussion is brought back to the issue of power, it leads directly to the issue of organization. Says the MAP: the Left has to develop socio-technological hegemony-'material platforms of production, finance, logistics, and consumption can and will be reprogrammed and reformatted towards post-capitalist ends'.10 Without a doubt, there is a strong reliance on objectivity and materiality, on a sort of Dasein of development-and consequently a certain underestimation of the social, political. and cooperative elements that we assumed to be there when we agreed to the basic protocol: 'One divides into Two.' However, such an underestimation should not prevent us from recognizing the importance of acquiring the highest techniques employed by capitalistic command, as well as the abstraction of labor, in order to bring them back to a communist administration performed 'by the things themselves'. I understand the passage on technopolitical hegemony in this way: we first have to **mature the whole complex of productive potentialities of cognitive labor** in order to **advance a new hegemony**.

#### The impact is extinction from warfare and climate change – only leftist sociotechnical hegemony can un-cancel the future.

**Srnicek & Williams 13** (Nick Srnicek, Theorist and activist, Alex Williams, PhD student at the University of East London, C. Derick Varn and Dario Cankovich, North Star, “#Accelerate: Manifesto for an Accelerationist Politics,” *#ACCELERATE: The Accelerationist Reader)*

0 1 . I NT R O D U CTI O N : ON T H E C O N J U N CT U R E 1 . At the beginning of the second decade of the twenty-first century, global civilization faces a new breed of cataclysm. These coming apocalypses ridicule the norms and organisational structures of the politics which were forged in the birth of the nation-state, the rise of capitalism, and a twentieth century of unprecedented wars. 2. Most significant is the **breakdown of the planetary climatic system**. In time, this threatens the continued existence of the present global human population. Though this is the most critical of the threats which face humanity, a series of lesser but potentially equally destabilising problems exist alongside and intersect with it. Terminal resource depletion, especially in water and energy reserves, offers the prospect of mass starvation, collapsing economic paradigms, and new hot and cold wars. Continued financial crisis has led governments to embrace the paralyzing death spiral policies of austerity, privatisation of social welfare services, mass unemployment, and stagnating wages. Increasing automation in production processes-including 'intellectual labour'-is evidence of the secular crisis of capitalism, soon to render it incapable of maintaining current standards of living for even the former middle classes of the global north. 3. In contrast to these ever-accelerating catastrophes, today's politics is beset by an **inability** to generate the new ideas and modes of organisation necessary to transform our societies to confront and resolve the coming annihilations. While crisis gathers force and speed, politics withers and retreats. In this paralysis of the political imaginary, **the future has been cancelled**. 4. Since 1979, the hegemonic global political ideology has been neoliberalism, found in some variant throughout the leading economic powers. In spite of the deep structural challenges the new global problems present to it, most immediately the credit, financial, and fiscal crises since 2007-8, neoliberal programmes have only evolved in the sense of deepening. This continuation of the neoliberal project, or neoliberalism 2.0, has begun to apply another round of structural adjustments, most significantly in the form of encouraging new and aggressive incursions by the private sector into what remains of social democratic institutions and services. This is in spite of the immediately negative economic and social effects of such policies. and the longer term fundamental barriers posed by the new global crises. 5. That the forces of right-wing governmental, non-governmental, and corporate power have been able to press forth with neoliberalisation is at least in part a result of the continued paralysis and ineffectual nature of much of what remains of the Left. Thirty years of neoliberalism have rendered most left-leaning political parties bereft of radical thought, hollowed out, and without a popular mandate. At best they have responded to our present crises with calls for a return to a Keynesian economics, in spite of the evidence that the very conditions which enabled post-war social democracy to occur no longer exist. **We cannot return to mass industrial-Fordist labour by fiat, if at all**. Even the neosocialist regimes of South America's Bolivarian Revolution, whilst heartening in their ability to resist the dogmas of contemporary capitalism, remain disappointingly unable to advance an alternative beyond mid-twentieth-century socialism. Organised labour, being systematically weakened by the changes wrought in the neolibera\ project, is sclerotic at an institutional level and-at best-capable only of mildly mitigating the new structural adjustments. But with no systematic approach to building a new economy, or the structural solidarity to push such changes through, for now labour remains relatively impotent. The new social movements which emerged since the end of the Cold War, experiencing a resurgence in the years after 2008, have been similarly unable to devise a new political ideological vision. Instead they .expend considerable energy on internal direct-democratic process and affective self-valorisation over strategic efficacy, and frequently propound a variant of neo-primitivist localism, as if to oppose the abstract violence of globalised capital with the flimsy and ephemeral 'authenticity' of communal immediacy. 6. In the absence of a radically new social, political, organisational, and economic vision, the hegemonic powers of the Right will continue to be able to push forward their narrow-minded imaginary, in the face of any and all evidence. At best, the Left may be able for a time to partially resist some of the worst incursions. But this is to be Canute against an ultimately irresistible tide. To generate a new left global hegemony entails a recovery of lost possible futures, and indeed the recovery of the future as such. 02. I N T E R R E G N U M : ON ACC E L E RATI O N IS M S 1. If any system has been associated with ideas of acceleration it is capitalism. The essential metabolism of capitalism demands economic growth, with competition between individual capitalist entities setting in motion increasing technological developments in an attempt to achieve competitive advantage, all accompanied by increasing social dislocation. In its neoliberal form, its ideological self-presentation is one of liberating the forces of creative destruction, setting free everaccelerating technological and social innovations. 2. The philosopher Nick Land captured this most acutely, with a myopic yet hypnotising belief that capitalist speed alone could generate a global transition towards unparalleled technological singularity. In this visioning of capital, the human can eventually be discarded as mere drag to an abstract planetary intelligence rapidly constructing itself from the bricolaged fragments of former civilisations. However Landian neoliberalism confuses speed with acceleration. We may be moving fast, but only within a strictly defined set of capitalist parameters that themselves never waver. We experience only the increasing speed of a local horizon, a simple brain-dead onrush rather than an acceleration which is also navigational, an experimental process of discovery within a universal space of possibility. It is the latter mode of acceleration which we hold as essential. 3. Even worse. as Deleuze and Guattari recognized, from the very beginning what capitalist speed deterritorializes with one hand, it reterritorializes with the other. Progress becomes constrained within a framework of surplus value, a reserve army of labour. and freefloating capital. Modernity is reduced to statistical measures of economic growth and social innovation becomes encrusted with kitsch remainders from our communal past. Thatcherite-Reaganite deregulation sits comfortably alongside Victorian 'back-to-basics' family and religious values. 4. A deeper tension within neoliberalism is in terms of its self-image as the vehicle of modernity, as literally synonymous with modernisation, whilst promising a future that it is constitutively incapable of providing. Indeed, as neoliberalism has progressed, rather than enabling individual creativity, it has tended towards eliminating cognitive inventiveness in favour of an affective production line of scripted interactions. coupled to global supply chains and a neo-Fordist Eastern production zone. A vanishingly small cognitariat of elite intellectual workers shrinks with each passing year-and increasingly so as algorithmic automation winds its way through the spheres affective and intellectual labour. Neoliberalism, though positing itself as a necessary historical development, was in fact a merely contingent means to ward off the crisis of value that emerged in the 1970s. Inevitably this was a sublimation of the crisis rather than its ultimate overcoming. 5. It is Marx, along with Land, who remains the paradigmatic accelerationist thinker. Contrary to the all-too familiar critique, and even the behaviour of some contemporary Marxians. we must remember that Marx himself used the most advanced theoretical tools and empirical data available in an attempt to fully understand and transform his world. He was not a thinker who resisted modernity, but rather one who sought to analyse and intervene within it, understanding that for all its exploitation and corruption, capitalism remained the most advanced economic system to date. Its gains were not to be reversed, but accelerated beyond the constraints the capitalist value form. 6. Indeed, as even Lenin wrote in the 1918 text 'Left Wing' Childishness: Socialism is inconceivable without large-scale capitalist engineering based on the latest discoveries of modern science. It is inconceivable without planned state organisation which keeps tens of millions of people to the strictest observance of a unified standard in production and distribution. We Marxists have always spoken of this, and it is not worth while wasting two seconds talking to people who do not understand even this (anarchists and a good half of the Left Socialist - Revolutionaries). 7. As Marx was aware, capitalism cannot be identified as the agent of true acceleration. Similarly, the assessment of left politics as antithetical to technosocial acceleration is also, at least in part, a severe misrepresentation. I ndeed, if the political Left is to have a future it must be one in which it **maximally embraces this suppressed accelerationist tendency.**

#### The alternative is to reject the aff in favor of an education politics of accelerationism -- the technological capacities of education in particular should not be abandoned, but *intensified* and *repurposed.* Only re-appropriation of the algorithmic potential of networks, data analytics, and artificial intelligence can save leftist politics from technological ineptitude and radically refashion the education system for emancipatory ends. An acceleration of a global and networked technological insurgency is the only option for an emancipatory future.

**Sellar & Cole 17** (Sam Sellar, Department of Childhood, Youth and Education Studies, Manchester Metropolitan University; & David R. Cole, Centre for Educational Research, School of Education, University of Western Sydney. “Accelerationism: a timely provocation for the critical sociology of education,” *British Journal of Sociology of Education*, 2017 VOL. 38, NO. 1, 38–48)

The Promethean left accelerationism of the 2010s Recent interest in accelerationism constitutes a ‘third wave’ that has sought to legitimise acceleration as a leftist political strategy. There has been a move away from the heretical excesses of libidinal materialism and Land’s anti-human embrace of the transformative forces of capitalism. While first-wave and BRITISH JOURNAL OF SOCIOLOGY OF EDUCATION 43 second-wave accelerationism were somewhat hostile to conventional reproduction of Marxist thought, third-wave accelerationism has looked to Marx’s Prometheanism in order to pursue a rapprochement with the political agendas that Land criticised (see Mackay and Avanessian 2014). Thus, third-wave acclerationism leaves open the ground for a political agenda around the issues that accelerationism addresses through a reconsideration of, for example, material dialectics in the light of an accelerated temporal milieu. Two key developments in accelerationism are particularly significant for our argument here. First, a distinction is now being drawn between Land’s absolute acceleration, which eschewed politics, and a relative acceleration that can be mobilised as part of a broader political strategy. As Williams (2013, 2 original emphasis) argues, ‘Land favoured an absolute process of acceleration and deterritorialization, identifying capitalism as the ultimate agent of history’. There is little to be done politically from this perspective, beyond allying oneself with this deterritorialising process. Absolute acceleration forgoes the potential or desire to orient thought and action according to a set of political coordinates. In contrast, for relative acceleration, deterritorialisation is employed as a tactic within a broader politics. Relative acceleration is thus more conducive to potential cross-fertilisation with research in the social sciences and education than Landian acceleration, due to its retention of a strategic focus on remaking society by breaking down current institutions and in celebrating the impulse to explore and develop the potentialities of rational thought and technological development. Second, the answer to the question of what ought to be accelerated that has been given by some strands of accelerationism is rationalist modernity and technological development, as distinct from capitalism. A **strategic accelerationism** focused on the rationalist transformation of self and world that improves collective life could inform critical sociological analyses of educational practice. This variant of accelerationism is represented, for example, by the writings of Brassier (2014), Negarestani (2014), and Wolfendale (2016). As Mackay and Avanessain explain, for Negarestani: [a]cceleration takes place when and in so far as the human repeatedly affirms its commitment to being impersonally piloted, not by capital, but by a [rational] program which demands that it cede control to collective revision, and which draws it towards an inhuman future that will prove to have ‘always’ been the meaning of the human. (Mackay and Avanessian 2014, 31) Here we see a subtle shift in exactly what might be accelerated, away from the time of capital to the epistemic project of thinking beyond the human, a shift that echoes Nietzsche’s call for the orientation of thought toward the future. Brassier argues that ‘Prometheanism is simply the claim that there is no reason to assume a predetermined limit to what we can achieve or to the ways in which we can transform ourselves and our world’ (2014, 471). This brand of accelerationism perhaps has the most to offer critical educational thought and practice, insofar as it focuses primarily on accelerating normative rationalism as a basis for revising and transforming the human. On this view, commitment to rational programmes provides an alternative to the seduction of desires produced by capital. **The role of education** in this work would be to **develop advanced critical thinking capacities** among students and to **incorporate into curricula the latest knowledge** from fields such as cognitive science, computer science, genetics, and science, technology, engineering and mathematics (STEM) subjects more broadly. Here the term ‘critical’ would gain an additional sense, beyond the emphasis on uncovering systematic social domination that characterises its usage in sociology (Boltanski 2011), to also emphasise the ‘critical’ tipping points at which systems can be transformed and the work required to hasten socio-technical progress towards such points. One area in which the enhancement of cognitive potentials to govern, teach, and learn is being actively explored in education is through the development of new modes of data analysis that are operating in increasingly tight feedback loops with policy-making, pedagogical decisions, and student learning. One common response to such developments in critical education studies **is suspicion**, followed by a **theoretical reflex** response of deconstructing how relations of power are shaped by new technologies. While important, such approaches **tend to leave unexplored other possibilities** for **actively engaging** with **new technological capacities** as potential tools for remaking educational institutions and practices. To understand the impacts of acceleration on education and to demonstrate some possibilities for acceleration as a theoretical framework, we now turn to the example of data-driven educational governance and consider how the accelerationist provocation could encourage critical sociology of education to ask pivotal questions of these developments.Acceleration in education: the example of new data analytics in educational governance In keeping with the theory-fiction genre of much accelerationist writing, we will discuss an example here that is grounded in current empirical circumstances while also speculating about the near future (see Blanchot 2006).1 Following Massumi (2002), we understand this as an ‘exemplary methodology’ that employs detailed examples to test out concepts – in this case, testing concepts drawn from accelerationism in relation to contemporary developments in educational governance. As large-scale quantitative data analyses gain influence in various sites of research and social policy production, critical sociology must become more adept at engaging with the frontiers of computational and information sciences or **risk becoming redundant** (Savage and Burrows 2007). The example we consider here will enable us to consider how developments in information sciences put pressure on the theoretical resources of critical sociology and whether tools from accelerationism may usefully augment these resources. Since the 1950s, education systems, like many fields, have been rapidly developing new infrastructures for managing and analysing data (Sellar 2015). The data upon which education systems now run are combined from many sources, including demographic data collected by governments, administrative data relating to student behaviours such as attendance, and assessment data generated across multiple scales, from the local to the international. With the emergence of new modes of data analytics that enable the identification of correlations within big data sets (Kitchin 2014), some education systems are now developing new capacities for managing and analysing these data to better inform policy and pedagogical decisions. Here we will discuss the case of one Australian state education system – referred to here as System A – that is strategically implementing new data management systems. In many cases, the computational capacities required for powerful new modes of data analytics are, and indeed can only be, provided by large commercial organisations such as Microsoft, which is a major provider of business intelligence platforms. As a result, the education technology market has grown substantially in recent years, with substantial growth occurring particularly in the field of data analytics (Richards and Stebbins 2014). System A now houses their data in large, commercially provided, server farms and uses virtual machines to conduct bespoke queries of large data sets in very short time frames. The results of these analyses can be visualised in ways that ease human comprehension and enable action by policy-makers or educators in schools. Machine learning algorithms have also been introduced to conduct these data analytics, reflecting growing interest in the economic and educational potentials of artificial intelligence in education (for example, Luckin et al. 2016). Machine learning algorithms employ neural networks that ‘learn’ by checking probabilistic guesses against correct answers over multiple iterations to develop and refine abilities such as identifying text, speech, or visual images. We are now reaching the point where algorithms running on virtual machines in remote servers are becoming part of feedback loops between data analysis and decision-making at sites such as System A. Here, analysis of population trends is being undertaken to modulate system-level schooling infrastructure, optimising provision geographically by identifying where to demolish schools and where to build new ones. Further, educators can use mobile devices to run data queries that inform their pedagogical decision-making in very short time frames. The aim in this system is to reach a point of ‘optimisation’ where increasingly tight feedback loops between data analysis, professional development, and pedagogical decision-making contribute to improved learning. It is thus not far-fetched to claim that **artificial intelligence** (AI) is already playing a role in this system and **the aim is to steadily increase its agency.** BRITISH JOURNAL OF SOCIOLOGY OF EDUCATION 45 Two key points are important here. First, the technological capacities that are enabling these developments are generally provided by commercial organisations. Second, the profits of these organisations – education is predicted to be the most profitable industry of the twenty-first century – are being re-invested in further technological development. Education now operates within technonomic time as capitalist profit and technical development are locked into ever tighter feedback loops. The questions that left accelerationist position would ask of these circumstances are: do these technological developments offer the potential to enhance human learning and rationality? Are these developments separable from the growth and involvement of commercial organisations that currently dominate provision? What infrastructures would need to be developed in order to effect such a separation and the independent development of educational technologies? These are not questions that can be answered here in relation to the example of System A, but rather constitute a starting point for a research programme in critical sociology of education that is informed by left accelerationism. For critical sociology to begin from these questions would constitute an important departure from the prevailing theoretical tendencies in the field, which begin from the questions about who wins and who loses from such developments and thus **risk conflating the power inequalities** generated by contemporary capitalism with the p**otentials that inhere in capitalist technological development** (e.g. the capacity for machine learning to accelerate learning in some areas). Suspicion towards data-driven technologies as tools of governance and control is a default position for some critical sociological analyses in education. Moreover, **education** – at all levels and from every perspective – **is readily caught** in the divisions between what Williams and Srnicek (2014) call ‘**folk politics**’ and **accelerationist alternatives**. Most educationalists would feel somewhat ill at ease with the characterisation of being involved with a ‘folk politics of localism’, yet would also probably not want to be classed as accelerationists in the sense that Means understands this movement: … accelerationists, like techno-utopians, believe that [socio-planetary] problems can simply be resolved through accelerating technological fixes such as through the mobilization of digitally networked ‘smart systems’ and geoengineering projects (for instance blasting sulfur into the air in order to cool the planet’s surface temperature to stave off climate change). However, technoscience cannot solve problems that are profoundly social and political in their constitution. (2015, 24) Naïve affirmation of techno-utopian developments is problematic. For example, Beradi (2014, 15) takes a country like South Korea as an example of where the possibly delusionary aspects of techno-capitalism have been fully embraced, and which, coincidentally, has the highest suicide rate in the world. According to Beradi, South Korean youth and the general public, who have been subjected to non-traditional, digitally mediated approaches to education for many years, are ‘constantly gazing at the screens of their smartphones, apparently driven by telepathic transmental signals … [with a] lack of attention to the physical landscape surrounding them’ (2014, 15; original emphasis). Beradi is not making a necessary link between the augmentation of high-tech educational provision and problems with well-being or mental health, but he does raise the spectre of a whole series of subjective consequences of the potential technological overload, entrapment, and conditioning. Critics such as Beradi (2014) suggest caution and the need for in-depth critical analysis of the techno-capitalist power complexes that lie behind such innovations. Beradi links the accelerating subjective time dimension to global financial capitalist exploitation, and the ways in which agency may be conditioned and controlled through time, for example, by debt, credit, the market, and finance structures. We suggest that such critical analysis of the changing time dimension of educational practice is necessary. However, it is possible to combine critical-deconstructive analysis with approaches borrowed from Promethean relative accelerationisms, which are being actively developed by socio-political movements, such as Xenofeminism, that advocate a rational, technological, and scientific response to injustices and negative transformations of the human (e.g. immaterial labour). We argue that developments such as data-driven educational AI could also be engaged from an accelerationist perspective as holding potentials for informing rationalist educational programmes that could improve learning outcomes and reduce inequalities and social domination. 46 S. SELLAR AND D. R. COLE Discussion and conclusion Accelerationism is an emergent, fluid, and diverse intellectual project and its political possibilities are still being explored. Concrete links to the sociology of education and the temporal dimension in educational practice are therefore currently unformed and open for debate. However, we have argued that the value of accelerationism lies in its capacity to provoke and irritate a comfortable, critical-progressive sense of temporality, acting as an antidote to becoming complacent or exhausted in the face of our ‘capitalist realist’ present. Accelerationism thus offers possibilities for the renewal of critical social theory and the analysis of the temporal dimension in education. The theoretical contributions that left accelerationism could make to critical sociology hinge on two key points: the possibility of severing the acceleration of modernity and technological development from capital growth, rather than conflating them and condemning technology on the basis of its commercial substrate; and advocating post-human scientific development and normative rationalism over appeals to ‘nature’ as a basis for ethico-politics. Indeed, left accelerationism takes the Promethean position that if nature is unjust then we should change nature. The challenge for critical sociology of education is the possibility that critique of the negative effects of the intrusion of capitalist time structures in education may not hold any potential to halt or alter the course of capitalism. The global array of interconnected, digital, algorithmic machines that control the flows of capital around the world probably stand beyond such critique and are oblivious to their socio-cultural effects. However, one could cogently argue that a relative acceleration of modernity, technology, and globality, as part of broader efforts to bring about post-capitalism (or even non-capitalism), offer possibilities for working through the techonomic time of capital by selectively accelerating certain of its dimensions while actively seeking to change or ameliorate other of its negative effects. Of course, the potential success of this approach is wildly uncertain and it would require much experimentation. But acknowledging this approach as a strategic possibility could shift debates in critical studies of education into new territories. For example, the ‘opportunity trap’ has been produced by a confluence of educational, technological, and economic developments. However, it also reflects a sense of temporality that has long been evident in critical sociology of education: as a dialectic of progress and reproduction in which the promise of the former is continually undermined by the latter. The new capacities for data analysis described in System A above offer little potential for improving the educational opportunities of young people if they remain tethered to an ‘opportunity bargain’ that fails to acknowledge the transformative force of technomic time on labour and education. Indeed, these capacities risk simply accelerating the problem. However, it may be possible to reframe the problem by beginning from the recognition of the transformative force of techonomic time and asking whether new technical capacities in education could be re-directed to transform education itself and, if so, which actors could viably pursue this aim. From this perspective, critical sociology of education could begin from the question of whether it is possible to accelerate certain tendencies in order to push schooling beyond a critical tipping point of transformation, which we could see as a form of escape from the reproductive logics of present educational forms. Singleton has argued that ‘[i]f a trap is to be escaped by anything other than luck … the escapee itself must change: the thing that escapes the trap is not the thing that was caught in it’ (2014, 504). We see here: … the mark of the accelerationist disposition, encompassing those schools of thought that can suborn a description of the world’s perceived shortcomings, and the corresponding elaboration of how it ought to be in the shape of images of the future, to the logic of how things get done, how freedom is a possibility within this, and how its progressive maximisation can be pursued through the systematic deployment of generative constraints. (Singleton 2014, 507; original emphasis) Here, Singleton points to the possibilities that arise from escaping a sense of accelerated temporality that is structured in terms of techno-utopia. Accelerationism could be reformatted as a part of, and adjacent to, educational practice affected by the accelerating milieu of contemporary capitalism to unlock constraint from within techonomic time. It is only by activating the very energies and formations of escape that one can **emerge from the narrowness of established modes of critique** and longstanding institutional forms of education to experiment strategically with alternatives. The central distinction that must be kept in mind when borrowing concepts from accelerationism is that between affirming an inherently apolitical absolute deterritorialisation and a tactical, relative deterritorialisation guided by an overarching normative strategy. As Brassier (2010) has argued, ‘if you have no strategy, someone with a strategy will soon commandeer your tactics’. The question for critical sociology of education, insofar as it might learn from accelerationist thought experiments, is whether a strategic programme can be forged that actively engages with technological developments such as machine learning and predictive analytics in order to put them to work in service of a strategy for accelerating cognitive development without being commandeered by the commercial forces that are rapidly colonising education.

### 1NC—Economies of Pedagogy

#### The affirmative valorizes a ‘folk politics’ of immediacy and localism that plays directly into the hand of neoliberal hegemony --- the objects of their anthropological study may be valuable in the short term, but naturalize a short-sighted routine of un-scalable and momentary pockets of resistance that leave the hegemony of capitalist realism intact. Plus, they’re just an FYI

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

What is folk politics? Folk politics names a constellation of ideas and intuitions within the contemporary left that informs the common-sense ways of organising, acting and thinking politics. It is a set of strategic assumptions that threatens to debilitate the left, rendering it unable to scale up, create lasting change or expand beyond particular interests. Leftist movements under the sway of folk politics are not only unlikely to be successful – they are in fact **incapable of transforming capitalism**. The term itself draws upon two senses of ‘folk’. First, it evokes critiques of folk psychology which argue that our intuitive conceptions of the world are both historically constructed and often mistaken. 11 Secondly, it refers to ‘folk’ as the locus of the small-scale, the authentic, the traditional and the natural. Both of these dimensions are implied in the idea of folk politics. As a first approximation, we can therefore define folk politics as a collective and historically constructed political common sense that has become out of joint with the actual mechanisms of power. As our political, economic, social and technological world changes, tactics and strategies which were previously capable of transforming collective power into emancipatory gains have now become drained of their effectiveness. As the common sense of today’s left, folk politics often operates intuitively, uncritically and unconsciously. Yet common sense is also historical and mutable. It is worth recalling that today’s familiar forms of organisation and tactics, far from being natural or pregiven, have instead been developed over time in response to specific political problems. Petitions, occupations, strikes, vanguard parties, affinity groups, trade unions: all arose out of particular historical conditions. 12 Yet the fact that certain ways of organising and acting were once useful does not guarantee their continued relevance. Many of the tactics and organisational structures that dominate the contemporary left are responses to the experience of state communism, exclusionary trade unions, and the collapse of social democratic parties. Yet the ideas that made sense in the wake of those moments no longer present effective tools for political transformation. Our world has moved on, becoming more complex, abstract, nonlinear and global than ever before. Against the abstraction and inhumanity of capitalism, folk politics aims to bring politics down to the ‘human scale’ by emphasising **temporal, spatial and conceptual immediacy**. At its heart, folk politics is the guiding intuition that immediacy is always better and often more authentic, with the corollary being a deep suspicion of abstraction and mediation. In terms of temporal immediacy, contemporary folk politics typically remains reactive (responding to actions initiated by corporations and governments, rather than initiating actions); 13 ignores long-term strategic goals in favour of tactics (mobilising around single-issue politics or emphasising process); 14 prefers practices that are often inherently fleeting (such as occupations and temporary autonomous zones); 15 chooses the familiarities of the past over the unknowns of the future (for instance, the repeated dreams of a return to ‘good’ Keynesian capitalism); 16 and expresses itself as a predilection for the voluntarist and spontaneous over the institutional (as in the romanticisation of rioting and insurrection). 17 In terms of spatial immediacy, folk politics privileges the local as the site of authenticity (as in the 100-miles diet or local currencies); 18 habitually chooses the small over the large (as in the veneration of small-scale communities or local businesses); 19 favours projects that are un-scalable beyond a small community (for instance, general assemblies and direct democracy); 20 and often rejects the project of hegemony, valuing **withdrawal or exit** rather than building a broad counter-hegemony. 21 Likewise, folk politics prefers that actions be taken by participants themselves – in its emphasis on direct action, for example – and sees decision-making as something to be carried out by each individual rather than by any representative. The problems of scale and extension are either ignored or smoothed over in folk-political thinking. Finally, in terms of conceptual immediacy, there is a preference for the everyday over the structural, valorising personal experience over systematic thinking; for feeling over thinking, emphasising individual suffering, or the sensations of enthusiasm and anger experienced during political actions; for the particular over the universal, seeing the latter as intrinsically totalitarian; and for the ethical over the political – as in ethical consumerism, or moralising critiques of greedy bankers. 22 Organisations and communities are to be transparent, rejecting in advance any conceptual mediation, or even modest amounts of complexity. The classic images of universal emancipation and global change have been transformed into a prioritisation of the suffering of the particular and the authenticity of the local. As a result, any process of constructing a universal politics is rejected from the outset. Understood in these ways, we can detect traces of folk politics in organisations and movements like Occupy, Spain’s 15M, student occupations, left communist insurrectionists like Tiqqun and the Invisible Committee, most forms of horizontalism, the Zapatistas, and contemporary anarchist-tinged politics, as well as a variety of other trends like political localism, the slow-food movement, and ethical consumerism, among many others. But no single position embodies all of these dispositions, which leads us to a first qualification: as an uncritical and often unconscious common sense, folk politics comes to be instantiated to varying degrees in concrete political positions. That is to say, folk politics does not name an explicit position, but only an implicit tendency. The ideas that characterise this tendency are widely dispersed throughout the contemporary left, but some positions are more folk-political than others. This brings us to a second important qualification: the problem with folk politics is not that it starts from the local; all politics begins from the local. The problem is rather that folk-political thinking is content to remain at (and even privileges) that level – of the transient, the small-scale, the unmediated and the particular. It takes these to be sufficient rather than simply necessary moments. Therefore, the point is not simply to reject folk politics. Folk politics is a necessary component of any successful political project, but it can only be a starting point. A third qualification is that folk politics is only a problem for particular types of projects: those that seek to move beyond capitalism. Folk-political thinking can be perfectly well adapted to other political projects: projects aimed solely at resistance, movements organised around local issues, and smallscale projects. Political movements based around keeping a hospital open or preventing evictions are all admirable, but they are importantly different from movements trying to challenge neoliberal capitalism. The idea that one organisation, tactic or strategy applies equally well to any sort of struggle is one of the most pervasive and damaging beliefs among today’s left. Strategic reflection – on means and ends, enemies and allies – is necessary before approaching any political project. Given the nature of global capitalism, any postcapitalist project will require an ambitious, abstract, mediated, complex and global approach – one that folk-political approaches are incapable of providing. Combining these qualifications, we can therefore say that folk politics is necessary but insufficient for a postcapitalist political project. By emphasising and remaining at the level of the immediate, folk politics lacks the tools to transform neoliberalism into something else. While folk politics can undoubtedly make important interventions in local struggles, we deceive ourselves when we think these are turning the tide against global capitalism. They represent, at best, temporary respite against its onslaught. The project of this book is to begin outlining an alternative – a way for the left to navigate from the local to the global, and synthesise the particular with the universal. Such an alternative cannot simply be a conservative reversion to the working-class politics of the last century. It must instead combine an updated way of thinking politics (a shift from immediacy to structural analysis) with an upgraded means of doing politics (which directs action towards building platforms and expanding scales).

#### The Survivors’ fragmentary research experiment is all too easily incorporated into capitalist relations – their endless play with particularity precludes the totalizing counter-hegemony required to reckon with capitalist institutional inertia

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

Any elaboration of an alternative image of progress must inevitably face up to the problem of universalism – the idea that certain values, ideas and goals may hold across all cultures. 31 Capitalism, as we have argued, is an expansionary universal that weaves itself through multiple cultural fabrics, reworking them as it goes along. **Anything less than a competing universal** will end up being **smothered** by an **all-embracing series of capitalist relations**. 32 Various particularisms – localised, specific forms of politics and culture – **cohabitate with ease** in the world of capitalism. The list of possibilities continues to grow as capitalism differentiates into Chinese capitalism, American capitalism, Brazilian capitalism, Indian capitalism, Nigerian capitalism, and so on. If defending a particularism is insufficient, it is because history shows us that the global space of universalism is a space of conflict, with each contender requiring the relative provincialisation of its competitors. 33 If the left is to compete with global capitalism, it needs to rethink the project of universalism. But to invoke such an idea is to call forth a number of fundamental critiques directed against universalism in recent decades. While a universal politics must move beyond any local struggles, generalising itself at the global scale and across cultural variations, it is for these very reasons that it has been criticised. 34 As a matter of historical record, European modernity was inseparable from its ‘dark side’ – a vast network of exploited colonial dominions, the genocide of indigenous peoples, the slave trade, and the plundering of colonised nations’ resources. 35 In this conquest, Europe presented itself as embodying the universal way of life. All other peoples were simply residual particulars that would inevitably come to be subsumed under the European way – even if this required ruthless physical violence and cognitive assault to guarantee the outcome. Linked to this was a belief that the universal was equivalent to the homogeneous. Differences between cultures would therefore be erased in the process of particulars being subsumed under the universal, creating a culture modelled in the image of European civilisation. This was a universalism indistinguishable from pure chauvinism. Throughout this process, Europe dissimulated its own parochial position by deploying a series of mechanisms to efface the subjects who made these claims – white, heterosexual, propertyowning males. Europe and its intellectuals abstracted away from their location and identity, presenting their claims as grounded in a ‘view from nowhere’. 36 This perspective was taken to be untarnished by racial, sexual, national or any other particularities, providing the basis for both the alleged universality of Europe’s claims and the illegitimacy of other perspectives. While Europeans could speak and embody the universal, other cultures could only be represented as particular and parochial. Universalism has therefore been central to the worst aspects of modernity’s history. Given this heritage, it might seem that the simplest response would be to rescind the universal from our conceptual arsenal. But, for all the difficulties with the idea, it **nevertheless remains necessary.** The problem is partly that one cannot simply reject the concept of the universal without generating other significant problems. Most notably, giving up on the category leaves us with nothing but a series of diverse particulars. There appears no way to build meaningful solidarity in the absence of some common factor. The universal also operates as a transcendent ideal – never satisfied with any particular embodiment, and always open to striving for better. 37 It contains the conceptual impulse to undo its own limits. Rejecting this category also risks **Orientalising other cultures, transforming them into an exotic Other**. If there are only particularisms, and provincial Europe is associated with reason, science, progress and freedom, then the unpleasant implication is that non- Western cultures must be devoid of these. The old Orientalist divides are inadvertently sustained in the name of a misguided anti-universalism. On the other hand, one risks licensing all sorts of oppressions as simply the inevitable consequence of plural cultural forms. All the problems of cultural relativism reappear if there are no criteria to discern which global knowledges, politics and practices support a politics of emancipation. Given all of this, it is unsurprising to see aspects of universalism pop up throughout history and across cultures, 38 to see even its critics begrudgingly accept its necessity, 39 and to see a variety of attempts to revise the category. 40 To maintain this necessary conceptual tool, the universal must be identified not with an established set of principles and values, but rather with an empty placeholder that is impossible to fill definitively. Universals emerge when a particular comes to occupy this position through hegemonic struggle: 41 the particular (‘Europe’) comes to represent itself as the universal (‘global’). It is not simply a false universal, though, as there is a mutual contamination: the universal becomes embodied in the particular, while the particular loses some of its specificities in functioning as the universal. Yet there can never be a fully achieved universalism, and universals are therefore always open to contestation from other universals. This is what we will later outline in politico-strategic terms as counter-hegemony – a project aimed at subverting an existing universalism in favour of a new order. This leads us to our second point – as counter-hegemonic, universals can have a subversive and liberating strategic function. On the one hand, a universal makes an unconditional demand – everything must be placed under its rule. 42 Yet, on the other hand, universalism is never an achieved project (even capitalism remains incomplete). This tension renders any established hegemonic structure open to contestation and enables universals to function as **insurrectionary vectors against exclusions.** For example, the concept of universal human rights, problematic as it may be, has been put to use by numerous movements, ranging from local housing struggles to international justice for war crimes. Its universal and unconditional demand has been mobilised in order to highlight those who are left out of its protections and rights. Similarly, feminists have criticised certain concepts as exclusionary of women and mobilised universal claims against their constraints, as in the use of the universal idea that ‘all humans are equal’. In such cases, the particular (‘woman’) becomes a way to prosecute a critique against an existing universal (‘humanity’). Meanwhile, the previously established universal (‘humanity’) becomes revealed as a particular (‘man’). 43 These examples show that universals can be revitalised by the struggles that both challenge and elucidate them. In this regard, ‘to appeal to universalism as a way of asserting the superiority of Western culture is to betray universality, but to appeal to universalism as a way of dismantling the superiority of the West is to realize it’. 44 Universalism, on this account, is the product of politics, not a transcendent judge standing above the fray. We can turn now to one final aspect of universalism, which is its heterogeneous nature. 45 As capitalism makes clear, universalism does not entail homogeneity – it does not necessarily involve converting diverse things into the same kind of thing. In fact, the power of capitalism is precisely its versatility in the face of changing conditions on the ground and its capacity to accommodate difference. A similar prospect must also hold for any leftist universal – it must be one that integrates difference rather than erasing it. What then does all of this mean for the project of modernity? It means that any particular image of modernity must be open to co-creation, and further transformation and alteration. And in a globalised world where different peoples necessarily co-exist, it means building systems to live in common despite the plurality of ways of life. Contrary to Eurocentric accounts and classic images of universalism, it must recognise the agency of those outside Europe, and the necessity of their voices in building **truly planetary and universal futures**. The universal, then, is an empty placeholder that hegemonic particulars (specific demands, ideals and collectives) come to occupy. It can operate as a subversive and emancipatory vector of change with respect to established universalisms, and it is heterogeneous and includes differences, rather than eliminating them.

#### The impact is extinction from warfare and climate change – only leftist sociotechnical hegemony can un-cancel the future.

**Srnicek & Williams 13** (Nick Srnicek, Theorist and activist, Alex Williams, PhD student at the University of East London, C. Derick Varn and Dario Cankovich, North Star, “#Accelerate: Manifesto for an Accelerationist Politics,” *#ACCELERATE: The Accelerationist Reader)*

0 1 . I NT R O D U CTI O N : ON T H E C O N J U N CT U R E 1 . At the beginning of the second decade of the twenty-first century, global civilization faces a new breed of cataclysm. These coming apocalypses ridicule the norms and organisational structures of the politics which were forged in the birth of the nation-state, the rise of capitalism, and a twentieth century of unprecedented wars. 2. Most significant is the **breakdown of the planetary climatic system**. In time, this threatens the continued existence of the present global human population. Though this is the most critical of the threats which face humanity, a series of lesser but potentially equally destabilising problems exist alongside and intersect with it. Terminal resource depletion, especially in water and energy reserves, offers the prospect of mass starvation, collapsing economic paradigms, and new hot and cold wars. Continued financial crisis has led governments to embrace the paralyzing death spiral policies of austerity, privatisation of social welfare services, mass unemployment, and stagnating wages. Increasing automation in production processes-including 'intellectual labour'-is evidence of the secular crisis of capitalism, soon to render it incapable of maintaining current standards of living for even the former middle classes of the global north. 3. In contrast to these ever-accelerating catastrophes, today's politics is beset by an **inability** to generate the new ideas and modes of organisation necessary to transform our societies to confront and resolve the coming annihilations. While crisis gathers force and speed, politics withers and retreats. In this paralysis of the political imaginary, **the future has been cancelled**. 4. Since 1979, the hegemonic global political ideology has been neoliberalism, found in some variant throughout the leading economic powers. In spite of the deep structural challenges the new global problems present to it, most immediately the credit, financial, and fiscal crises since 2007-8, neoliberal programmes have only evolved in the sense of deepening. This continuation of the neoliberal project, or neoliberalism 2.0, has begun to apply another round of structural adjustments, most significantly in the form of encouraging new and aggressive incursions by the private sector into what remains of social democratic institutions and services. This is in spite of the immediately negative economic and social effects of such policies. and the longer term fundamental barriers posed by the new global crises. 5. That the forces of right-wing governmental, non-governmental, and corporate power have been able to press forth with neoliberalisation is at least in part a result of the continued paralysis and ineffectual nature of much of what remains of the Left. Thirty years of neoliberalism have rendered most left-leaning political parties bereft of radical thought, hollowed out, and without a popular mandate. At best they have responded to our present crises with calls for a return to a Keynesian economics, in spite of the evidence that the very conditions which enabled post-war social democracy to occur no longer exist. **We cannot return to mass industrial-Fordist labour by fiat, if at all**. Even the neosocialist regimes of South America's Bolivarian Revolution, whilst heartening in their ability to resist the dogmas of contemporary capitalism, remain disappointingly unable to advance an alternative beyond mid-twentieth-century socialism. Organised labour, being systematically weakened by the changes wrought in the neolibera\ project, is sclerotic at an institutional level and-at best-capable only of mildly mitigating the new structural adjustments. But with no systematic approach to building a new economy, or the structural solidarity to push such changes through, for now labour remains relatively impotent. The new social movements which emerged since the end of the Cold War, experiencing a resurgence in the years after 2008, have been similarly unable to devise a new political ideological vision. Instead they .expend considerable energy on internal direct-democratic process and affective self-valorisation over strategic efficacy, and frequently propound a variant of neo-primitivist localism, as if to oppose the abstract violence of globalised capital with the flimsy and ephemeral 'authenticity' of communal immediacy. 6. In the absence of a radically new social, political, organisational, and economic vision, the hegemonic powers of the Right will continue to be able to push forward their narrow-minded imaginary, in the face of any and all evidence. At best, the Left may be able for a time to partially resist some of the worst incursions. But this is to be Canute against an ultimately irresistible tide. To generate a new left global hegemony entails a recovery of lost possible futures, and indeed the recovery of the future as such. 02. I N T E R R E G N U M : ON ACC E L E RATI O N IS M S 1. If any system has been associated with ideas of acceleration it is capitalism. The essential metabolism of capitalism demands economic growth, with competition between individual capitalist entities setting in motion increasing technological developments in an attempt to achieve competitive advantage, all accompanied by increasing social dislocation. In its neoliberal form, its ideological self-presentation is one of liberating the forces of creative destruction, setting free everaccelerating technological and social innovations. 2. The philosopher Nick Land captured this most acutely, with a myopic yet hypnotising belief that capitalist speed alone could generate a global transition towards unparalleled technological singularity. In this visioning of capital, the human can eventually be discarded as mere drag to an abstract planetary intelligence rapidly constructing itself from the bricolaged fragments of former civilisations. However Landian neoliberalism confuses speed with acceleration. We may be moving fast, but only within a strictly defined set of capitalist parameters that themselves never waver. We experience only the increasing speed of a local horizon, a simple brain-dead onrush rather than an acceleration which is also navigational, an experimental process of discovery within a universal space of possibility. It is the latter mode of acceleration which we hold as essential. 3. Even worse. as Deleuze and Guattari recognized, from the very beginning what capitalist speed deterritorializes with one hand, it reterritorializes with the other. Progress becomes constrained within a framework of surplus value, a reserve army of labour. and freefloating capital. Modernity is reduced to statistical measures of economic growth and social innovation becomes encrusted with kitsch remainders from our communal past. Thatcherite-Reaganite deregulation sits comfortably alongside Victorian 'back-to-basics' family and religious values. 4. A deeper tension within neoliberalism is in terms of its self-image as the vehicle of modernity, as literally synonymous with modernisation, whilst promising a future that it is constitutively incapable of providing. Indeed, as neoliberalism has progressed, rather than enabling individual creativity, it has tended towards eliminating cognitive inventiveness in favour of an affective production line of scripted interactions. coupled to global supply chains and a neo-Fordist Eastern production zone. A vanishingly small cognitariat of elite intellectual workers shrinks with each passing year-and increasingly so as algorithmic automation winds its way through the spheres affective and intellectual labour. Neoliberalism, though positing itself as a necessary historical development, was in fact a merely contingent means to ward off the crisis of value that emerged in the 1970s. Inevitably this was a sublimation of the crisis rather than its ultimate overcoming. 5. It is Marx, along with Land, who remains the paradigmatic accelerationist thinker. Contrary to the all-too familiar critique, and even the behaviour of some contemporary Marxians. we must remember that Marx himself used the most advanced theoretical tools and empirical data available in an attempt to fully understand and transform his world. He was not a thinker who resisted modernity, but rather one who sought to analyse and intervene within it, understanding that for all its exploitation and corruption, capitalism remained the most advanced economic system to date. Its gains were not to be reversed, but accelerated beyond the constraints the capitalist value form. 6. Indeed, as even Lenin wrote in the 1918 text 'Left Wing' Childishness: Socialism is inconceivable without large-scale capitalist engineering based on the latest discoveries of modern science. It is inconceivable without planned state organisation which keeps tens of millions of people to the strictest observance of a unified standard in production and distribution. We Marxists have always spoken of this, and it is not worth while wasting two seconds talking to people who do not understand even this (anarchists and a good half of the Left Socialist - Revolutionaries). 7. As Marx was aware, capitalism cannot be identified as the agent of true acceleration. Similarly, the assessment of left politics as antithetical to technosocial acceleration is also, at least in part, a severe misrepresentation. I ndeed, if the political Left is to have a future it must be one in which it **maximally embraces this suppressed accelerationist tendency.**

#### The alternative is to reject the aff in favor of an education politics of accelerationism -- the technological capacities of education in particular should not be abandoned, but *intensified* and *repurposed.* Only re-appropriation of the algorithmic potential of networks, data analytics, and artificial intelligence can save leftist politics from technological ineptitude and radically refashion the education system for emancipatory ends. An acceleration of a global and networked technological insurgency is the only option for an emancipatory future.

**Sellar & Cole 17** (Sam Sellar, Department of Childhood, Youth and Education Studies, Manchester Metropolitan University; & David R. Cole, Centre for Educational Research, School of Education, University of Western Sydney. “Accelerationism: a timely provocation for the critical sociology of education,” *British Journal of Sociology of Education*, 2017 VOL. 38, NO. 1, 38–48)

The Promethean left accelerationism of the 2010s Recent interest in accelerationism constitutes a ‘third wave’ that has sought to legitimise acceleration as a leftist political strategy. There has been a move away from the heretical excesses of libidinal materialism and Land’s anti-human embrace of the transformative forces of capitalism. While first-wave and BRITISH JOURNAL OF SOCIOLOGY OF EDUCATION 43 second-wave accelerationism were somewhat hostile to conventional reproduction of Marxist thought, third-wave accelerationism has looked to Marx’s Prometheanism in order to pursue a rapprochement with the political agendas that Land criticised (see Mackay and Avanessian 2014). Thus, third-wave acclerationism leaves open the ground for a political agenda around the issues that accelerationism addresses through a reconsideration of, for example, material dialectics in the light of an accelerated temporal milieu. Two key developments in accelerationism are particularly significant for our argument here. First, a distinction is now being drawn between Land’s absolute acceleration, which eschewed politics, and a relative acceleration that can be mobilised as part of a broader political strategy. As Williams (2013, 2 original emphasis) argues, ‘Land favoured an absolute process of acceleration and deterritorialization, identifying capitalism as the ultimate agent of history’. There is little to be done politically from this perspective, beyond allying oneself with this deterritorialising process. Absolute acceleration forgoes the potential or desire to orient thought and action according to a set of political coordinates. In contrast, for relative acceleration, deterritorialisation is employed as a tactic within a broader politics. Relative acceleration is thus more conducive to potential cross-fertilisation with research in the social sciences and education than Landian acceleration, due to its retention of a strategic focus on remaking society by breaking down current institutions and in celebrating the impulse to explore and develop the potentialities of rational thought and technological development. Second, the answer to the question of what ought to be accelerated that has been given by some strands of accelerationism is rationalist modernity and technological development, as distinct from capitalism. A **strategic accelerationism** focused on the rationalist transformation of self and world that improves collective life could inform critical sociological analyses of educational practice. This variant of accelerationism is represented, for example, by the writings of Brassier (2014), Negarestani (2014), and Wolfendale (2016). As Mackay and Avanessain explain, for Negarestani: [a]cceleration takes place when and in so far as the human repeatedly affirms its commitment to being impersonally piloted, not by capital, but by a [rational] program which demands that it cede control to collective revision, and which draws it towards an inhuman future that will prove to have ‘always’ been the meaning of the human. (Mackay and Avanessian 2014, 31) Here we see a subtle shift in exactly what might be accelerated, away from the time of capital to the epistemic project of thinking beyond the human, a shift that echoes Nietzsche’s call for the orientation of thought toward the future. Brassier argues that ‘Prometheanism is simply the claim that there is no reason to assume a predetermined limit to what we can achieve or to the ways in which we can transform ourselves and our world’ (2014, 471). This brand of accelerationism perhaps has the most to offer critical educational thought and practice, insofar as it focuses primarily on accelerating normative rationalism as a basis for revising and transforming the human. On this view, commitment to rational programmes provides an alternative to the seduction of desires produced by capital. **The role of education** in this work would be to **develop advanced critical thinking capacities** among students and to **incorporate into curricula the latest knowledge** from fields such as cognitive science, computer science, genetics, and science, technology, engineering and mathematics (STEM) subjects more broadly. Here the term ‘critical’ would gain an additional sense, beyond the emphasis on uncovering systematic social domination that characterises its usage in sociology (Boltanski 2011), to also emphasise the ‘critical’ tipping points at which systems can be transformed and the work required to hasten socio-technical progress towards such points. One area in which the enhancement of cognitive potentials to govern, teach, and learn is being actively explored in education is through the development of new modes of data analysis that are operating in increasingly tight feedback loops with policy-making, pedagogical decisions, and student learning. One common response to such developments in critical education studies **is suspicion**, followed by a **theoretical reflex** response of deconstructing how relations of power are shaped by new technologies. While important, such approaches **tend to leave unexplored other possibilities** for **actively engaging** with **new technological capacities** as potential tools for remaking educational institutions and practices. To understand the impacts of acceleration on education and to demonstrate some possibilities for acceleration as a theoretical framework, we now turn to the example of data-driven educational governance and consider how the accelerationist provocation could encourage critical sociology of education to ask pivotal questions of these developments.Acceleration in education: the example of new data analytics in educational governance In keeping with the theory-fiction genre of much accelerationist writing, we will discuss an example here that is grounded in current empirical circumstances while also speculating about the near future (see Blanchot 2006).1 Following Massumi (2002), we understand this as an ‘exemplary methodology’ that employs detailed examples to test out concepts – in this case, testing concepts drawn from accelerationism in relation to contemporary developments in educational governance. As large-scale quantitative data analyses gain influence in various sites of research and social policy production, critical sociology must become more adept at engaging with the frontiers of computational and information sciences or **risk becoming redundant** (Savage and Burrows 2007). The example we consider here will enable us to consider how developments in information sciences put pressure on the theoretical resources of critical sociology and whether tools from accelerationism may usefully augment these resources. Since the 1950s, education systems, like many fields, have been rapidly developing new infrastructures for managing and analysing data (Sellar 2015). The data upon which education systems now run are combined from many sources, including demographic data collected by governments, administrative data relating to student behaviours such as attendance, and assessment data generated across multiple scales, from the local to the international. With the emergence of new modes of data analytics that enable the identification of correlations within big data sets (Kitchin 2014), some education systems are now developing new capacities for managing and analysing these data to better inform policy and pedagogical decisions. Here we will discuss the case of one Australian state education system – referred to here as System A – that is strategically implementing new data management systems. In many cases, the computational capacities required for powerful new modes of data analytics are, and indeed can only be, provided by large commercial organisations such as Microsoft, which is a major provider of business intelligence platforms. As a result, the education technology market has grown substantially in recent years, with substantial growth occurring particularly in the field of data analytics (Richards and Stebbins 2014). System A now houses their data in large, commercially provided, server farms and uses virtual machines to conduct bespoke queries of large data sets in very short time frames. The results of these analyses can be visualised in ways that ease human comprehension and enable action by policy-makers or educators in schools. Machine learning algorithms have also been introduced to conduct these data analytics, reflecting growing interest in the economic and educational potentials of artificial intelligence in education (for example, Luckin et al. 2016). Machine learning algorithms employ neural networks that ‘learn’ by checking probabilistic guesses against correct answers over multiple iterations to develop and refine abilities such as identifying text, speech, or visual images. We are now reaching the point where algorithms running on virtual machines in remote servers are becoming part of feedback loops between data analysis and decision-making at sites such as System A. Here, analysis of population trends is being undertaken to modulate system-level schooling infrastructure, optimising provision geographically by identifying where to demolish schools and where to build new ones. Further, educators can use mobile devices to run data queries that inform their pedagogical decision-making in very short time frames. The aim in this system is to reach a point of ‘optimisation’ where increasingly tight feedback loops between data analysis, professional development, and pedagogical decision-making contribute to improved learning. It is thus not far-fetched to claim that **artificial intelligence** (AI) is already playing a role in this system and **the aim is to steadily increase its agency.** BRITISH JOURNAL OF SOCIOLOGY OF EDUCATION 45 Two key points are important here. First, the technological capacities that are enabling these developments are generally provided by commercial organisations. Second, the profits of these organisations – education is predicted to be the most profitable industry of the twenty-first century – are being re-invested in further technological development. Education now operates within technonomic time as capitalist profit and technical development are locked into ever tighter feedback loops. The questions that left accelerationist position would ask of these circumstances are: do these technological developments offer the potential to enhance human learning and rationality? Are these developments separable from the growth and involvement of commercial organisations that currently dominate provision? What infrastructures would need to be developed in order to effect such a separation and the independent development of educational technologies? These are not questions that can be answered here in relation to the example of System A, but rather constitute a starting point for a research programme in critical sociology of education that is informed by left accelerationism. For critical sociology to begin from these questions would constitute an important departure from the prevailing theoretical tendencies in the field, which begin from the questions about who wins and who loses from such developments and thus **risk conflating the power inequalities** generated by contemporary capitalism with the p**otentials that inhere in capitalist technological development** (e.g. the capacity for machine learning to accelerate learning in some areas). Suspicion towards data-driven technologies as tools of governance and control is a default position for some critical sociological analyses in education. Moreover, **education** – at all levels and from every perspective – **is readily caught** in the divisions between what Williams and Srnicek (2014) call ‘**folk politics**’ and **accelerationist alternatives**. Most educationalists would feel somewhat ill at ease with the characterisation of being involved with a ‘folk politics of localism’, yet would also probably not want to be classed as accelerationists in the sense that Means understands this movement: … accelerationists, like techno-utopians, believe that [socio-planetary] problems can simply be resolved through accelerating technological fixes such as through the mobilization of digitally networked ‘smart systems’ and geoengineering projects (for instance blasting sulfur into the air in order to cool the planet’s surface temperature to stave off climate change). However, technoscience cannot solve problems that are profoundly social and political in their constitution. (2015, 24) Naïve affirmation of techno-utopian developments is problematic. For example, Beradi (2014, 15) takes a country like South Korea as an example of where the possibly delusionary aspects of techno-capitalism have been fully embraced, and which, coincidentally, has the highest suicide rate in the world. According to Beradi, South Korean youth and the general public, who have been subjected to non-traditional, digitally mediated approaches to education for many years, are ‘constantly gazing at the screens of their smartphones, apparently driven by telepathic transmental signals … [with a] lack of attention to the physical landscape surrounding them’ (2014, 15; original emphasis). Beradi is not making a necessary link between the augmentation of high-tech educational provision and problems with well-being or mental health, but he does raise the spectre of a whole series of subjective consequences of the potential technological overload, entrapment, and conditioning. Critics such as Beradi (2014) suggest caution and the need for in-depth critical analysis of the techno-capitalist power complexes that lie behind such innovations. Beradi links the accelerating subjective time dimension to global financial capitalist exploitation, and the ways in which agency may be conditioned and controlled through time, for example, by debt, credit, the market, and finance structures. We suggest that such critical analysis of the changing time dimension of educational practice is necessary. However, it is possible to combine critical-deconstructive analysis with approaches borrowed from Promethean relative accelerationisms, which are being actively developed by socio-political movements, such as Xenofeminism, that advocate a rational, technological, and scientific response to injustices and negative transformations of the human (e.g. immaterial labour). We argue that developments such as data-driven educational AI could also be engaged from an accelerationist perspective as holding potentials for informing rationalist educational programmes that could improve learning outcomes and reduce inequalities and social domination. 46 S. SELLAR AND D. R. COLE Discussion and conclusion Accelerationism is an emergent, fluid, and diverse intellectual project and its political possibilities are still being explored. Concrete links to the sociology of education and the temporal dimension in educational practice are therefore currently unformed and open for debate. However, we have argued that the value of accelerationism lies in its capacity to provoke and irritate a comfortable, critical-progressive sense of temporality, acting as an antidote to becoming complacent or exhausted in the face of our ‘capitalist realist’ present. Accelerationism thus offers possibilities for the renewal of critical social theory and the analysis of the temporal dimension in education. The theoretical contributions that left accelerationism could make to critical sociology hinge on two key points: the possibility of severing the acceleration of modernity and technological development from capital growth, rather than conflating them and condemning technology on the basis of its commercial substrate; and advocating post-human scientific development and normative rationalism over appeals to ‘nature’ as a basis for ethico-politics. Indeed, left accelerationism takes the Promethean position that if nature is unjust then we should change nature. The challenge for critical sociology of education is the possibility that critique of the negative effects of the intrusion of capitalist time structures in education may not hold any potential to halt or alter the course of capitalism. The global array of interconnected, digital, algorithmic machines that control the flows of capital around the world probably stand beyond such critique and are oblivious to their socio-cultural effects. However, one could cogently argue that a relative acceleration of modernity, technology, and globality, as part of broader efforts to bring about post-capitalism (or even non-capitalism), offer possibilities for working through the techonomic time of capital by selectively accelerating certain of its dimensions while actively seeking to change or ameliorate other of its negative effects. Of course, the potential success of this approach is wildly uncertain and it would require much experimentation. But acknowledging this approach as a strategic possibility could shift debates in critical studies of education into new territories. For example, the ‘opportunity trap’ has been produced by a confluence of educational, technological, and economic developments. However, it also reflects a sense of temporality that has long been evident in critical sociology of education: as a dialectic of progress and reproduction in which the promise of the former is continually undermined by the latter. The new capacities for data analysis described in System A above offer little potential for improving the educational opportunities of young people if they remain tethered to an ‘opportunity bargain’ that fails to acknowledge the transformative force of technomic time on labour and education. Indeed, these capacities risk simply accelerating the problem. However, it may be possible to reframe the problem by beginning from the recognition of the transformative force of techonomic time and asking whether new technical capacities in education could be re-directed to transform education itself and, if so, which actors could viably pursue this aim. From this perspective, critical sociology of education could begin from the question of whether it is possible to accelerate certain tendencies in order to push schooling beyond a critical tipping point of transformation, which we could see as a form of escape from the reproductive logics of present educational forms. Singleton has argued that ‘[i]f a trap is to be escaped by anything other than luck … the escapee itself must change: the thing that escapes the trap is not the thing that was caught in it’ (2014, 504). We see here: … the mark of the accelerationist disposition, encompassing those schools of thought that can suborn a description of the world’s perceived shortcomings, and the corresponding elaboration of how it ought to be in the shape of images of the future, to the logic of how things get done, how freedom is a possibility within this, and how its progressive maximisation can be pursued through the systematic deployment of generative constraints. (Singleton 2014, 507; original emphasis) Here, Singleton points to the possibilities that arise from escaping a sense of accelerated temporality that is structured in terms of techno-utopia. Accelerationism could be reformatted as a part of, and adjacent to, educational practice affected by the accelerating milieu of contemporary capitalism to unlock constraint from within techonomic time. It is only by activating the very energies and formations of escape that one can **emerge from the narrowness of established modes of critique** and longstanding institutional forms of education to experiment strategically with alternatives. The central distinction that must be kept in mind when borrowing concepts from accelerationism is that between affirming an inherently apolitical absolute deterritorialisation and a tactical, relative deterritorialisation guided by an overarching normative strategy. As Brassier (2010) has argued, ‘if you have no strategy, someone with a strategy will soon commandeer your tactics’. The question for critical sociology of education, insofar as it might learn from accelerationist thought experiments, is whether a strategic programme can be forged that actively engages with technological developments such as machine learning and predictive analytics in order to put them to work in service of a strategy for accelerating cognitive development without being commandeered by the commercial forces that are rapidly colonising education.

### 1NC—Deschooling

#### The affirmative valorizes a ‘folk politics’ of immediacy and localism that plays directly into the hand of neoliberal hegemony --- their championing of an educational exodus to autonomous forms of education is a facile politics of withdrawal incapable of transforming capitalism.

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

What is folk politics? Folk politics names a constellation of ideas and intuitions within the contemporary left that informs the common-sense ways of organising, acting and thinking politics. It is a set of strategic assumptions that threatens to debilitate the left, rendering it unable to scale up, create lasting change or expand beyond particular interests. Leftist movements under the sway of folk politics are not only unlikely to be successful – they are in fact **incapable of transforming capitalism**. The term itself draws upon two senses of ‘folk’. First, it evokes critiques of folk psychology which argue that our intuitive conceptions of the world are both historically constructed and often mistaken. 11 Secondly, it refers to ‘folk’ as the locus of the small-scale, the authentic, the traditional and the natural. Both of these dimensions are implied in the idea of folk politics. As a first approximation, we can therefore define folk politics as a collective and historically constructed political common sense that has become out of joint with the actual mechanisms of power. As our political, economic, social and technological world changes, tactics and strategies which were previously capable of transforming collective power into emancipatory gains have now become drained of their effectiveness. As the common sense of today’s left, folk politics often operates intuitively, uncritically and unconsciously. Yet common sense is also historical and mutable. It is worth recalling that today’s familiar forms of organisation and tactics, far from being natural or pregiven, have instead been developed over time in response to specific political problems. Petitions, occupations, strikes, vanguard parties, affinity groups, trade unions: all arose out of particular historical conditions. 12 Yet the fact that certain ways of organising and acting were once useful does not guarantee their continued relevance. Many of the tactics and organisational structures that dominate the contemporary left are responses to the experience of state communism, exclusionary trade unions, and the collapse of social democratic parties. Yet the ideas that made sense in the wake of those moments no longer present effective tools for political transformation. Our world has moved on, becoming more complex, abstract, nonlinear and global than ever before. Against the abstraction and inhumanity of capitalism, folk politics aims to bring politics down to the ‘human scale’ by emphasising **temporal, spatial and conceptual immediacy**. At its heart, folk politics is the guiding intuition that immediacy is always better and often more authentic, with the corollary being a deep suspicion of abstraction and mediation. In terms of temporal immediacy, contemporary folk politics typically remains reactive (responding to actions initiated by corporations and governments, rather than initiating actions); 13 ignores long-term strategic goals in favour of tactics (mobilising around single-issue politics or emphasising process); 14 prefers practices that are often inherently fleeting (such as occupations and temporary autonomous zones); 15 chooses the familiarities of the past over the unknowns of the future (for instance, the repeated dreams of a return to ‘good’ Keynesian capitalism); 16 and expresses itself as a predilection for the voluntarist and spontaneous over the institutional (as in the romanticisation of rioting and insurrection). 17 In terms of spatial immediacy, folk politics privileges the local as the site of authenticity (as in the 100-miles diet or local currencies); 18 habitually chooses the small over the large (as in the veneration of small-scale communities or local businesses); 19 favours projects that are un-scalable beyond a small community (for instance, general assemblies and direct democracy); 20 and often rejects the project of hegemony, valuing **withdrawal or exit** rather than building a broad counter-hegemony. 21 Likewise, folk politics prefers that actions be taken by participants themselves – in its emphasis on direct action, for example – and sees decision-making as something to be carried out by each individual rather than by any representative. The problems of scale and extension are either ignored or smoothed over in folk-political thinking. Finally, in terms of conceptual immediacy, there is a preference for the everyday over the structural, valorising personal experience over systematic thinking; for feeling over thinking, emphasising individual suffering, or the sensations of enthusiasm and anger experienced during political actions; for the particular over the universal, seeing the latter as intrinsically totalitarian; and for the ethical over the political – as in ethical consumerism, or moralising critiques of greedy bankers. 22 Organisations and communities are to be transparent, rejecting in advance any conceptual mediation, or even modest amounts of complexity. The classic images of universal emancipation and global change have been transformed into a prioritisation of the suffering of the particular and the authenticity of the local. As a result, any process of constructing a universal politics is rejected from the outset. Understood in these ways, we can detect traces of folk politics in organisations and movements like Occupy, Spain’s 15M, student occupations, left communist insurrectionists like Tiqqun and the Invisible Committee, most forms of horizontalism, the Zapatistas, and contemporary anarchist-tinged politics, as well as a variety of other trends like political localism, the slow-food movement, and ethical consumerism, among many others. But no single position embodies all of these dispositions, which leads us to a first qualification: as an uncritical and often unconscious common sense, folk politics comes to be instantiated to varying degrees in concrete political positions. That is to say, folk politics does not name an explicit position, but only an implicit tendency. The ideas that characterise this tendency are widely dispersed throughout the contemporary left, but some positions are more folk-political than others. This brings us to a second important qualification: the problem with folk politics is not that it starts from the local; all politics begins from the local. The problem is rather that folk-political thinking is content to remain at (and even privileges) that level – of the transient, the small-scale, the unmediated and the particular. It takes these to be sufficient rather than simply necessary moments. Therefore, the point is not simply to reject folk politics. Folk politics is a necessary component of any successful political project, but it can only be a starting point. A third qualification is that folk politics is only a problem for particular types of projects: those that seek to move beyond capitalism. Folk-political thinking can be perfectly well adapted to other political projects: projects aimed solely at resistance, movements organised around local issues, and smallscale projects. Political movements based around keeping a hospital open or preventing evictions are all admirable, but they are importantly different from movements trying to challenge neoliberal capitalism. The idea that one organisation, tactic or strategy applies equally well to any sort of struggle is one of the most pervasive and damaging beliefs among today’s left. Strategic reflection – on means and ends, enemies and allies – is necessary before approaching any political project. Given the nature of global capitalism, any postcapitalist project will require an ambitious, abstract, mediated, complex and global approach – one that folk-political approaches are incapable of providing. Combining these qualifications, we can therefore say that folk politics is necessary but insufficient for a postcapitalist political project. By emphasising and remaining at the level of the immediate, folk politics lacks the tools to transform neoliberalism into something else. While folk politics can undoubtedly make important interventions in local struggles, we deceive ourselves when we think these are turning the tide against global capitalism. They represent, at best, temporary respite against its onslaught. The project of this book is to begin outlining an alternative – a way for the left to navigate from the local to the global, and synthesise the particular with the universal. Such an alternative cannot simply be a conservative reversion to the working-class politics of the last century. It must instead combine an updated way of thinking politics (a shift from immediacy to structural analysis) with an upgraded means of doing politics (which directs action towards building platforms and expanding scales).

#### They have it all wrong – school is not made compulsory by law but the withering meritocracy of the labor market – while interesting in the 70’s, deschooling can only cause a transition to privatized forms of social and educational control, bolstered by escalating employment crises driven by austerity and automation. Only a radical acceleration of these automation processes can liberate schooling from the stranglehold of human capital development.

**Means 17** (Alexander J. Means, State University Of New York College At Buffalo, “Education For A Post-Work Future: Automation, Precarity, And Stagnation,” *Knowledge Cultures* 5(1), 2017 pp. 21–40)

Across Western societies like the US, global competition and new technology increasingly threaten to undermine the economic position and social status of salaried professionals, along with their offspring. Within an environment of economic stagnation and intensifying competition for economic opportunity, salaried professionals and elites are now making unprecedented investments of time and money in order to build their children into perfect living resumes capable of outcompeting their rivals (often formerly middle class) for positional goods such as education and employment (Reardon, 2011). These living resumes must have the right mixture of relentlessness, diversified portfolios of interests and activities, and just the right plucky air of employability in order to access slots in the elite universities, which are considered prerequisites to attaining internships and wellremunerated work in the new economy. However, as Randall Collins (1979) has observed in his studies of the credential society, the competition for positional advantage for employment drives an arms race over educational attainments. This, in turn, drives educational inflation as the status and value of each degree awarded is reduced relative to the number of individuals seeking and attaining them. The higher number of degrees awarded, the more competition among degree holders for employment opportunities at any given level. As increasing numbers of young people seek to complete post-secondary education, employers respond by raising their minimum educational requirements as screening, or filtering mechanisms. This occurs despite the fact that work-related skills are not typically set by the demands of technology, or learned in educational settings, but are rather acquired on-the-job and/or through informal networks (see Livingstone, 2009). As labor market insecurity has increased and the neoliberal state reduces its role in direct employment, formal education becomes more deeply implicated in a global arms race for access to social resources, degree certificates, and viable employment opportunities. Within this context, Collins (2013), perhaps counterintuitively, argues that credentialism and expansion of education may very well provide a stopgap, or “escape valve” to assuage some of the most disruptive consequences of mass technological unemployment, which he views as an imminent threat, particularly to the middle class. Collins suggests that education may act as a form of “hidden Keynesianism” that both deflects and absorbs the structural insecurities associated with advancing automation and precaritization of employment. First, formal education functions as mass public works project employing large numbers of educators, administrators, service and auxiliary personnel (these workers are nonetheless at risk of obsolescence from the digital integration of virtual learning, MOOCs, and adaptive learning systems), which pumps money into flagging economies. Second, educational expansion restricts the flow of labor into the employment sector thereby keeping formal rates of unemployment and underemployment artificially low. One would be tempted to add here that educational expansion is also an increasing source of profit within a stagnating real economy, both directly through the widespread privatization of educational services, and indirectly through the financialization of tuition through student debt. Collins observes: Although educational credential inflation expands on false premises – the ideology that more education will produce more equality of opportunity, more hi-tech performance, and more good jobs – it does provide some degree of solution to technological displacement of the middle class…Educational expansion is virtually the only legitimately accepted form of Keynesian economic policy, because it is not overtly recognized as such. It expands under the banner of high technology and meritocracy –it is the technology that requires a more educated labor force. In a roundabout sense this is true: it is the technological displacement of labor that makes school a place of refuge from the shrinking job pool, although no one wants to recognize that fact. No matter – as long as the number of those displaced is shunted into an equal number of those expanding population of students, the system will survive. (Collins, 2013, p. 54) The problem here is that educational expansion as “hidden Keynesianism” runs up against funding barriers as government budgets are squeezed from multiple angles in a time of austerity. Additionally, as students take on growing levels of debt in order to secure and fund their access to higher education, families will continue to expect and demand a high rate-of-return on investment that governments and the economic system may be increasingly unable to provide. However, as societies and individuals engage in the same tactics to gain competitive advantage, education is implicated in diminishing returns on investment. For instance, **it is now common to observe that a college diploma is the new high school diploma** – a prerequisite for entry into even the lower strata of the labor market. Over time, the value of a fouryear college degree may also decline as the numbers of individuals attaining them increase. The essential point is that rather than a catalyst for limitless individual upward mobility, human capital coheres to the logic of scarcity and diminishing returns, whereby inflation of credentials is used as a screening mechanism that artificially create barriers to entry for desirable job opportunities. The sociologist Eric Olin Wright (2015) has referred to this as “opportunity hoarding”: High levels of education generate high income in part because of significant restrictions on the supply of highly educated people. Admissions procedures, tuition costs, risk aversion to large loans by lowincome people, and a range of other factors all block access to higher education for many people, and these barriers benefit those in jobs that require higher education. If a massive effort was made to improve the educational level of those with less education, this program would itself lower the value of education for those who already have it, since its value depends to a significant extent on its scarcity…While some of the higher earnings that accompany higher education reflect productivity differences, this is only part of the story. Equally important are the ways in which the processes of acquiring education excludes people through various mechanisms and thus restricts the supply of people available to take these jobs. (Wright, 2015, p. 6) Alongside these mechanisms of exclusion, in recent years the insecurity of dominant groups and middle classes has increasingly been translated into politics of racial and anti-immigrant resentment, as signified by the strengthening of rightwing political movements, such as alt-right Trumpism in the United States, UKIP in Britain, the National Front in France, and Golden Dawn in Greece. It has been observed that professional class parents, even those with self-described progressive views, are prone to resist redistribution of educational resources, and/or strategies to improve class and ethno-racial integration, if it is perceived that these measures will diminish the advantages their own children maintain over working class and historically marginalized, ethnic and racial minority groups (see, for example, Kohn, 1998). In this sense, the idea that education can function as a form of “hidden Keynesianism” not only must contend with the deeper structural instabilities of capitalism, including the potential for mass technological unemployment, but also how such economic crises would become articulated in educational systems through the class, ethno-racial, and gendered conflicts and political dynamics immanent to neoliberal social formations (De Lissovoy, 2015). Education and Cognitive Labor Above the problems confronting human capital education and education as a form of “hidden Keynesianism” have been highlighted as responses to automation and precaritization of employment. There is another perspective on technology and education worth considering here. In recent years, there has been a growing body of work in social and educational theory highlighting the progressive potential of the information revolution, particularly in relation to knowledge production and cognitive labor. Building on notions of new growth theory (Romer, 1994), the postindustrial society (Bell, 1973; Touraine, 1971), the network society (Benkler, 2006; Castels, 1996), the creative economy (Florida, 2002; Howkins, 2001), and autonomist theories of cognitive capitalism (Bountang, 2012; Vercellone, 2007), educational theorists have observed how education – particularly higher education within the so-called “learning society” – has taken on a central economic position as knowledge production, entrepreneurship, and technology become primary drivers of innovation and valorization (Olssen & Peters, 2005; Peters, 2010; Peters & Bulut, 2011; Peters, Marginson, & Murphy, 2008). A problem that emerges in some of this literature can be located in a utopian element that suggests the shift to cognitive capitalism and network technologies are generating new educational and labor arrangements characterized by decentralization, openness, flexibility, and non-market production. Such perspectives are based on the idea that knowledge is in principle limitless and is now capable of being endlessly digitally reproduced at zero marginal cost. As capital is increasingly dependent on cognitive labor and the valorization of knowledge, it is argued that the free circulation of knowledge in digital networks is undermining traditional conceptions of property, scarcity, and hierarchy. Those like Yochai Benkler (2006), Jeremy Rifkin (2014), and Paul Mason (2015) have suggested that these dynamics are creating more open and cooperative relationships that push beyond traditional conceptions of capitalism, education, and labor through platforms such as peer-production, open-sourcing, creative commons, and sharing economies. However, while it appears that digital technology has generated new knowledge platforms with interesting implications for traditional intellectual propriety arrangements, these thinkers have tended to ignore or downplay the centrality of class antagonism and power in relation to education and cognitive capitalism. For instance, as those like Harry Braverman (1974) have pointed out, labor arrangements under capitalism not only function to produce profit, but to discipline workers and maintain class/race hierarchies and social control in the workplace, even at the expense of achieving greater efficiency in production. More recently, David Graeber (2013) has detailed the vast expansion of bureaucracy under neoliberalism and proliferation of mindless administrative jobs, or what he calls “bullshit jobs,” that he argues have little productive purpose, or social value other than to keep potentially superfluous workers busy and employed. A similar logic can be observed in contemporary higher educational policy and structure, as narrow human capital discourses are used to justify greater standardization, privatization, administration, casualization and automation of university labor, curtailment of emphasis on intellectual foundations and non-proprietary research, and expansion of narrow degree programs thought to have direct economic utility, such as in business administration. Educational studies of the knowledge economy have tended to overlook the most obvious contradiction here – namely, that the knowledge economy is often presented as a catalyst for bureaucratic decentralization and openness that requires advanced creative, analytical, affective, cooperative, entrepreneurial, and inventive subjectivities, while in practice it is often embedded within reductive logics of control that inhibit open institutions and the mass intellectuality required for broader economic, social, and technical development (Means, 2013, 2015; Newfield, 2008). Education for a Post-Work Society The perspectives outlined above signal that there is a potential crisis of legitimacy for the now deeply engrained narrative of economic advancement and endless upward mobility through individual educational investment. At present, this legitimacy crisis is assuaged through the thin veneer of meritocracy provided by neoliberal tropes of market-freedom and individual reward through the work ethic, interpreted increasingly as devotion to educational advancement for workforce preparation. This tracks with the proliferation of discourses of grit and resiliency now omnipresent in educational policy and neoliberal culture (Evans & Reid, 2015; O’Brien. 2014). Such discourses have the effect of using appeals to education to privatize the structural conditions of stratification and insecurity immanent to a potential employment crisis in advanced capitalism. There are simply no guarantees that these appeals can be ideologically maintained if the mainstream economic framing of human capital education continues to lose coherence and credibility. Simultaneously, advancing automation of jobs, coupled with stagnation and rising inequality within the global capitalist system and across societies has generated an interesting conversation on potential alternatives. Orthodox economists like Lawrence Summers (2014) and Tyler Cowen (2013) who recognize the scale of potential disruption of technological displacement, nonetheless cling to a sense of dystopian inevitability that that the laws of selfregulating markets and marginal productivity should be allowed to operate unhindered no matter the consequences. In this perspective, there is little that societies and individuals can do other than to invest in formal education and upgrade their human capital to compete for a shrinking pool of viable employment opportunities. Second, other more forward thinking economists, journalists, and technology writers advocate for resurrecting the views of Keynes on technological unemployment—namely, a redistribution of work hours and profits through State management (Quiggin, 2012). Post-Keynesian perspectives suggest that technological change is not something to be feared or resisted, rather it is something that can be harnessed to achieve a more efficient capitalism and humane foundation for work and society. This would include instituting a guaranteed basic income and reinvestment of surpluses from rising productivity into public projects and direct employment such as in the green economy. Third, there is a growing body of radical perspectives on the post-work society. These theories more or less accept the need to institute post-Keynesian reforms in the short-term, such as a guaranteed basic income and systems of work sharing. However, where they depart is that they question the long-term viability and/or desirability of capitalist work arrangements as well as capitalism itself as a system of production and distribution. For instance, drawing on and re-working premises found in various strands of Marxian analysis, those like Jeremy Rifkin (2014), Paul Mason (2015), Yann Moulier-Boutang (2012), and Michael Hardt & Antonio Negri (2009) argue the unfolding wave of technological change and centrality of knowledge is undermining capitalism and inexorably leading to a post-capitalist society of horizontal networks, where private property and wage labor are superseded by collaborative commons. Others like Nick Srnicek & Alex Williams (2013, 2015) also see the potential in accelerating technology to liberate human activity from the dialectic of capital and labor, but they argue that this is inherently contingent and uncertain, requiring the left to achieve “sociotechnical hegemony,” to reformulate institutions with transversal lines of power and authority. In her particularly insightful contribution, Kathi Weeks (2011) draws on autonomist Marxism and feminism to argue that any viable conception of the post-work society requires a fundamental refusal of the separation of economy and polity under liberalism, as well as the cultural logic of the work ethic, that reifies wage labor and depoliticize the sphere of work. This refusal is not a rejection of work as productive human activity in general, but the specific way wage work attenuates, stratifies, and limits the full range and potentiality of our individual and collective efforts. In this sense, refusal is a valorization of human activity outside the strictures of wage labor and a verification of the intrinsic creativity and generative force of human labor, affects, and subjectivities. There is much to be gleaned from each of these perspectives. However, it is interesting to note that while education factors prominently within mainstream economics, it is largely absent in post-Keynesian as well as in radical post-work perspectives. This seems to be a missed opportunity. If the technological displacement of employment indeed does accelerate, it will be necessary to rethink the relation between education and livelihoods. In their book Inventing the Future, for instance, Srnicek & Williams (2015) discuss at length the need to creatively harness new technological possibilities in the service of restructuring society, prevailing common sense, our work arrangements, and our institutions. However, where education does appear in the book it is largely to describe its historical, economic and ideological functions to produce docile, competitive, and compliant workers for a stratified employment structure. While Srnicek & Williams do observe that educational institutions represent a site of social and political struggle, they remain stuck in a mode of economic reductionism by suggesting the main point of contestation in education should be to expand the heterodox research of economics and teaching of heterodox economic perspectives (pp. 141–144). What is missing here is a deeper sense of how the economic, the political, the epistemological, the ontological, and the pedagogical intertwine and might be reimagined across the full spectrum of informal and formal educational institutions, programs, research, theory, and experiences. This would imply a reconfiguration of educational value and purpose. Such a reconfiguration might usefully be directed at producing educational subjectivities with the intellectual capacities, technical literacies and ethical imaginations to subordinate technology to egalitarian and sustainable ends. Achieving an equitable, just, efficient, and ecologically sustainable political economy would require concerted struggles over the formative educational cultures and institutions that play a central role in the production of knowledge and the shaping of social cooperation and agency. These struggles are contingent and embedded within the class, ethno-racial and gendered structures of power, division, and antagonism that give shape to social conditions under advanced capitalism. However, while the future is inherently contingent, predictions of technological acceleration throws the orthodox human capital edifice of education for employment into doubt, and with it the mainstream economic rationalities upon which the legitimacy of the neoliberal project depends. Ultimately, this may present an opportunity to develop a new rational-technical and liberatory educational foundation for a post-work society to come.

#### The impact is extinction from warfare and climate change – only leftist sociotechnical hegemony can un-cancel the future.

**Srnicek & Williams 13** (Nick Srnicek, Theorist and activist, Alex Williams, PhD student at the University of East London, C. Derick Varn and Dario Cankovich, North Star, “#Accelerate: Manifesto for an Accelerationist Politics,” *#ACCELERATE: The Accelerationist Reader)*

0 1 . I NT R O D U CTI O N : ON T H E C O N J U N CT U R E 1 . At the beginning of the second decade of the twenty-first century, global civilization faces a new breed of cataclysm. These coming apocalypses ridicule the norms and organisational structures of the politics which were forged in the birth of the nation-state, the rise of capitalism, and a twentieth century of unprecedented wars. 2. Most significant is the **breakdown of the planetary climatic system**. In time, this threatens the continued existence of the present global human population. Though this is the most critical of the threats which face humanity, a series of lesser but potentially equally destabilising problems exist alongside and intersect with it. Terminal resource depletion, especially in water and energy reserves, offers the prospect of mass starvation, collapsing economic paradigms, and new hot and cold wars. Continued financial crisis has led governments to embrace the paralyzing death spiral policies of austerity, privatisation of social welfare services, mass unemployment, and stagnating wages. Increasing automation in production processes-including 'intellectual labour'-is evidence of the secular crisis of capitalism, soon to render it incapable of maintaining current standards of living for even the former middle classes of the global north. 3. In contrast to these ever-accelerating catastrophes, today's politics is beset by an **inability** to generate the new ideas and modes of organisation necessary to transform our societies to confront and resolve the coming annihilations. While crisis gathers force and speed, politics withers and retreats. In this paralysis of the political imaginary, **the future has been cancelled**. 4. Since 1979, the hegemonic global political ideology has been neoliberalism, found in some variant throughout the leading economic powers. In spite of the deep structural challenges the new global problems present to it, most immediately the credit, financial, and fiscal crises since 2007-8, neoliberal programmes have only evolved in the sense of deepening. This continuation of the neoliberal project, or neoliberalism 2.0, has begun to apply another round of structural adjustments, most significantly in the form of encouraging new and aggressive incursions by the private sector into what remains of social democratic institutions and services. This is in spite of the immediately negative economic and social effects of such policies. and the longer term fundamental barriers posed by the new global crises. 5. That the forces of right-wing governmental, non-governmental, and corporate power have been able to press forth with neoliberalisation is at least in part a result of the continued paralysis and ineffectual nature of much of what remains of the Left. Thirty years of neoliberalism have rendered most left-leaning political parties bereft of radical thought, hollowed out, and without a popular mandate. At best they have responded to our present crises with calls for a return to a Keynesian economics, in spite of the evidence that the very conditions which enabled post-war social democracy to occur no longer exist. **We cannot return to mass industrial-Fordist labour by fiat, if at all**. Even the neosocialist regimes of South America's Bolivarian Revolution, whilst heartening in their ability to resist the dogmas of contemporary capitalism, remain disappointingly unable to advance an alternative beyond mid-twentieth-century socialism. Organised labour, being systematically weakened by the changes wrought in the neolibera\ project, is sclerotic at an institutional level and-at best-capable only of mildly mitigating the new structural adjustments. But with no systematic approach to building a new economy, or the structural solidarity to push such changes through, for now labour remains relatively impotent. The new social movements which emerged since the end of the Cold War, experiencing a resurgence in the years after 2008, have been similarly unable to devise a new political ideological vision. Instead they .expend considerable energy on internal direct-democratic process and affective self-valorisation over strategic efficacy, and frequently propound a variant of neo-primitivist localism, as if to oppose the abstract violence of globalised capital with the flimsy and ephemeral 'authenticity' of communal immediacy. 6. In the absence of a radically new social, political, organisational, and economic vision, the hegemonic powers of the Right will continue to be able to push forward their narrow-minded imaginary, in the face of any and all evidence. At best, the Left may be able for a time to partially resist some of the worst incursions. But this is to be Canute against an ultimately irresistible tide. To generate a new left global hegemony entails a recovery of lost possible futures, and indeed the recovery of the future as such. 02. I N T E R R E G N U M : ON ACC E L E RATI O N IS M S 1. If any system has been associated with ideas of acceleration it is capitalism. The essential metabolism of capitalism demands economic growth, with competition between individual capitalist entities setting in motion increasing technological developments in an attempt to achieve competitive advantage, all accompanied by increasing social dislocation. In its neoliberal form, its ideological self-presentation is one of liberating the forces of creative destruction, setting free everaccelerating technological and social innovations. 2. The philosopher Nick Land captured this most acutely, with a myopic yet hypnotising belief that capitalist speed alone could generate a global transition towards unparalleled technological singularity. In this visioning of capital, the human can eventually be discarded as mere drag to an abstract planetary intelligence rapidly constructing itself from the bricolaged fragments of former civilisations. However Landian neoliberalism confuses speed with acceleration. We may be moving fast, but only within a strictly defined set of capitalist parameters that themselves never waver. We experience only the increasing speed of a local horizon, a simple brain-dead onrush rather than an acceleration which is also navigational, an experimental process of discovery within a universal space of possibility. It is the latter mode of acceleration which we hold as essential. 3. Even worse. as Deleuze and Guattari recognized, from the very beginning what capitalist speed deterritorializes with one hand, it reterritorializes with the other. Progress becomes constrained within a framework of surplus value, a reserve army of labour. and freefloating capital. Modernity is reduced to statistical measures of economic growth and social innovation becomes encrusted with kitsch remainders from our communal past. Thatcherite-Reaganite deregulation sits comfortably alongside Victorian 'back-to-basics' family and religious values. 4. A deeper tension within neoliberalism is in terms of its self-image as the vehicle of modernity, as literally synonymous with modernisation, whilst promising a future that it is constitutively incapable of providing. Indeed, as neoliberalism has progressed, rather than enabling individual creativity, it has tended towards eliminating cognitive inventiveness in favour of an affective production line of scripted interactions. coupled to global supply chains and a neo-Fordist Eastern production zone. A vanishingly small cognitariat of elite intellectual workers shrinks with each passing year-and increasingly so as algorithmic automation winds its way through the spheres affective and intellectual labour. Neoliberalism, though positing itself as a necessary historical development, was in fact a merely contingent means to ward off the crisis of value that emerged in the 1970s. Inevitably this was a sublimation of the crisis rather than its ultimate overcoming. 5. It is Marx, along with Land, who remains the paradigmatic accelerationist thinker. Contrary to the all-too familiar critique, and even the behaviour of some contemporary Marxians. we must remember that Marx himself used the most advanced theoretical tools and empirical data available in an attempt to fully understand and transform his world. He was not a thinker who resisted modernity, but rather one who sought to analyse and intervene within it, understanding that for all its exploitation and corruption, capitalism remained the most advanced economic system to date. Its gains were not to be reversed, but accelerated beyond the constraints the capitalist value form. 6. Indeed, as even Lenin wrote in the 1918 text 'Left Wing' Childishness: Socialism is inconceivable without large-scale capitalist engineering based on the latest discoveries of modern science. It is inconceivable without planned state organisation which keeps tens of millions of people to the strictest observance of a unified standard in production and distribution. We Marxists have always spoken of this, and it is not worth while wasting two seconds talking to people who do not understand even this (anarchists and a good half of the Left Socialist - Revolutionaries). 7. As Marx was aware, capitalism cannot be identified as the agent of true acceleration. Similarly, the assessment of left politics as antithetical to technosocial acceleration is also, at least in part, a severe misrepresentation. I ndeed, if the political Left is to have a future it must be one in which it **maximally embraces this suppressed accelerationist tendency.**

#### The alternative is to reject the aff in favor of an education politics of accelerationism -- the technological capacities of education in particular should not be abandoned, but *intensified* and *repurposed.* Only re-appropriation of the algorithmic potential of networks, data analytics, and artificial intelligence can save leftist politics from technological ineptitude and radically refashion the education system for emancipatory ends. An acceleration of a global and networked technological insurgency is the only option for an emancipatory future.

**Sellar & Cole 17** (Sam Sellar, Department of Childhood, Youth and Education Studies, Manchester Metropolitan University; & David R. Cole, Centre for Educational Research, School of Education, University of Western Sydney. “Accelerationism: a timely provocation for the critical sociology of education,” *British Journal of Sociology of Education*, 2017 VOL. 38, NO. 1, 38–48)

The Promethean left accelerationism of the 2010s Recent interest in accelerationism constitutes a ‘third wave’ that has sought to legitimise acceleration as a leftist political strategy. There has been a move away from the heretical excesses of libidinal materialism and Land’s anti-human embrace of the transformative forces of capitalism. While first-wave and BRITISH JOURNAL OF SOCIOLOGY OF EDUCATION 43 second-wave accelerationism were somewhat hostile to conventional reproduction of Marxist thought, third-wave accelerationism has looked to Marx’s Prometheanism in order to pursue a rapprochement with the political agendas that Land criticised (see Mackay and Avanessian 2014). Thus, third-wave acclerationism leaves open the ground for a political agenda around the issues that accelerationism addresses through a reconsideration of, for example, material dialectics in the light of an accelerated temporal milieu. Two key developments in accelerationism are particularly significant for our argument here. First, a distinction is now being drawn between Land’s absolute acceleration, which eschewed politics, and a relative acceleration that can be mobilised as part of a broader political strategy. As Williams (2013, 2 original emphasis) argues, ‘Land favoured an absolute process of acceleration and deterritorialization, identifying capitalism as the ultimate agent of history’. There is little to be done politically from this perspective, beyond allying oneself with this deterritorialising process. Absolute acceleration forgoes the potential or desire to orient thought and action according to a set of political coordinates. In contrast, for relative acceleration, deterritorialisation is employed as a tactic within a broader politics. Relative acceleration is thus more conducive to potential cross-fertilisation with research in the social sciences and education than Landian acceleration, due to its retention of a strategic focus on remaking society by breaking down current institutions and in celebrating the impulse to explore and develop the potentialities of rational thought and technological development. Second, the answer to the question of what ought to be accelerated that has been given by some strands of accelerationism is rationalist modernity and technological development, as distinct from capitalism. A **strategic accelerationism** focused on the rationalist transformation of self and world that improves collective life could inform critical sociological analyses of educational practice. This variant of accelerationism is represented, for example, by the writings of Brassier (2014), Negarestani (2014), and Wolfendale (2016). As Mackay and Avanessain explain, for Negarestani: [a]cceleration takes place when and in so far as the human repeatedly affirms its commitment to being impersonally piloted, not by capital, but by a [rational] program which demands that it cede control to collective revision, and which draws it towards an inhuman future that will prove to have ‘always’ been the meaning of the human. (Mackay and Avanessian 2014, 31) Here we see a subtle shift in exactly what might be accelerated, away from the time of capital to the epistemic project of thinking beyond the human, a shift that echoes Nietzsche’s call for the orientation of thought toward the future. Brassier argues that ‘Prometheanism is simply the claim that there is no reason to assume a predetermined limit to what we can achieve or to the ways in which we can transform ourselves and our world’ (2014, 471). This brand of accelerationism perhaps has the most to offer critical educational thought and practice, insofar as it focuses primarily on accelerating normative rationalism as a basis for revising and transforming the human. On this view, commitment to rational programmes provides an alternative to the seduction of desires produced by capital. **The role of education** in this work would be to **develop advanced critical thinking capacities** among students and to **incorporate into curricula the latest knowledge** from fields such as cognitive science, computer science, genetics, and science, technology, engineering and mathematics (STEM) subjects more broadly. Here the term ‘critical’ would gain an additional sense, beyond the emphasis on uncovering systematic social domination that characterises its usage in sociology (Boltanski 2011), to also emphasise the ‘critical’ tipping points at which systems can be transformed and the work required to hasten socio-technical progress towards such points. One area in which the enhancement of cognitive potentials to govern, teach, and learn is being actively explored in education is through the development of new modes of data analysis that are operating in increasingly tight feedback loops with policy-making, pedagogical decisions, and student learning. One common response to such developments in critical education studies **is suspicion**, followed by a **theoretical reflex** response of deconstructing how relations of power are shaped by new technologies. While important, such approaches **tend to leave unexplored other possibilities** for **actively engaging** with **new technological capacities** as potential tools for remaking educational institutions and practices. To understand the impacts of acceleration on education and to demonstrate some possibilities for acceleration as a theoretical framework, we now turn to the example of data-driven educational governance and consider how the accelerationist provocation could encourage critical sociology of education to ask pivotal questions of these developments.Acceleration in education: the example of new data analytics in educational governance In keeping with the theory-fiction genre of much accelerationist writing, we will discuss an example here that is grounded in current empirical circumstances while also speculating about the near future (see Blanchot 2006).1 Following Massumi (2002), we understand this as an ‘exemplary methodology’ that employs detailed examples to test out concepts – in this case, testing concepts drawn from accelerationism in relation to contemporary developments in educational governance. As large-scale quantitative data analyses gain influence in various sites of research and social policy production, critical sociology must become more adept at engaging with the frontiers of computational and information sciences or **risk becoming redundant** (Savage and Burrows 2007). The example we consider here will enable us to consider how developments in information sciences put pressure on the theoretical resources of critical sociology and whether tools from accelerationism may usefully augment these resources. Since the 1950s, education systems, like many fields, have been rapidly developing new infrastructures for managing and analysing data (Sellar 2015). The data upon which education systems now run are combined from many sources, including demographic data collected by governments, administrative data relating to student behaviours such as attendance, and assessment data generated across multiple scales, from the local to the international. With the emergence of new modes of data analytics that enable the identification of correlations within big data sets (Kitchin 2014), some education systems are now developing new capacities for managing and analysing these data to better inform policy and pedagogical decisions. Here we will discuss the case of one Australian state education system – referred to here as System A – that is strategically implementing new data management systems. In many cases, the computational capacities required for powerful new modes of data analytics are, and indeed can only be, provided by large commercial organisations such as Microsoft, which is a major provider of business intelligence platforms. As a result, the education technology market has grown substantially in recent years, with substantial growth occurring particularly in the field of data analytics (Richards and Stebbins 2014). System A now houses their data in large, commercially provided, server farms and uses virtual machines to conduct bespoke queries of large data sets in very short time frames. The results of these analyses can be visualised in ways that ease human comprehension and enable action by policy-makers or educators in schools. Machine learning algorithms have also been introduced to conduct these data analytics, reflecting growing interest in the economic and educational potentials of artificial intelligence in education (for example, Luckin et al. 2016). Machine learning algorithms employ neural networks that ‘learn’ by checking probabilistic guesses against correct answers over multiple iterations to develop and refine abilities such as identifying text, speech, or visual images. We are now reaching the point where algorithms running on virtual machines in remote servers are becoming part of feedback loops between data analysis and decision-making at sites such as System A. Here, analysis of population trends is being undertaken to modulate system-level schooling infrastructure, optimising provision geographically by identifying where to demolish schools and where to build new ones. Further, educators can use mobile devices to run data queries that inform their pedagogical decision-making in very short time frames. The aim in this system is to reach a point of ‘optimisation’ where increasingly tight feedback loops between data analysis, professional development, and pedagogical decision-making contribute to improved learning. It is thus not far-fetched to claim that **artificial intelligence** (AI) is already playing a role in this system and **the aim is to steadily increase its agency.** BRITISH JOURNAL OF SOCIOLOGY OF EDUCATION 45 Two key points are important here. First, the technological capacities that are enabling these developments are generally provided by commercial organisations. Second, the profits of these organisations – education is predicted to be the most profitable industry of the twenty-first century – are being re-invested in further technological development. Education now operates within technonomic time as capitalist profit and technical development are locked into ever tighter feedback loops. The questions that left accelerationist position would ask of these circumstances are: do these technological developments offer the potential to enhance human learning and rationality? Are these developments separable from the growth and involvement of commercial organisations that currently dominate provision? What infrastructures would need to be developed in order to effect such a separation and the independent development of educational technologies? These are not questions that can be answered here in relation to the example of System A, but rather constitute a starting point for a research programme in critical sociology of education that is informed by left accelerationism. For critical sociology to begin from these questions would constitute an important departure from the prevailing theoretical tendencies in the field, which begin from the questions about who wins and who loses from such developments and thus **risk conflating the power inequalities** generated by contemporary capitalism with the p**otentials that inhere in capitalist technological development** (e.g. the capacity for machine learning to accelerate learning in some areas). Suspicion towards data-driven technologies as tools of governance and control is a default position for some critical sociological analyses in education. Moreover, **education** – at all levels and from every perspective – **is readily caught** in the divisions between what Williams and Srnicek (2014) call ‘**folk politics**’ and **accelerationist alternatives**. Most educationalists would feel somewhat ill at ease with the characterisation of being involved with a ‘folk politics of localism’, yet would also probably not want to be classed as accelerationists in the sense that Means understands this movement: … accelerationists, like techno-utopians, believe that [socio-planetary] problems can simply be resolved through accelerating technological fixes such as through the mobilization of digitally networked ‘smart systems’ and geoengineering projects (for instance blasting sulfur into the air in order to cool the planet’s surface temperature to stave off climate change). However, technoscience cannot solve problems that are profoundly social and political in their constitution. (2015, 24) Naïve affirmation of techno-utopian developments is problematic. For example, Beradi (2014, 15) takes a country like South Korea as an example of where the possibly delusionary aspects of techno-capitalism have been fully embraced, and which, coincidentally, has the highest suicide rate in the world. According to Beradi, South Korean youth and the general public, who have been subjected to non-traditional, digitally mediated approaches to education for many years, are ‘constantly gazing at the screens of their smartphones, apparently driven by telepathic transmental signals … [with a] lack of attention to the physical landscape surrounding them’ (2014, 15; original emphasis). Beradi is not making a necessary link between the augmentation of high-tech educational provision and problems with well-being or mental health, but he does raise the spectre of a whole series of subjective consequences of the potential technological overload, entrapment, and conditioning. Critics such as Beradi (2014) suggest caution and the need for in-depth critical analysis of the techno-capitalist power complexes that lie behind such innovations. Beradi links the accelerating subjective time dimension to global financial capitalist exploitation, and the ways in which agency may be conditioned and controlled through time, for example, by debt, credit, the market, and finance structures. We suggest that such critical analysis of the changing time dimension of educational practice is necessary. However, it is possible to combine critical-deconstructive analysis with approaches borrowed from Promethean relative accelerationisms, which are being actively developed by socio-political movements, such as Xenofeminism, that advocate a rational, technological, and scientific response to injustices and negative transformations of the human (e.g. immaterial labour). We argue that developments such as data-driven educational AI could also be engaged from an accelerationist perspective as holding potentials for informing rationalist educational programmes that could improve learning outcomes and reduce inequalities and social domination. 46 S. SELLAR AND D. R. COLE Discussion and conclusion Accelerationism is an emergent, fluid, and diverse intellectual project and its political possibilities are still being explored. Concrete links to the sociology of education and the temporal dimension in educational practice are therefore currently unformed and open for debate. However, we have argued that the value of accelerationism lies in its capacity to provoke and irritate a comfortable, critical-progressive sense of temporality, acting as an antidote to becoming complacent or exhausted in the face of our ‘capitalist realist’ present. Accelerationism thus offers possibilities for the renewal of critical social theory and the analysis of the temporal dimension in education. The theoretical contributions that left accelerationism could make to critical sociology hinge on two key points: the possibility of severing the acceleration of modernity and technological development from capital growth, rather than conflating them and condemning technology on the basis of its commercial substrate; and advocating post-human scientific development and normative rationalism over appeals to ‘nature’ as a basis for ethico-politics. Indeed, left accelerationism takes the Promethean position that if nature is unjust then we should change nature. The challenge for critical sociology of education is the possibility that critique of the negative effects of the intrusion of capitalist time structures in education may not hold any potential to halt or alter the course of capitalism. The global array of interconnected, digital, algorithmic machines that control the flows of capital around the world probably stand beyond such critique and are oblivious to their socio-cultural effects. However, one could cogently argue that a relative acceleration of modernity, technology, and globality, as part of broader efforts to bring about post-capitalism (or even non-capitalism), offer possibilities for working through the techonomic time of capital by selectively accelerating certain of its dimensions while actively seeking to change or ameliorate other of its negative effects. Of course, the potential success of this approach is wildly uncertain and it would require much experimentation. But acknowledging this approach as a strategic possibility could shift debates in critical studies of education into new territories. For example, the ‘opportunity trap’ has been produced by a confluence of educational, technological, and economic developments. However, it also reflects a sense of temporality that has long been evident in critical sociology of education: as a dialectic of progress and reproduction in which the promise of the former is continually undermined by the latter. The new capacities for data analysis described in System A above offer little potential for improving the educational opportunities of young people if they remain tethered to an ‘opportunity bargain’ that fails to acknowledge the transformative force of technomic time on labour and education. Indeed, these capacities risk simply accelerating the problem. However, it may be possible to reframe the problem by beginning from the recognition of the transformative force of techonomic time and asking whether new technical capacities in education could be re-directed to transform education itself and, if so, which actors could viably pursue this aim. From this perspective, critical sociology of education could begin from the question of whether it is possible to accelerate certain tendencies in order to push schooling beyond a critical tipping point of transformation, which we could see as a form of escape from the reproductive logics of present educational forms. Singleton has argued that ‘[i]f a trap is to be escaped by anything other than luck … the escapee itself must change: the thing that escapes the trap is not the thing that was caught in it’ (2014, 504). We see here: … the mark of the accelerationist disposition, encompassing those schools of thought that can suborn a description of the world’s perceived shortcomings, and the corresponding elaboration of how it ought to be in the shape of images of the future, to the logic of how things get done, how freedom is a possibility within this, and how its progressive maximisation can be pursued through the systematic deployment of generative constraints. (Singleton 2014, 507; original emphasis) Here, Singleton points to the possibilities that arise from escaping a sense of accelerated temporality that is structured in terms of techno-utopia. Accelerationism could be reformatted as a part of, and adjacent to, educational practice affected by the accelerating milieu of contemporary capitalism to unlock constraint from within techonomic time. It is only by activating the very energies and formations of escape that one can **emerge from the narrowness of established modes of critique** and longstanding institutional forms of education to experiment strategically with alternatives. The central distinction that must be kept in mind when borrowing concepts from accelerationism is that between affirming an inherently apolitical absolute deterritorialisation and a tactical, relative deterritorialisation guided by an overarching normative strategy. As Brassier (2010) has argued, ‘if you have no strategy, someone with a strategy will soon commandeer your tactics’. The question for critical sociology of education, insofar as it might learn from accelerationist thought experiments, is whether a strategic programme can be forged that actively engages with technological developments such as machine learning and predictive analytics in order to put them to work in service of a strategy for accelerating cognitive development without being commandeered by the commercial forces that are rapidly colonising education.

## Links

### Link—Activism/Protest

#### The affirmative devolves into politics-as-drug experience --- the catharsis of protest and activism propels cycles of action and apathy that leave power structures intact.

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

Today it appears that the greatest amount of effort is needed to achieve the smallest degree of change. Millions march against the Iraq War, yet it goes ahead as planned. Hundreds of thousands protest austerity, but unprecedented budget cuts continue. Repeated student protests, occupations and riots struggle against rises in tuition fees, but they continue their inexorable advance. Around the world, people set up protest camps and mobilise against economic inequality, but the gap between the rich and the poor keeps growing. From the alter-globalisation struggles of the late 1990s, through the antiwar and ecological coalitions of the early 2000s, and into the new student uprisings and Occupy movements since 2008, a common pattern emerges: resistance struggles rise rapidly, mobilise increasingly large numbers of people, and yet fade away only to be replaced by a renewed sense of apathy, melancholy and defeat. Despite the desires of millions for a better world, the effects of these movements prove minimal. A FUNNYTHING HAPPENED ON THE WAYTO THE PROTEST Failure permeates this cycle of struggles, and as a result, many of the tactics on the contemporary left have taken on a ritualistic nature, laden with a heavy dose of fatalism. The dominant tactics – protesting, marching, occupying, and various other forms of direct action – have become part of a well-established narrative, with the people and the police each playing their assigned roles. The limits of these actions are particularly visible in those brief moments when the script changes. As one activist puts it, of a protest at the 2001 Summit of the Americas: On April 20, the first day of the demonstrations, we marched in our thousands towards the fence, behind which 34 heads of state had gathered to hammer out a hemispheric trade deal. Under a hail of catapult-launched teddy bears, activists dressed in black quickly removed the fence’s supports with bolt cutters and pulled it down with grapples as onlookers cheered them on. For a brief moment, nothing stood between us and the convention centre. We scrambled atop the toppled fence, but for the most part we went no further, as if our intention all along had been simply to replace the state’s chain-link and concrete barrier with a human one of our own making. 1 We see here the symbolic and ritualistic nature of the actions, combined with the thrill of having done something – but with a deep uncertainty that appears at the first break with the expected narrative. The role of dutiful protestor had given these activists no indication of what to do when the barriers fell. Spectacular political confrontations like the Stop the War marches, the now-familiar melees against the G20 or World Trade Organization and the rousing scenes of democracy in Occupy Wall Street all give the appearance of being highly significant, as if something were genuinely at stake. 2 Yet nothing changed, and long-term victories were traded for a simple registration of discontent. To outside observers, it is often not even clear what the movements want, beyond expressing a generalised discontent with the world. The contemporary protest has become a melange of wild and varied demands. The 2009 G20 summit in London, for instance, featured protestors marching for issues that spanned from grandiose anti-capitalist stipulations to modest goals centred on more local issues. When demands can be discerned at all, they usually fail to articulate anything substantial. They are often nothing more than empty slogans – as meaningful as calling for world peace. In more recent struggles, the very idea of making demands has been questioned. The Occupy movement infamously struggled to articulate meaningful goals, worried that anything too substantial would be divisive. 3 And a broad range of student occupations across the Western world has taken up the mantra of ‘no demands’ under the misguided belief that demanding nothing is a radical act. 4 When asked what the ultimate upshot of these actions has been, participants differ between admitting to a general sense of futility and pointing to the radicalisation of those who took part. If we look at protests today as an exercise in public awareness, they appear to have had mixed success at best. Their messages are mangled by an unsympathetic media smitten by images of property destruction – assuming that the media even acknowledges a form of contention that has become increasingly repetitive and boring. Some argue that, rather than trying to achieve a certain end, these movements, protests and occupations in fact exist only for their own sake. 5 The aim in this case is to achieve a certain transformation of the participants, and create a space outside of the usual operations of power. While there is a degree of truth to this, things like protest camps tend to remain ephemeral, small-scale and ultimately unable to challenge the larger structures of the neoliberal economic system. This is politics transmuted into pastime – **politics-as-drug-experience**, perhaps – rather than anything capable of transforming society. Such protests are registered only in the minds of their participants, bypassing any transformation of social structures. While these efforts at radicalisation and awareness-raising are undoubtedly important to some degree, there still remains the question of exactly when these sequences might pay off. Is there a point at which a critical mass of consciousness-raising will be ready for action? Protests can build connections, encourage hope and remind people of their power. Yet, beyond these transient feelings, politics still demands the exercise of that power, lest these affective bonds go to waste. If we will not act after one of the largest crises of capitalism, then when? The emphasis on the affective aspects of protests plays into a broader trend that has come to privilege the affective as the site of real politics. Bodily, emotional and visceral elements come to replace and stymie (rather than complement and enhance) more abstract analysis. The contemporary landscape of social media, for example, is littered with the bitter fallout from an endless torrent of outrage and anger. Given the individualism of current social media platforms – premised on the maintenance of an online identity – it is perhaps no surprise to see online ‘politics’ tend towards the self-presentation of moral purity. We are more concerned to appear right than to think about the conditions of political change. Yet these daily outrages pass as rapidly as they emerge, and we are soon on to the next vitriolic crusade. In other places, public demonstrations of empathy with those suffering replace more finely tuned analysis, resulting in hasty or misplaced action – or none at all. While politics always has a relationship to emotion and sensation (to hope or anger, fear or outrage), when taken as the primary mode of politics, these impulses can lead to deeply perverse results. In a famous example, 1985’s Live Aid raised huge amounts of money for famine relief through a combination of heartstring-tugging imagery and emotionally manipulative celebrity-led events. The sense of emergency demanded urgent action, at the expense of thought. Yet the money raised actually extended the civil war causing the famine, by allowing rebel militias to use the food aid to support themselves. 6 While viewers at home felt comforted they were doing something rather than nothing, a dispassionate analysis revealed that they had in fact contributed to the problem. These unintended outcomes become even more pervasive as the targets of action grow larger and more abstract. If politics without passion leads to cold-hearted, bureaucratic technocracy, then passion bereft of analysis risks becoming a **libidinally driven surrogate for effective action**. Politics comes to be about feelings of personal empowerment, masking an absence of strategic gains. Perhaps most depressing, even when movements have some successes, they are in the context of overwhelming losses. Residents across the UK, for example, have successfully mobilised in particular cases to stop the closure of local hospitals. Yet these real successes are overwhelmed by larger plans to gut and privatise the National Health Service. Similarly, recent anti-fracking movements have been able to stop test drilling in various localities – but governments nevertheless continue to search for shale gas resources and provide support for companies to do so. 7 In the United States, various movements to stop evictions in the wake of the housing crisis have made real gains in terms of keeping people in their homes. 8 Yet the perpetrators of the subprime mortgage debacle continue to reap the profits, waves of foreclosures continue to sweep across the country, and rents continue to surge across the urban world. Small successes – useful, no doubt, for instilling a sense of hope – nevertheless wither in the face of overwhelming losses. Even the most optimistic activist falters in the face of struggles that continue to fail. In other cases, well-intentioned projects like Rolling Jubilee strive to escape the spell of neoliberal common sense. 9 The ostensibly radical aim of crowdsourcing money to pay the debts of the underprivileged means buying into a system of voluntary charity and redistribution, as well as accepting the legitimacy of the debt in the first place. In this respect, the initiative is one among a larger group of projects that act simply as crisis responses to the faltering of state services. These are survival mechanisms, not a desirable vision for the future. What can we conclude from all of this? The recent cycle of struggles has to be identified as one of overarching failure, despite a multitude of small-scale successes and moments of large-scale mobilisation. The question that any analysis of the left today must grapple with is simply: What has gone wrong? It is undeniable that heightened repression by states and the increased power of corporations have played a significant role in weakening the power of the left. Still, it remains debatable whether the repression faced by workers, the precarity of the masses and the power of capitalists is any greater than it was in the late nineteenth century. Workers then were still struggling for basic rights, often against states more than willing to use lethal violence against them. 10 But whereas that period saw mass mobilisation, general strikes, militant labour and radical women’s organisations all achieving real and lasting successes, today is defined by their absence. The recent weakness of the left cannot simply be chalked up to increased state and capitalist repression: an honest reckoning must accept that problems also lie within the left. One key problem is a widespread and uncritical acceptance of what we call ‘folk-political’ thinking.

### Link—Anarchism/Folk Ptx

#### The affirmative valorizes a ‘folk politics’ of immediacy and localism that plays directly into the hand of neoliberal hegemony ---

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

What is folk politics? Folk politics names a constellation of ideas and intuitions within the contemporary left that informs the common-sense ways of organising, acting and thinking politics. It is a set of strategic assumptions that threatens to debilitate the left, rendering it unable to scale up, create lasting change or expand beyond particular interests. Leftist movements under the sway of folk politics are not only unlikely to be successful – they are in fact **incapable of transforming capitalism**. The term itself draws upon two senses of ‘folk’. First, it evokes critiques of folk psychology which argue that our intuitive conceptions of the world are both historically constructed and often mistaken. 11 Secondly, it refers to ‘folk’ as the locus of the small-scale, the authentic, the traditional and the natural. Both of these dimensions are implied in the idea of folk politics. As a first approximation, we can therefore define folk politics as a collective and historically constructed political common sense that has become out of joint with the actual mechanisms of power. As our political, economic, social and technological world changes, tactics and strategies which were previously capable of transforming collective power into emancipatory gains have now become drained of their effectiveness. As the common sense of today’s left, folk politics often operates intuitively, uncritically and unconsciously. Yet common sense is also historical and mutable. It is worth recalling that today’s familiar forms of organisation and tactics, far from being natural or pregiven, have instead been developed over time in response to specific political problems. Petitions, occupations, strikes, vanguard parties, affinity groups, trade unions: all arose out of particular historical conditions. 12 Yet the fact that certain ways of organising and acting were once useful does not guarantee their continued relevance. Many of the tactics and organisational structures that dominate the contemporary left are responses to the experience of state communism, exclusionary trade unions, and the collapse of social democratic parties. Yet the ideas that made sense in the wake of those moments no longer present effective tools for political transformation. Our world has moved on, becoming more complex, abstract, nonlinear and global than ever before. Against the abstraction and inhumanity of capitalism, folk politics aims to bring politics down to the ‘human scale’ by emphasising **temporal, spatial and conceptual immediacy**. At its heart, folk politics is the guiding intuition that immediacy is always better and often more authentic, with the corollary being a deep suspicion of abstraction and mediation. In terms of temporal immediacy, contemporary folk politics typically remains reactive (responding to actions initiated by corporations and governments, rather than initiating actions); 13 ignores long-term strategic goals in favour of tactics (mobilising around single-issue politics or emphasising process); 14 prefers practices that are often inherently fleeting (such as occupations and temporary autonomous zones); 15 chooses the familiarities of the past over the unknowns of the future (for instance, the repeated dreams of a return to ‘good’ Keynesian capitalism); 16 and expresses itself as a predilection for the voluntarist and spontaneous over the institutional (as in the romanticisation of rioting and insurrection). 17 In terms of spatial immediacy, folk politics privileges the local as the site of authenticity (as in the 100-miles diet or local currencies); 18 habitually chooses the small over the large (as in the veneration of small-scale communities or local businesses); 19 favours projects that are un-scalable beyond a small community (for instance, general assemblies and direct democracy); 20 and often rejects the project of hegemony, valuing **withdrawal or exit** rather than building a broad counter-hegemony. 21 Likewise, folk politics prefers that actions be taken by participants themselves – in its emphasis on direct action, for example – and sees decision-making as something to be carried out by each individual rather than by any representative. The problems of scale and extension are either ignored or smoothed over in folk-political thinking. Finally, in terms of conceptual immediacy, there is a preference for the everyday over the structural, valorising personal experience over systematic thinking; for feeling over thinking, emphasising individual suffering, or the sensations of enthusiasm and anger experienced during political actions; for the particular over the universal, seeing the latter as intrinsically totalitarian; and for the ethical over the political – as in ethical consumerism, or moralising critiques of greedy bankers. 22 Organisations and communities are to be transparent, rejecting in advance any conceptual mediation, or even modest amounts of complexity. The classic images of universal emancipation and global change have been transformed into a prioritisation of the suffering of the particular and the authenticity of the local. As a result, any process of constructing a universal politics is rejected from the outset. Understood in these ways, we can detect traces of folk politics in organisations and movements like Occupy, Spain’s 15M, student occupations, left communist insurrectionists like Tiqqun and the Invisible Committee, most forms of horizontalism, the Zapatistas, and contemporary anarchist-tinged politics, as well as a variety of other trends like political localism, the slow-food movement, and ethical consumerism, among many others. But no single position embodies all of these dispositions, which leads us to a first qualification: as an uncritical and often unconscious common sense, folk politics comes to be instantiated to varying degrees in concrete political positions. That is to say, folk politics does not name an explicit position, but only an implicit tendency. The ideas that characterise this tendency are widely dispersed throughout the contemporary left, but some positions are more folk-political than others. This brings us to a second important qualification: the problem with folk politics is not that it starts from the local; all politics begins from the local. The problem is rather that folk-political thinking is content to remain at (and even privileges) that level – of the transient, the small-scale, the unmediated and the particular. It takes these to be sufficient rather than simply necessary moments. Therefore, the point is not simply to reject folk politics. Folk politics is a necessary component of any successful political project, but it can only be a starting point. A third qualification is that folk politics is only a problem for particular types of projects: those that seek to move beyond capitalism. Folk-political thinking can be perfectly well adapted to other political projects: projects aimed solely at resistance, movements organised around local issues, and smallscale projects. Political movements based around keeping a hospital open or preventing evictions are all admirable, but they are importantly different from movements trying to challenge neoliberal capitalism. The idea that one organisation, tactic or strategy applies equally well to any sort of struggle is one of the most pervasive and damaging beliefs among today’s left. Strategic reflection – on means and ends, enemies and allies – is necessary before approaching any political project. Given the nature of global capitalism, any postcapitalist project will require an ambitious, abstract, mediated, complex and global approach – one that folk-political approaches are incapable of providing. Combining these qualifications, we can therefore say that folk politics is necessary but insufficient for a postcapitalist political project. By emphasising and remaining at the level of the immediate, folk politics lacks the tools to transform neoliberalism into something else. While folk politics can undoubtedly make important interventions in local struggles, we deceive ourselves when we think these are turning the tide against global capitalism. They represent, at best, temporary respite against its onslaught. The project of this book is to begin outlining an alternative – a way for the left to navigate from the local to the global, and synthesise the particular with the universal. Such an alternative cannot simply be a conservative reversion to the working-class politics of the last century. It must instead combine an updated way of thinking politics (a shift from immediacy to structural analysis) with an upgraded means of doing politics (which directs action towards building platforms and expanding scales).

### Link—Anti-State/Anti-Electoral Ptx

#### Their anti-statism cedes control to right-wing reactionaries – re-constituting instutions into radical organizational ecologies can repurpose the state for common ends

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

In expanding the spatial focus of union organising, local workplace demands open up into a broader range of social demands. As we argued in Chapter 7, this involves questioning the Fordist infatuation with permanent jobs and social democracy, and the traditional union focus on wages and job preservation. An assessment must be made of the viability of these classic demands in the face of automation, rising precarity and expanding unemployment. We believe many unions will be better served by refocusing towards a post-work society and the liberating aspects of a reduced working week, job sharing and a basic income. 55 The West Coast longshoremen in the United States represent one successful example of allowing automation in exchange for guaranteeing higher wages and less job cuts (though they also occupy a key point of leverage in the capitalist infrastructure). 56 The Chicago Teachers’ Union offers another example of a union going far beyond collective bargaining, and instead mobilising a broad social movement around the state of education in general. Moreover, shifting in a post-work direction overcomes some of the key impasses between ecological movements and organised labour. The deployment of productivity increases for more free time, rather than increased jobs and output, can bring these groups together. Changing the aims of unions and organising community-wide will help to turn unions away from classic – and now failing – social democratic goals, and will be essential to any successful renewal of the labour movement. Lastly, the state remains a site of struggle, and political parties will have a role in any ecology of organisations – particularly if the traditional social democratic parties continue to collapse and enable a new generation of parties to emerge. Ensuring a post-work society for all will require more than just individual workplaces; it demands success at the level of the state as well. 57 While parties are frequently denounced for their cynical consent to electoralism and the limits posed by international capital, this changes within an ecology of organisations. Rather than making them the impossible vehicle of revolutionary desires – associated with the hopeless prospect of ‘voting in’ postcapitalism – they can instead take on the more realistic task of forming the ‘tip of the iceberg’ in terms of political pressure, as well as developing the ability to bring together a widely varied constituency. 58 The state can complement politics on the street and in the workplace, just as the latter two can broaden the options for parties. The avoidance of the state – common to so many folkpolitical approaches – is a mistake. Mass movements and parties should be seen as tools of the same populist movement, each capable of achieving different things. At their most general level, parties can integrate various tendencies within a social movement – from reformist to revolutionary – into a common project. While international capital and the inter-state system make radical change virtually impossible from within the state, there are still basic and important policy choices to be made about austerity, housing support, climate change, childcare, demilitarisation of the police and abortion rights. Simply to reject parliamentary politics is to ignore the real advances these policies can make. It takes quite a privileged position to not care about minimum wage regulations, immigration laws, changes to legal support or rulings on abortion. At their best, electoral entities can act as a disruptive force (stalling, publicising controversies, articulating popular outrage), and even act as a progressive force in some situations. This does not imply that social movements should simply be turned into the vote-mobilising wings of political parties. The relationship between parties and social movements should extend far beyond this, into a process of two-way communication. On the one hand, financial support can be given from the party to community initiatives, and various policies – such as laws on public protest – can be amended to facilitate the activities of social movements. In Venezuela, for instance, the state supported the creation of neighbourhood communes as a way to embed socialism in everyday practices. 59 On the other hand, resources for new parties can be mobilised collectively – Podemos, for example, got started through crowd-funding €150,000 – and the vitality of the party can be maintained through constant institutionalised negotiations between local movements, party members and central party structures. 60 Podemos, for instance, has aimed to build mechanisms for popular governance while also seeking a way into established institutions. 61 It is a multi-pronged approach to social change and offers greater potential for real transformation than either option on its own. 62 Meanwhile, Brazil’s Partido dos Trabalhadores has maintained openness to multiple groups (liberation theology groups, peasant movements) while still organising around an essentially union-based core. In the words of one researcher, ‘this combination of grassroots and vanguard constituted a Leninism that was not very Leninist’. 63 What all these experiences show, however, is the mass mobilisation of the people is necessary in order to transform the state into a meaningful tool of their interests, and to overcome the blunt division between the power of movements and the power of the state. The aim must be to avoid both ‘the tendency to fetishise the state, official power, and its institutions and the opposing tendency to fetishise antipower’. 64 In a context of widespread discontent with the political system, this remains possible – though, again, the importance of having a discursive framework in place to channel this discontent is obvious. In the end, parties still hold significant political power, and the struggle over their future should certainly not be abandoned to reactionary forces. It should be clear how far away we now are from the folk-political fetishism of localism, horizontalism and direct democracy. An ecology of organisations does not deny that such organisational forms may have a role, but it rejects the idea that they are sufficient. This is doubly true for a counter-hegemonic project that requires the toppling of neoliberal common sense. What we are calling for, therefore, is a functional complementarity between organisations, rather than the fetishising of specific organisations or organisational forms.

### Link—Horizontalism

#### Their horizontalist politics is counterproductive and replicates failed habits of activism

**Williams and Srnicek 2013** [Alex and Nick, “#Accelerate: Manifesto for an Accelerationist Politics,” *#Accelerate# The Accelerationist Reader, 349-362]*

1. We believe the most important division in today’s left is between those that hold to a *folk politics* of localism, direct action, and relentless horizontalism, and those that outline what must become called an accelerationist politicsat ease with a modernity of abstraction, complexity, globality, and technology. The former remains content with establishing small and temporary spaces of non-capitalist social relations, eschewing the real problems entailed in facing foes which are intrinsically non-local, abstract, and rooted deep in our everyday infrastructure. The failure of such politics has been built-in from the very beginning. By contrast, an accelerationist politics seeks to preserve the gains of late capitalism while going further than its value system, governance structures, and mass pathologies will allow. 2. All of us want to work less. It is an intriguing question as to why it was that the world’s leading economist of the post-war era believed that an enlightened capitalism inevitably progressed towards a radical reduction of working hours. In *The Economic Prospects for Our Grandchildren* (written in 1930), Keynes forecast a capitalist future where individuals would have their work reduced to three hours a day. What has instead occurred is the progressive elimination of the work-life distinction, with work coming to permeate every aspect of the emerging social factory. 3. Capitalism has begun to constrain the productive forces of technology, or at least, direct them towards needlessly narrow ends. Patent wars and idea monopolisation are contemporary phenomena that point to both capital’s need to move beyond competition, and capital’s increasingly retrograde approach to technology. The properly accelerative gains of neoliberalism have not led to less work or less stress. And rather than a world of space travel, future shock, and revolutionary technological potential, we exist in a time where the only thing which develops is marginally better consumer gadgetry. Relentless iterations of the same basic product sustain marginal consumer demand at the expense of human acceleration. 4. We do not want to return to Fordism. There can be no return to Fordism. The capitalist “golden era” was premised on the production paradigm of the orderly factory environment, where (male) workers received security and a basic standard of living in return for a lifetime of stultifying boredom and social repression. Such a system relied upon an international hierarchy of colonies, empires, and an underdeveloped periphery; a national hierarchy of racism and sexism; and a rigid family hierarchy of female subjugation. For all the nostalgia many may feel, this regime is both undesirable and practically impossible to return to. 5. Accelerationists want to unleash latent productive forces. In this project, the material platform of neoliberalism does not need to be destroyed. It needs to be repurposed towards common ends. The existing infrastructure is not a capitalist stage to be smashed, but a springboard to launch towards post-capitalism. 6. Given the enslavement of technoscience to capitalist objectives (especially since the late 1970s) we surely do not yet know what a modern technosocial body can do. Who amongst us fully recognizes what untapped potentials await in the technology which has already been developed? Our wager is that the true transformative potentials of much of our technological and scientific research remain unexploited, filled with presently redundant features (or *preadaptations*) that, following a shift beyond the short-sighted capitalist socius, can become decisive. 7. We want to accelerate the process of technological evolution. But what we are arguing for is not techno-utopianism. Never believe that technology will be *sufficient* to save us. Necessary, yes, but never sufficient without socio-political action. Technology and the social are intimately bound up with one another, and changes in either potentiate and reinforce changes in the other. Whereas the techno-utopians argue for acceleration on the basis that it will automatically overcome social conflict, our position is that technology should be accelerated precisely because it is needed in order to win social conflicts. 8. We believe that any post-capitalism will require post-capitalist planning. The faith placed in the idea that, after a revolution, the people will spontaneously constitute a novel socioeconomic system that isn’t simply a return to capitalism is naïve at best, and ignorant at worst. To further this, we must develop both a cognitive map of the existing system and a speculative image of the future economic system. 9. To do so, the left must take advantage of every technological and scientific advance made possible by capitalist society. We declare that quantification is not an evil to be eliminated, but a tool to be used in the most effective manner possible. Economic modelling is – simply put – a necessity for making intelligible a complex world. The 2008 financial crisis reveals the risks of blindly accepting mathematical models on faith, yet this is a problem of illegitimate authority not of mathematics itself. The tools to be found in social network analysis, agent-based modelling, big data analytics, and non-equilibrium economic models, are necessary cognitive mediators for understanding complex systems like the modern economy. The accelerationist left must become literate in these technical fields. 10. Any transformation of society must involve economic and social experimentation. The Chilean Project Cybersyn is emblematic of this experimental attitude – fusing advanced cybernetic technologies, with sophisticated economic modelling, and a democratic platform instantiated in the technological infrastructure itself. Similar experiments were conducted in 1950s-1960s Soviet economics as well, employing cybernetics and linear programming in an attempt to overcome the new problems faced by the first communist economy. That both of these were ultimately unsuccessful can be traced to the political and technological constraints these early cyberneticians operated under. 11. The left must develop sociotechnical hegemony: both in the sphere of ideas, and in the sphere of material platforms. Platforms are the infrastructure of global society. They establish the basic parameters of what is possible, both behaviourally and ideologically. In this sense, they embody the material transcendental of society: they are what make possible particular sets of actions, relationships, and powers. While much of the current global platform is biased towards capitalist social relations, this is not an inevitable necessity. These material platforms of production, finance, logistics, and consumption can and will be reprogrammed and reformatted towards post-capitalist ends. 12. We do not believe that direct action is sufficient to achieve any of this. **The habitual tactics of marching, holding signs, and establishing temporary autonomous zones risk becoming comforting substitutes for effective success.** “At least we have done something” is the rallying cry of those who privilege self-esteem rather than effective action. The only criterion of a good tactic is whether it enables significant success or not. We must be done with fetishising particular modes of action. Politics must be treated as a set of dynamic systems, riven with conflict, adaptations and counter-adaptations, and strategic arms races. This means that each individual type of political action becomes blunted and ineffective over time as the other sides adapt. No given mode of political action is historically inviolable. Indeed, over time, there is an increasing need to discard familiar tactics as the forces and entities they are marshalled against learn to defend and counter-attack them effectively. It is in part the contemporary left’s inability to do so which lies close to the heart of the contemporary malaise. 13. The overwhelming privileging of democracy-as-process needs to be left behind. The fetishisation of openness, horizontality, and inclusion of much of today’s ‘radical’ left set the stage for ineffectiveness. Secrecy, verticality, and exclusion all have their place as well in effective political action (though not, of course, an exclusive one). 14. Democracy cannot be defined simply by its means – not via voting, discussion, or general assemblies. Real democracy must be defined by its goal – collective self-mastery. This is a project which must align politics with the legacy of the Enlightenment, to the extent that it is only through harnessing our ability to understand[ing] ourselves and our world better (our social, technical, economic, psychological world) that we can come to rule ourselves. We need to posit a collectively controlled legitimate vertical authority in addition to distributed horizontal forms of sociality, to avoid becoming the slaves of either a tyrannical totalitarian centralism or a capricious emergent order beyond our control. The command of The Plan must be married to the improvised order of The Network. 15. We do not present any particular organisation as the ideal means to embody these vectors. What is needed – what has always been needed – is an ecology of organisations, a pluralism of forces, resonating and feeding back on their comparative strengths**. Sectarianism is the death knell of the left as much as centralization is**, and in this regard we continue to welcome experimentation with different tactics (even those we disagree with).

### Link—(im)potentiality/unproductivity/biopolitics/

#### Wallowing in impotentiality is catastrophically misguided --- the crises of global climate change, automation, and austerity require the weaponization of potentiality against power --- only a biopolitics against biopower can unleash the latent productivity of cognitive labor to create a counter-hegemonic reclamation of the imagination.

**Negri 14** (Antonio Negri, OG, “Some Reflections on the #Accelerate Manifesto,” in *#ACCELERATE: The Accelerationist Reader,* Urbanomic. 2014.)

The Manifesto for an Accelerationist Politics (MAP) opens with a broad acknowledgment of the dramatic scenario of the current crisis: Cataclysm. The denial of the future. An imminent apocalypse. But don't be afraid! There is nothing politico-theological here. Anyone attracted by that should not read this manifesto. There are also none of the shibboleths of contemporary discourse. or rather. only one: the collapse of the planet's climate system. But while this is important. here it is completely subordinated to industrial policies, and approachable only on the basis of a criticism of those. What is at the center of the Manifesto is 'the increasing automation in production processes, including the automation of "intellectual labor"', which would explain the secular crisis of capitalism.1 Catastrophism? A misinterpretation of Marx's notion of the tendency of the rate of profit to fall?2 I wouldn't say that. Here, the reality of the crisis is identified as neoliberalism's aggression against the structure of class relations that was organized in the welfare state of the eighteenth and twentieth centuries; and the cause of the crisis lies in the obstruction of productive capacities by the new forms capitalist command had to assume against the new figures of living labor. In other words, capitalism had to react to and block the political potentiality of post-Fordist labor. This is followed by a harsh criticism of both right-wing governmental forces, and of a good part of what remains of a Left-the latter often deceived (at best) by the new and impossible hypothesis of a Keynesian resistance, unable to imagine a radical alternative. Under these conditions, the future appears to have been cancelled by the imposition of a complete paralysis of the political imaginary. We cannot come out of this condition spontaneously. Only a systematic class-based approach to the construction of a new economy, along with a new political organization of workers, will make possible the reconstruction of hegemony and will put proletarian hands on a possible future. There is still space for subversive knowledge! The opening of this manifesto is adequate to the communist task of today. It represents a decided and decisive leap forward-necessary if we want to enter the terrain of revolutionary reflection. But above all, it gives a new 'form' to the movement, with 'form' here meaning a constitutive apparatus that is full of potentiality, and that aims to break the repressive and hierarchical horizon of statesupported contemporary capitalism. This is not about a reversal of the state-form in general; rather, it refers to **potentiality against power** - **biopolitics against biopower**. It is under this premise that the possibility of an emancipatory future is radically opposed to the present of capitalist dominion. And here, we can experiment with the 'One divides into Two' formula that today constitutes **the only rational premise of a subversive praxis** (rather than its conclusion).3 WIT H I N A N D AGAINST T H E T E N D E N CY OF CAPITALISM Let's have a look at how the MAP theory develops. Its hypothesis is that the liberation of the potentiality of labor against the blockage determined by capitalism must happen within the evolution of capitalism itself. It is about pursuing economic growth and technological evolution (both of which are accompanied by growing social inequalities) in order to provoke a complete reversal of class relations. Within and against: the traditional refrain of Operaism returns.4 The process of liberation can only happen by accelerating capitalist development, but-and this is important-without confusing acceleration with speed,5 because acceleration here has all the characteristics of an engine-apparatus, of an experimental process of discovery and creation within the space of possibilities determined by capitalism itself. In the Manifesto, the Marxian concept of 'tendency' is coupled with a spatial analysis of the parameters of development: an insistence on the territory as 'terra', on all the processes of territorialization and deterritorialization, that was typical of Deleuze and Guattari. The fundamental issue here is the power of cognitive labor that is determined yet repressed by capitalism; constituted by capitalism yet reduced within the growing algorithmic automation of dominion; ontologically valorized (it increases the production of value), yet devalorized from the monetary and disciplinary point of view (not only within the current crisis but also throughout the entire story of the development and management of the state-form). With all due respect to those who still comically believe that revolutionary possibilities must be linked to the revival of the working class of the twentieth century, such a potentiality clarifies that we are still dealing with a class, but a different one, and one endowed with a higher power. It is the class of cognitive labor. This is the class to liberate, this is the class that has to free itself. In this way, the recovery of the Marxian and Leninist concept of tendency is complete. Any 'futurist' illusion, so to speak, has been removed, since it is class struggle that determines not only the movement of capitalism. but also the capacity to turn its highest abstraction into a solid machine for struggle. The MAP's argument is entirely based on this capacity to liberate the productive forces of cognitive labor. We have to remove any illusion of a return to Fordist labor; we have to finally grasp the shift from the hegemony of material labor to the hegemony of immaterial labor. Therefore, considering the command of capital over technology, it is necessary to attack 'capital's increasingly retrograde approach to technology'.6 Productive forces are limited by the command of capital. The key issue is then to **liberate the latent productive forces**, as revolutionary materialism has always done. It is on this 'latency' that we must now dwell. But before doing so, we should note how the Manifesto's attention turns insistently to the issue of organization. The MAP deploys a strong criticism against the 'horizontal' and 'spontaneous' organizational concepts developed within contemporary movements, and against their understanding of 'democracy as process. '7 According to the Manifesto, these are mere fetishistic determinations of democracy which have no effectual (destituent or constituent) consequences on the institutions of capitalist command. This last assertion is perhaps excessive, considering the current movements that oppose (albeit with neither alternatives nor proper tools) financial capital and its institutional materializations. When it comes to revolutionary transformation, we certainly cannot avoid a strong institutional transition, one stronger than any transition democratic horizontalism could ever propose. **Planning is necessary** - either before or after the revolutionary leap-in order to transform our abstract knowledge of tendency into the constituent power of postcapitalist and communist institutions to come. According to the MAP, such 'planning' no longer constitutes the vertical command of the state over working class society; rather, today it must take the form of the convergence of productive and directional capacities into the Network. The following must be taken as a task to elaborate further: planning the struggle comes before planning production. We will discuss this later. TH E R EA P P R O P R IATI O N O F F I X E D CAPITAL Let's get back to us. First of all, the 'Manifesto for an Accelerationist Politics' is about unleashing the power of cognitive labor by tearing it from its latency: 'We surely do not yet know what a modern technosocial body can do!' Here, the Manifesto insists on two elements. The first element is what I would call the 'reappropriation of fixed capital' and the consequent anthropological transformation of the working subject.8 The second element is sociopolitical: such a new potentiality of our bodies is essentially collective and political. In other words, the surplus added in production is derived primarily from socially productive cooperation. This is probably the most crucial passage of the Manifesto.9 With an attitude that attenuates the humanism present in philosophical critique, the MAP insists on the material and technical qualities of the corporeal reappropriation of fixed capital. Productive quantification, economic modeling, big data analysis, and the most abstract cognitive models are all **appropriated by worker-subjects through education and science**. The use of mathematical models and algorithms by capital does not make them a feature of capital. It is not a problem of mathematics-**it is a problem of power**. No doubt, there is some optimism in this Manifesto. Such an optimistic perception of the technosocial body is not very useful for the critique of the complex human-machine relationship, but nonetheless this Machiavellian optimism helps us to dive into the discussion about organization, which is the most urgent one today. Once the discussion is brought back to the issue of power, it leads directly to the issue of organization. Says the MAP: the Left has to develop socio-technological hegemony-'material platforms of production, finance, logistics, and consumption can and will be reprogrammed and reformatted towards post-capitalist ends'.10 Without a doubt, there is a strong reliance on objectivity and materiality, on a sort of Dasein of development-and consequently a certain underestimation of the social, political. and cooperative elements that we assumed to be there when we agreed to the basic protocol: 'One divides into Two.' However, such an underestimation should not prevent us from recognizing the importance of acquiring the highest techniques employed by capitalistic command, as well as the abstraction of labor, in order to bring them back to a communist administration performed 'by the things themselves'. I understand the passage on technopolitical hegemony in this way: we first have to **mature the whole complex of productive potentialities of cognitive labor** in order to **advance a new hegemony**.

### Link—Insurrectionality

#### The affirmative contributes to the logic of insurrecitonality that characterizes the resistance of the status quo – acts of momentary insurrection function to increase resilient social control – the impact is the capture of the aff’s insurgent energy into apparatuses of control that sustain oppression.

**Luke 15** (TW, Professor of Political Science at Virginia Tech, 10/29/15, “On Insurrectionality: Theses on Contemporary Revolts and Resilience”, Globalizations, 12:6, 834-845)

Resilience in the Dialectics of Revolt and Rule These theses on insurrection are only a provisional assessment. They attempt to assay certain logics of change and containment apparently at work in new radical appeals for direct action, like those made in The Coming Insurrection ( 2009 ), The Democracy Project ( 2013 ), or Two Cheers for Anarchism ( 2012 ). While these calls for upheaval are provocative, this analysis suggests one should ask to what extent the politics touted by such programmatic manifestos now are becoming, and already have been for some good while, interwoven into the existing order of power in the subtle dialectics of resilience? For months, Occupy Wall Street (OWS) activists organized public protests and teach-ins against economic and political inequality all across the USA during 2011 and 2012. Thousands joined this peaceable uprising against corporate power. The Federal Bureau of Investigation and Department of Homeland Security kept it under continuous watch for terrorist intentions at its peak of popularity, but then classified it as a ‘peaceful movement’ when its appeal waned. OWS popularized, and in many ways glamorized, popular resistance, but its inchoate critiques of embedded corporate and state power seem to have only made the top 1% much more resilient as the decisive social force at work in business and government. This outcome leads one to suggest that **insurrectionists now are an intrinsic part of a robustly resilient social order that justifies itself, and legitimizes its own expansive controls, in part, by tolerating the possibility of constant revolts while continuously containing their impact**? Also in 2011, thousands of Egyptians rose up against President Hosni Mubarak in Tahrir Square, toppling his government with the assistance of the nation’s armed forces in less than two weeks. A new elected regime of Islamist partisans from the Muslim Brotherhood led by President Mohamed Morsi quickly was elected as well as a new constitution installed to appease the insurrection. Yet, this regime also met its own quick demise at the hands of new uprisings centered in Tahrir Square. That renewed insurrection in the streets then turned to the Egyptian military and General Abdul Fattah al-Sisi to take control of the state. This complicated cycle of embedded regime collapse, and then reconstruction, could be characterized as a useful case study in **‘insurrectionality’**. Like other parallel ideologies of good works, like ‘accountability’, ‘diversity’, or ‘sustainability’, **the logics of insurrectionality appear to be another facet of flexible control in a new regime of resilient power.** This emergent system of maintaining social order seems to mobilize disorder to generate its power and knowledge. It is affected, in part, by achieving a loose containment of insurrectionists as well as by accepting, to a degree, the legitimacy of insurrectionism as a general civil/ political/social freedom, if not, a new type of right. For a world in which 85 elite rich individuals own as much wealth as one half of the entire Earth’s population, and where the number of billionaires has doubled since 2008 (even as most of the 99% of world’s population is floundering economically), **insurrection is attractive**. For too many people everywhere, their nearly insignificant existential meaning and financial net worth are at best stagnant. This lack of purpose and wealth amidst tremendous affluence is associated with their growing sense of anomie, disempowerment, and impoverishment. Insur- rectionality, then, can flare up here in all of the conflicted complementarities crackling between their frustrated aspirations and growing hopelessness (Baudrillard, 1996 ). The widespread outbreaks of insurrectionist political movements in open defiance of today’s dominant economic and social order perhaps are a defining quality at this juncture in history. From the ‘Arab Spring’ uprisings, to the ‘color revolutions’ in Eastern Europe, to the worldwide ‘Occupy’ movements, to numerous attacks of pre-mediated violent terrorist action, this new politics of insurrection has been unfolding rapidly during the twenty-first century (Graeber, 2013 ). In some instances, these movements often appear to be quite radical, but also not necess- arily progressive. They seem very popular, but not always seeking emancipation for all people. They have political complaints, but also have not usually pursued conventional governmental means of redress within the workings of modern state structures as they stand (Dussel, 1985 ). Most distinctively, despite the open, and quite often aggressive, defiance of these insurrectional movements **there is little transformation** coming from their activities. Such discontinuities raise questions: do insurrections pose significant challenges to the exist- ing social order, have they taken different epistemic or ethical positions that put them in complete opposition to prevailing systemic authority, and do their insurrections challenge conventional humanist conventions of secular, statal, and social identity (Elden, 2007 )? Working to advance some provisional responses here to these fascinating developments could cast new light on how contemporary insurrections, and systemic transformations that they profess to pursue, are either closely connected or completely contradictory historical changes that appear to have very low probabilities of success no matter how intensely their supporters push for them. Insurrection is an old word, and one whose meaning resonates across time and space from its Latin origins in the notion ‘insurgere’ to ascend, rise up or rebel. Close to the idea of insurgency, insurrection also implies being mutinous, rebellious, or revolutionary in open acts of rebellion against civil authority, ruling elites, or government power. To be insurrectional, or incite insurrection, and rise up, as an insurrectionist does not imply, however, that those who rise in rebel- lion necessarily will continue to stay up or succeed in their would-be ascension to power (Bartelson, 1995 ; Giddens, 1985 ). Consequently, insurrection can be seen as some latent potentiality, a quality of being at readiness for, an instance of launching into, or a need for rising up, which allows one to discuss simultaneously the intermittent emergence and persistent embeddedness of insurrectionality as a crucial characteristic in the governance of contemporary life (Luke, 2012 ). As Miller and Rose ( 2008 , p. 149) claim. the emergence of professionals in the conduct of conduct, professionals whose expertise lies in the shaping of this self-steering mechanism of others in relation to certain norms grounded in positive knowledge, may be seen as a decisive event in the exercise of authority. Therefore, one must pay heed to the management of insurrectionality by expert professionals. It follows fresh scripts in which less rigid and resilient forms of authority become exercised via the machinic unconsciousness imprinted in the assemblages of everyday life (Guattari, 2011 ). One wonders how protests against debt, unemployment, and dispossession in America’s con- temporary capitalist economy are, in fact, a strategic mediation of ‘a government of “each and all”, evincing a concern for every individual and the population as a whole’, which essentially ‘involves the health, welfare, prosperity, and happiness of the population’ such that ‘to govern properly, to ensure the happiness and prosperity of the population, it is necessary to govern through a particular register, that of the economy’ (Dean, 1999 , p. 19). Accepting economic and political crisis, therefore, becomes an effective strategy to communicate, control, and command the containment of popular uprisings via unwritten constitutional provisos for such insurrectionality. By accepting mediagenic street demonstrations and colorful site occupations, if only for a short stretch of time, as liminal movements in which direct actions by ‘the people’ to engage in the popular review, legitimation, or alteration of the existing regime, does the exercise of sovereign authority and disciplinary practice provisionally reinvent ‘the regulation and ordering of the numbers of people within that territory’ (Dean, 1999 , p. 20) by turning to such unorthodox means of governance via insurrectionality? 2. Risk to Sustain and Develop Resilient Rule This brief analysis, therefore, plays off contradictions, conflicts, and contagions in the con- temporary events around the world to find the patterns in these variations of power. From Paris in 2005, Athens in 2008, Tunis in 2011, Kiev in 2012, Bangkok in 2014, or innumerable other instances of organized violence, popular turmoil, civic unrest, or social mayhem in smaller cities and towns going back years, if not decades, all over the world, many have foretold of the coming of grand insurrections from all of these seemingly disparate events (Hardt & Negri, 2000 ). Nonetheless, crisis management by corporations and states has been refining its practices as a mode of governance since the 1960s to the extent that it essentially risks revolt to sustain and develop resilience as a logic of rule (Luke, 1978 , pp. 56 – 72). Plainly, for 50 years, fresh waves of insurrectional activity have erupted, only to be disrupted, and then crushed, contained, or captured to dissipate or redirect their activism (Scott, 2012 ). These are distinctive trends in today’s ‘risk society’ (Beck, 1992 ). Its incumbent authorities at many levels of administration often accept and manage the risk of insurrection, like any sets of collective social risk. The coevolutionary coexistence of established power and emergent insur- rection iterate this logic of insurrectionality. In keeping the media looking for unrest, citizens ready to engage in mayhem, and flexible state power mobilized to defend with considerable force the existing order against unruly street mobs, strategic elite decision-makers nurture resi- lience through revolts. That is, they continue draining off, or cultivating, more limited aspects of the credible, helpful, or useful normative policy agendas borne by the programs of insurrection- ists when and where they appear in orderly demonstrations as spectacles of free assembly, con- science, and speech. Insurrection, then, never truly disappears with the development of modernizing urban indus- trial societies (Luke, 1990 ). **On the contrary, it must persist**. The enduring promise of revolt per- petuates its never fully fulfilled promise with precepts and possibilities that portend their advocates can never be manageable, disreputable, or contained ‘the next time’. These recurring tendencies must be explored, because one rightly can ask if **there are new strategic practices at work within these manifestations of insurrectionality, which have been integral to the survival and strength of the existing order** (Dean, 2008 ). Is it possible that the culture of resilience, now so cherished by the existing order, cannot be implemented, and then continuously refined, without conflicts, contention, or crises to degrade everyday economic, political, and social processes to the point that their crisis-ridden eventuation’s must, and can, ‘bounce back’ resiliently to keep new cycles of neoliberal economic growth and social reform expanding? <CARD CONTINUED> Many of these revolutionary movements’ key ‘representational spaces’ do generate insurrec- tionist spatiality, like Tahrir Square, the Maidan, or Zuccotti Park, that feed into the mythos of new world order grounded in vigilant resilience, but those shifts become more feasible only with microelectronic information and communication technologies. Diversely imagined communities of incumbent and insurgent forces interact through ‘space as directly lived through its associated images and symbols, and the space of “inhabitants” and users ... this is the dominated—and hence passively experienced—space which the imagination seeks to change and appropriate’ (Lefebvre, 1991 , p. 39). Both sets of contending imaginative forces will change and appropriate the acts and artifacts of insurrection in many small ways that affirm the resistance of insurrec- tions as well as actualize the resilience of the authorities they challenge. These calculated and intelligible workings of power are neither so formulaic nor inspired that they appear unprecedented. Rather they are continuously emergent, and deeply embedded, aspects of post-Cold War relations of power, which ‘are both intentional and non-subjective’, making them as Foucault would argue, ‘imbued, through and through, with calculation: There is no power that is exercised without a series of aims and objectives’ (Foucault, 1978 , pp. 94 – 95). Resilience certainly has objective aims as a mode of governmentalizing rule. Neverthe- less, it seemingly accepts some aspects of sustainability, insurrectionality, complexity, or reflex- ivity as harnessed oppositional energies. These elective affinities cannot be tracked back to ‘the choice or decision of an individual subject’, even though it is readily apparent that each one’s operational ‘logic is perfectly clear, the aims decipherable’ (Foucault, 1978 , p. 95). Insurrectionality unfolds, like sustainability, as another layer in the contemporary codes of global performativity. Resilient authority structures at work in the deep state collaborate continuously through never-ending police operations to contain, shape, or manage insurrectionable development. In so doing, they refine appear to refine their ‘systems of neutralization and equiv- alence’ to select those motifs, styles or traits of insurgency that become ‘comparable within the capitalistic economy of flows’, even though it often will be ‘necessary to hide them, cut them off, make them over, or better yet transform them from the inside’ (Guattari, 2011 , p. 79). Organizing new anti-capitalist insurrections through tweets, posts, and blogs is not that dissimilar from enforcing their pacification through commercial counter-tweets, anti-posts, and reactive blogs. Systemic stability arguably presumes episodes of failure, interruption, and turbulence. Otherwise, it is less effective at maintaining operational resilience in all ‘the func- tions of opening and reclosing signifying assemblages’ for the distributed and resilient power grids maintaining today’s precarious social peace (Guattari, 2011 , p. 79). Insurrectionality might well improve these networks of order by bringing new social demands to light, but so too does it strengthen the resilience of those authorities who may concede or crush these demands. 4. Resilience is Insurrectionable Development The rapid urbanization of planet Earth transmutates cityscapes and countrysides into a profusion of man-made conurbanations (Virilio, 2000 ). Still the metropolis is not just this urban pile-up, the final collusion of city and country. It is also a flow of beings and things, a current that runs through fiber-optic networks, through high-speed train lines, satellites, and video surveillance cameras, making sure that this world keeps running straight to its ruin. (Invisible Committee, 2009 , pp. 58 – 59) Maintaining cohesion and coherence against any and all insurrectionists under these circum- stances basically is improbable, if not impossible. Hence, an ethos of accepting risk and accom- modating it resiliently unfolds to rejoin shattered pieces and reintegrate suddenly incoherent practices as viable and enhanced forms of life (Miller & Rose, 2008 ). Rather than pretending to be invulnerable and steady, resilient state power may well concede its tendencies to fail even as it labors to stay up and running. It is precisely due to this architecture of flows that the metropolis is one of the most vulnerable human arrangements that has ever existed. Supple, subtle, but vulnerable ... the world would not be moving so fast if it didn’t have to constantly outrun its own collapse. (Invisible Committee, 2009 , 60) Frequently, the resilience thinking behind current-day governmentality accedes that the Earth’s environment as such is becoming a continuous catastrophe. Instead of struggling to guard pristine ecologies against all probable threats, the ethos of endangerment at the core of resilience affirms that all environments must persist through punctuated incidents of toxic cat- astrophe. The relation of state power to the masses in resilience regimes recognizes ‘the environ- ment is nothing more than the relationship to the world that is proper to the metropolis and that projects itself onto everything that would escape it’ (Invisible Committee, 2009 , p. 75). Indeed, the modalities of insurrectionable development concede that the metropolis is a terrain of constant low-intensity conflict, in which the taking of Basra, Moga- dishu, or Nablus mark politics of culmination ... no longer undertaken in view of victory or peace, or even the re-establishment of order, such ‘interventions’ continue a security operation that is always already in progress. War is no longer a distinct event in time, but instead diffracts into ‘a series of micro-operations, by both military and police, to ensure security’. (Invisible Com- mittee, 2009 , pp. 56 – 57) These institutional developments arguably are also part of the effects following from the advent of walled states and waning sovereignty. This couplet of order and disorder is taking hold across many societies around the world, but especially in those regimes that rest upon build- ing physical barriers between the starkly divided classes of technologically competent, obsoles- cent, and superfluous workers proliferating in divisive cultures and exploited societies trapped in a globalized world economy. Wendy Brown focuses her attention on the border walls between the USA and Mexico running from California to Texas and Israel’s security walls on the West Bank in the Sinai, and near Gaza ( 2010 , pp. 28 – 42) to spotlight these contradictions. Such ‘security fences’ seem often fail as impermeable barriers, and therefore create little security (Nevins, 2002 ; Weizman, 2007 ). Yet, they never were intended to be impermeable secure bar- riers. Rather they are the most massive markers of how far more tangible divides already are always being erected between businesses and communities, the rich and poor, racial majorities and minorities, or the top and bottom of society over the last 50 years. Through the practices of urban redevelopment, freeway construction, public housing, gated communities, secure skyscra- pers, guarded campuses, and other ‘defensible spaces’ around the world, the walled state has morphed into the sine qua non of civil society. As Brown suggests, ‘walls respond to and externalize the causes of different kinds of per- ceived violence to the nation, and the walls themselves exercise different kinds of violence toward the families, communities, lands, and political possibilities they traverse and shape’ ( 2010 , p. 38). While she regards them as ineffective security mechanisms per se, one wonders how insurrections are the material effects of when and where ‘walls inadvertently subvert the distinction between inside and outside that they are intended to mark’ as well as ‘what contingent effects they have in contouring nationalisms, citizen subjectivities, and the identities of political entities on both of their sides’ (Brown, 2010 , p. 41). To solidify the logics of resilience, then, walls prove to be important mechanisms to effectuating the insecurities that resilient rule requires. In too many ways, the growing inequalities and social divisions in post-Fordist neoliberal economies are barriers very rarely experienced everyday in mass behavior. The fabrication of walls, fences, checkpoints, and other dividers simultaneously imply insurrections can be both fueled, and actively contained, by the structural violence of neoliberal dispossession (Lazzarato, 2012 ). In stimulating and then sparking insurrection, then, how normalized is insurrectionality becoming in these decades-old patterns? And, after multiple cycles of insurrection-and-suppres- sion, to what extent have resilient responses become, in fact, an emergent regimen of governance rather than entrenched embattlement? Inequality is growing, insurrectionality persists, and injustice is rife. Yet, the prevailing powers concede openly these realities by reimagining themselves always improving how they will respond to injustice-fueled mayhem, insurrectional destruction, and inegalitarian turmoil. Events like Watts, California; Detroit, Michigan; Liberty City, Florida; South Los Angeles, Cali- fornia; and Ferguson, Missouri from the 1960s through the 2010s in the USA unfold different manifold variations of insurrectionality, but the growing resilience of civil municipal authority and police powers in facing these events matters also evolves. They are being tested, refined, and readied for the next insurrectionable developments waiting to be triggered by a traffic stop, a street fight or an ID check involving a cop and citizen. Inside and outside now coincide in the logics of resilience-as-rule. 5. Insurrectionality: Governance through Resilience With the militarization of municipal, regional and national police forces in the USA and other OECD countries (one here can think about the overly aggressive display of military-grade weap- onry in response at Ferguson, Missouri or Keene, New Hampshire to civil rights protest or student mayhem that was not wholly unlike that of Egyptian military and police forces in Tahrir Square), new global trends of social control and organization, rooted in resilient styles of governance, **are gelling in the turbulence of insurrectionality**. Add to these rapid response forces, the securitized surveillance system of closed-circuit television, cybertracking, biometric scanning, and addressable individual tracking devices; and, the withering away of many other streams of popular ideological resistance as corrective feedback loops, the powers that be, have been, and will be seem, if they are truly sophisticated, to be adding insurrection to their risk society calculi. Indeed, these new integers for innovation justify building and enforcing a potent mix of resilience tactics, which are tested as ideology and practice for continued elite empowerment. Rising up in the streets against authority in the fury of intense insurrection is acceptable, but standing up slowly to truly assume power has become much less likely. Still, the collapse of economic growth, the decay of middle and working class job opportunities, civic infrastructure decay, loss of public goods, and degradation of private markets are all generating and maintaining a high level of insurrectional energy (Luke, 2012 ). Now the elite discourses embedded in the reproduction of existing power structures knowingly accedes to insurrection, and even can concede conceptually, its justifiable bases, which endorses its existence as ‘insurrectionable development’. Instead of a ‘clash of civilizations’ (Huntington, 1996 ), these arrangements for a resilient adaptation to recurrent anarchy **are the nuts and bolts needed for ‘governing the present’** (Miller & Rose, 2008 ). Governance games on this scale harness legitimate corrective impulses from the outsiders, underclasses, and superfluous populace to make improvements in some state and non-state services, which usually enhance systemic resilience, regime stability, and the sustainability of ruling alliance/elite/bloc/class power (Guattari & Negri, 2010 ). Are insurrections—both peaceful and violent instances of direct action—crucial opportunities for policy innovations? They seem to appear as fluid zones of indeterminate determination where layers of opposition and acceptance arguably are ‘at once economic, political, and cultural—and hence they are biopolitical struggles, struggles over the forms of life ... creating new public spaces and new forms of community’ (Hardt & Negri, 2000 , p. 56). Likewise, do insurrections reconfigure ‘the organization of the social worker and immaterial labor’ in which ‘bodies are on the front lines of this battle, bodies that consolidate in an irreversible way the results of past struggles and incorporate a power that has been gained ontologically’ (Hardt & Negri, 2000 , p. 410) stand ready to OWS, but are they also truly unable to ever manage Wall Street? Along these lines, insurrection becomes yet one more reflexive dimension of modernity’s dis- ciplinary modulations of individual and collective human life. State authority rationally maps, and then manages the degrees of freedom allowed in the life of its subjects or citizens through the dispositifs at work in many embedded institutions woven into the territorial fabric of states. The command and control containments of these degrees of unruly freedom, **which are clearly allowed** to human life by state power, unevenly meld sovereignty, territoriality, and population as new resistant-and-resilient coproductions of governmentality (Foucault, 1978 ). Hence, resilience-ready rulers often use popular direct action effectively to ensnare the popu- lation in ‘apparatuses of security’, like those created by various police forces, homeland security units, public health measures, etc., in a manner such that these events also address ‘health, edu- cation and social welfare systems and the mechanisms of the management of the national economy’ (Dean, 1999 , p. 20). In turn, can these governmentalizations of insurrectionable devel- opments settle into ‘the juridical and administrative apparatuses of the state in all of the ways that optimize the health, welfare and life of populations’ as biopolitical formations (Dean, 1999 , p. 20)? Quite clearly, this complex style of resilient response must be studied, since the emergent regimentations of governance practices have ‘a technical or technological dimension’ with new adaptive strategies that display ‘characteristic techniques, instrumentalities and mech- anisms through which such practices operate, by which they attempt to realize their goals, and through which they have a range of effects’ (Dean, 1999 , p. 21). Seeing insurrectionality as a tactical move for the defense of fluid, global and unstable public order follows from Foucault’s vision of the apparatuses of government. The problematization of insurrectionable developments as constructive moments of collective purpose seconds his sense of the world today, namely, ... not that everything is bad, but that everything is dangerous, which is not exactly the same as bad. If everything is dangerous, then we always have something to do. So my position leads not to apathy but to hyper- and pessimistic activism. (Foucault, 1997 , p. 256) The division of social forces into ‘insurrectionists’ that are continuously tracked by ‘anti-insur- rectionist’ security assessment experts, working as ‘threat assessment teams’ to assay ‘teeming assessable threats’ confirms this consciousness of everything merely being dangerous, and thereby producing a fluid new social order out of constant flexible imperatives that assure all they will have ‘something to do’. Strangely, ‘endangerment’ becomes a new operational baseline assumption for making the advances of ‘development’. Are these strategies leading to more secure order, or only securitizing everyday life to accustom citizens to living on the minimal basis they appear to accept? They are unruly wards protected by quasi-police state power, who permit the public to protest the conditions of their confinement in advocacy networks within and across borders, but always remain at the mercy of the same resilient power practitioners (Keck & Sikkink, 1998 ). Ironically, insurrectionality serves multiple purposes; but, most importantly, its practices sustain resilient state networks for ruling elites, and this link cultivates the expected outcomes—a barely passable life for the masses trapped in shells of passivity, dependency, and inaction that remarkably are regarded by far too many citizens, clients or consumers as the freedoms of insurrectional agency.

### Link—Ks of Totality/No Telos

#### Their refusal of telos and totality brings a knife to a gun fight – their play with impotentiality stacks aimless multiplicity against the entrenched hegemony of capitalist techno-networks, making cooption and accumulation inevitable.

--refusal of telos, links to impotentiality

--refusal of totality (wink wink Gibson-graham)

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Whether the dominated think the thoughts of the dominant, or the dominant traduce those of the dominated, a certain affinity between pro- and anti-systemic ideologies is a common feature of discursive contests. Insofar as the forms of our social intercourse are recoded in our theories, this is no surprise. With the declaration that the age of extremes has drawn to a close, the spontaneous order celebrated by fervid marketeers found its counterpart in the manifold resistances augured by those who thought that mutation was no longer to be mediated by transition, that is by power and the state. Though the genealogical threads that bind advocacy for and antagonism against the status quo are myriad, it would be difficult to underestimate the extent to which the sedimented effects of a long intellectual Cold War are still registered in the language of the left. Excoriations of the will, denunciations of the all-seeing state, grim warnings about the consequences of seeking mastery over nature and history: many of the main items in the dossier against ‘the God that failed’ are now intellectual reflexes, dependable and ubiquitous. Otherwise incompatible worldviews—authoritarian liberalism and subversive libertarianism—converge in descrying the political ills of a ‘Promethean’ desire to control collective destiny. The anti-Prometheanism of the right can mostly be taxed with hypocrisy: Burkean calls for cautious reform have rarely impeded policies that devastated the customs and commons of the oppressed; and the much-vaunted shrinking of the state has meant a hypertrophy of its repressive apparatus, a low-intensity war of the state against society on behalf of the markets. The anti-Prometheanism of the left, instead, is most often marked by melancholy or illusion. Melancholy: the sense that emancipation is an object better mourned than desired; that the price of our principles is prohibitive. Illusion: the persuasion that the powerless can prevail over the powerful without concentrating and organising their forces; the belief that the systems and capacities which now embody the dead labours of generations, and bear the traces of barbarisms past, can simply **be abandoned or destroyed**, rather than, at least in part, **appropriated**. Such attitudes channel, more or less unwittingly, **that crucial counter-revolutionary tenet**, according to which political violence and catastrophe is a consequence of imposing abstract ideas (liberty, equality, fraternity…) upon complex and refractory human material. Prometheanism is a matter of knowledge, scale and purpose. The neoliberal right bases its apology for the omnipotence of markets, and the disastrous impossibility of planning, on the limits of our cognition. Refusing the point of view of, and on, totality, it likewise rejects modern conceptions of a political control over the scope and impact of decisions, namely in the figure of popular sovereignty, while abetting the most pernicious effects of the notion, dear to contemporary micro-sociology, that scale is produced at specific locales. Consider the present power wielded by those formidable sites for the production of massive social and political effects, rating agencies: organisations entirely beyond the purview of any collective control whatever, before which the power of parliaments pales. As far as purpose is concerned, advocates of market supremacy will never tire of proposing some variant or other of the pre-established harmony between the amoral compulsion to accumulate come-what-may and human needs, conveniently reduced to a narrow repertoire of consumer satisfactions. The abstract and inhuman domination of the form of value, commensurating all human activity under the imperative of surplus, is reputed compatible with the quaintest and most predictable of ‘our values’, to borrow from the numbing vocabulary of today’s politicians. But the enduring association of twentieth-century hecatombs with the state, science and socialism has meant that the most sincere and bitter farewells to Promethean ambitions originate with progressives despairing of progress, pleading, with fluctuating conviction, for the piecemeal. In these times of precautionary principles and unforeseen effects, **it is second nature to perceive totalising knowledge as a harbinger of catastrophe**, especially when wedded to a vision of history or of humanity as **endowed with a telos**. Instead of querying the repeated suppressions of any popular control or democratic practice beyond the periodic acknowledgment of a pacified and passive citizenship, **both collectivity and control have become targets of suspicion**. Those who refuse to wean themselves off an enthusiasm for politics project insurrections without end, powers constituent but never constituted, interruptions that are never the prelude to less abject continuities. “Melancholy: the sense that emancipation is an object better mourned than desired.” But the forces and fractions that collude in perpetuating the current patterns of domination are never short of organising nodes and sorting centres, strategically sited in vast networks of complicity. If the reformist mirage of the state as the sole locus of social resistance against capital dies hard, so does the myth that, amid immensely asymmetric social warfare, the amorphous swarms of an uncoordinated multiplicity would somehow carry an advantage against the sclerotic infrastructure of power. Without control, over the modalities of production and reproduction, **cooperation is always cooperation for capital**, and commonality merely a buffer, a positive externality socialising the costs of more direct forms of exploitation. Under the current management, anarchy will invariably be the false anarchy of the markets, and ‘spontaneous’ order will always tend to make it so that assets return to their rightful owners, as an American capitalist once quipped about the consequences of crisis. In a world where mankind has truly become a geological agent, enjoying (and suffering) levels of logistical integration and technical capacity that would have made the shock-workers of old blanch, we may wonder whether a diffuse anti-Promethean common sense expresses a dangerous disavowal rather than a hard-won wisdom. The problems of anti-Prometheanism are rendered particularly acute if we consider its promotion as the ideological complement to an ambient catastrophism. The irony of our present predicament is nicely conveyed by the conjunction between, on the one hand, a diffuse rhetoric that we must learn to live within our means, that progressivism and productivism must be abandoned, and, on the other, the proliferation of practices and proposals for planetary governance, regulation and control—though of the kind that are invariably delegated to the functionaries of an imposed consensus, those tasked with changing everything so that nothing will change (or, if the Copenhagen fiasco is any indication, of changing nothing so that everything will change…). The widespread notion that we are acting under the pressure of time, goaded from expedient to emergency by time’s arrow, reinforces, in subtly pernicious ways, the abdication of the very idea of collective control. On the side of established powers, it perpetuates a practice of crisis-management, which from toothless moratoria and pollution credits to road maps and peace processes, is among the chief components of catastrophe. Among the forces of opposition, when it doesn’t council ecological compromises even more rotten than the historical compromises of old, it fosters anti-political survivalist fancies or misplaced hopes in the post-political virtues of ‘civil society’. Whether in economics, ecology or geopolitics, this **numbing state of anxious and impotent mobilisation** serves to further entrench all of the structures of power and accumulation that perpetuate and feed off crisis, demoralising and depoliticising a disenfranchised populace that can at best acquiesce to prohibitions, recycle and adapt. But a legitimate scorn for the modern Leviathan has meant that, within oppositional cultures, the sense of emergency has counseled either a desperate hope in the vivifying virtues of collapse or a retreat into enclaves intended to prefigure the very future they are powerless to bring about. But barbarism is an even less likely catalyst for emancipation than those parties and states whose own barbarities now shadow every call, however mild, for organisation and centralism. And though small may occasionally be beautiful, defeat and insignificance aren’t. “Withdrawal, secession and mere interruption… will barely register on the radar of domination.” While the anti-Prometheanism of the right conspicuously disavows the ballooning power of money, class and finance, together with the political concentration and centralisation of this power in crucial pivots, that of the left reifies the historical context and content of control. Borrowing from the feebler end of the nineteenth century critique of religion it rails against the State, Technology, Progress, and History, as if to repudiate them with the same rush of righteousness with which one could once deny God, and all, again, for the sake of an ill-defined freedom and singularity. But the problem is that in a world thoroughly hominised, in this inhospitable and even inhuman ‘anthropocene’, a totalising politics, capable of envisioning collective control, is an indefeasible requirement for emancipation. Withdrawal, secession and mere interruption—that is, revolts conceived not as inexorable moments but as an end in itself—will barely register on the radar of domination. A new Prometheus need not take the form of the ‘Modern Prince’, the party, if the latter is regarded as a commanding height and centre supervenient on any other council, association or organisational form. Collective control must involve the control and ‘recall’, to use that important slogan of delegation in communes and soviets, of its inevitable instances of centralisation. But whether the horizon be one of radical reform or revolution, a systemic challenge cannot but take on, rather than blithely ignore, the risks of Prometheanism, outside of any forgetful apologia for state power or survivalist, primitivist mirage. Most significantly, the unreflected habit of associating power’s corruption with certain seemingly intractable contents—the possibility of violence, the proliferation of bureaucracies, the mediation of machines—needs to give way to an engagement with the social forms and relations of control. Warning against the menace of Prometheanism at a time when the everyday experience of the immense majority is one of disorientation, powerlessness and opacity—that is, one where knowledge, scale and purpose are rent asunder—is simply to acquiesce in the exercise of power in the usual sites and by the usual agents, in that particular mix of anarchy and despotism that marks the rule of and for capital. For better and for worse, the world we inhabit is an immense accretion of dominations, the living labours of centuries mortified into the massive infrastructures that channel our daily lives, natural processes at once subsumed and refractory, and a vast accumulation of ends, endings and extinctions heterogeneous to original plans, when plans there were. In this regard, any politics today which is not merely a vapid accompaniment to dispossession and degradation, whether it claims the legacy of painstaking reform, desperate conservation, or comprehensive revolution, cannot but confront the ‘Promethean’ problem of articulating action and knowledge **in the perspective of totality**. To the extent that we regard Prometheus as ‘the most eminent saint and martyr in the philosophical calendar’, emblem of servitude refused to abstract and alienated powers (God, State, Money, Capital), then Promethean should be a proud adjective for those who consider revolution not as a passionate attachment to some flash of negation or other, but as a process of undoing the abstract social forms that constrain and humiliate human capacities, along with the political agencies that enforce these constraints and humiliations.

### Link—Localism

#### The affirmative’s valorization of the local is not radical but in the same toothless tradition as slow-food-farmers-market politics – large scale and meticulously planned reclamations of national techno-infrastructure are key

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

LOCALISM Less politically radical than horizontalism, though no less ubiquitous, is localism. As an ideology, localism extends far beyond the left, inflecting the politics of pro-capitalists, anti-capitalists, radicals and mainstream culture alike, as a new kind of political common sense. Shared between all of these is a belief that the abstraction and sheer scale of the modern world is at the root of our present political, ecological and economic problems, and that the solution therefore lies in adopting a ‘small is beautiful’ approach to the world. 69 Small-scale actions, local economies, immediate communities, face-to-face interaction – all of these responses characterise the localist worldview. In a time when most of the political strategies and tactics developed in the nineteenth and twentieth centuries appear blunted and ineffectual, localism has a seductive logic to it. In all its diverse variants, from centreright communitarianism70 to ethical consumerism, 71 developmental microloans, and contemporary anarchist practice, 72 the promise it offers to do something concrete, enabling political action with immediately noticeable effects, is empowering on an individual level. But this sense of empowerment can be misleading. The problem with localism is that, in attempting to reduce large-scale systemic problems to the more manageable sphere of the local community, it effectively denies the systemically interconnected nature of today’s world. Problems such as global exploitation, planetary climate change, rising surplus populations, and the repeated crises of capitalism are abstract in appearance, complex in structure, and non-localised. Though they touch upon every locality, they are never fully manifested in any particular region. Fundamentally, these are systemic and abstract problems, requiring systemic and abstract responses. While much of the populist localism on the right can easily be dismissed as regressive macho fantasy (for example, secessionist libertarianism), sinister ideological cover for austerity economics (the UK Conservative Party’s ‘Big Society’) or downright racist (the nationalist or fascist blaming of immigrants for structural economic problems), the localism of the left has been less thoroughly scrutinised. Though undoubtedly well-meaning, both the radical and mainstream left partake in localist politics and economics to their detriment. In what follows we will critically examine two of the more popular variants – local food and economic localism – which in very different areas exemplify the problematic dynamics of localism in general. Local food With a cachet that reaches far beyond typical political circles, localism has recently come to dominate discussions of the production, distribution and consumption of food. Most influential here have been the interlinked movements known as ‘slow food’ and ‘locavorism’ (eating locally). The slow-food movement began in the mid 1980s in Italy, partly as a protest against the ever-increasing encroachment of fast-food chains. Slow food, as its name suggests, stands for everything McDonald’s does not: local food, traditional recipes, slow eating and highly skilled production. 73 It is food that offers the most visceral embodiment of the benefits of the slow lifestyle, overcoming the vicissitudes of fast-paced capitalism by returning to an older culture of savouring meals and traditional production techniques. 74 But even its proponents admit that there are difficulties involved in living the slow-food lifestyle: ‘Few of us have the time, money, energy or discipline to be a model Slow Foodie.’ 75 Without an assessment of how our lives are structured by social, political and economic pressures that make it easier to eat pre-prepared food than embrace the slow-food lifestyle, the end result is a variant of ethical consumerism with a hedonistic twist. It is patently correct that taking one’s time to enjoy a well-prepared meal can be a pleasurable experience. Paying attention to a meal recasts the experience from one of pure utility into a more social and aesthetic experience. But there are structural reasons why we do not choose to do this often – reasons that are not the result of any individual moral failing. The structure of work, for example, is a primary reason why many of us are unable to enjoy slow eating, or meals prepared according to the ideals of the slow-food movement. Slow food might not always require money, but it always requires time. For those who have to work multiple jobs to support their families, time is at a premium. What is more, the gender politics of slow food are problematic, given that we live in patriarchal societies where the majority of food preparation is still presumed to be the task of wives and mothers. 76 While ‘fast’ food or pre-prepared meals might be unhealthy, their popularity enables the freeing up of women to live lives that are less marked by the everyday drudgery of feeding their families. 77 As innocent as it may at first seem, the slow-food movement, like many other forms of ethical consumerism, fails to think in large-scale terms about how its ideas might work within the broader context of rapacious capitalism. Closely linked to the slow-food movement are locavorism and the ‘100-mile diet’ – a food politics that emphasises eating locally. Locavorism holds that locally sourced food is not only more likely to be healthy, but is also a vital component of our efforts to reduce carbon outputs, and hence our impact on the environment. It situates itself, therefore, as a response to a global issue. Moreover, locavorism claims to be one way to overcome the alienation of our relationship to food under capitalism. By eating food grown or produced in our locality, so this logic runs, we will be able to get back in touch with the production of our food and reclaim it from the dead hands of a capitalism that has run amok. 78 Compared to the slow-food movement, locavorism positions itself more explicitly, and politically, against globalisation. In doing so, it appeals to a constellation of folkpolitical ideas relating to the primacy of the local as a horizon of political action, and of the virtues of the local over the global, the immediate over the mediated, the simple over the complex. These ideas condense often complex environmental issues into questions of individual ethics. One of the most serious (and intrinsically collective) crises of our times is thus effectively privatised. This personalised environmental ethic is exemplified in localist food politics – in particular, in the moral (and price) premium placed on locally grown food. Here we find ecologically motivated arguments (for reducing energy expenditure by reducing the distances over which food is transported, for example) combined with class differentiation (in the form of marketing designed to promote identification with organic food). Similarly, complex problems are condensed into poorly formulated shorthand. For instance, the idea of ‘food miles’ – identifying the distances that food products have travelled, so as to reduce carbon outputs – appears a reasonable one. The problem is that it is all too often taken to be sufficient on its own as a guide to ethical action. As a 2005 report by the UK’s Department of Agriculture and Food found, while the environmental impacts of transporting food were indeed considerable, a single indicator based on total food miles was inadequate as a measure of sustainability. 79 Most notably, the food-miles metric emphasises an aspect of food production that contributes a relatively small amount to overall carbon outputs. When it is simply assumed that ‘small is beautiful’, we can all too easily ignore the fact that the energy costs associated with producing food locally may well exceed the total costs of transporting it from a more suitable climate. 80 Even for the purpose of assessing the contribution of food transportation, food miles are a poor metric. Air freight, for example, makes up a relatively small portion of total food miles, but it makes up a disproportionately large slice of total food-related CO2 emissions. 81 The energy consumption involved in putting food on our plates is important, but it cannot be captured in anything as simple as food miles, or in the idea that ‘local is best’. Indeed, highly inefficient local food production techniques may be more costly than efficiently grown globally sourced foodstuffs. The bigger question here relates to the priorities we place on the types of food we produce, how that production is controlled, who consumes that food and at what cost. Localist food politics flattens the complexities it is trying to resolve into a simplistic binary: global, bad; local, good. What is needed, by contrast, are less simplistic ways of looking at complex problems – an analysis that takes into account the global food system as a whole, rather than intuitive shorthand formulae such as food miles, or ‘organic’ versus non-‘organic’ foods. It is likely that the ideal method of global food production will be some complex mixture of local initiatives, industrial farming practices, and global systems of distribution. It is equally likely that an analysis capable of calculating the best means to grow and distribute food lies outside the grasp of any individual consumer, requiring significant technical knowledge, collective effort and global coordination. None of this is well served by a culture that simply values the local. Local economics Localism, in all its forms, represents an attempt to abjure the problems and politics of scale involved in large systems such as the global economy, politics and the environment. Our problems are increasingly systemic and global, and they require an equally systemic response. Action must always to some extent occur at the local level – and indeed some localist ideas, such as resiliency, can be useful. But localism-as-ideology goes much further, rejecting the systemic analysis that might guide and coordinate instances of local action to confront, oppose and potentially supplant oppressive instances of global power or looming planetary threats. Nowhere is the inability of localist solutions to challenge complex global problems more apparent than in movements towards localised business, banking and economics. Since the 2008 financial crisis, there have been a number of trends on the broad left towards reforming our economic and monetary systems. While much of this work is useful, one prominent strand has focused on transforming economic systems through localisation. The problem with big business, so the thinking goes, is not so much its inherently exploitative nature but the scale of the enterprises involved. Smaller businesses and banks would supposedly be more reflective of the local community’s needs. One popular recent campaign, the ‘move your money’ movement, centred on the idea that, if it was the scale of banks that was to blame for the financial crisis, then customers ought to move their funds collectively to smaller, more virtuous institutions. Ethical-consumerist campaigns like this offer a semblance of effective action – they provide a meaningful narrative about the problems of the system and indicate the simple and pain-free action necessary to resolve it. As with most folkpolitical actions, it has all the appearances and feeling of having done something. Major banks are positioned as the bad guys, and individuals can supposedly produce significant effects just by moving their money into smaller, local banks and credit unions. What this model neglects is the complex abstractions of the modern banking system. Money circulates as immediately global and immediately interconnected with every other market. In any situation where a small bank or credit union has more deposits than it is able to profitably reinvest within its locality, it will inevitably seek investments within the broader financial system. Indeed, a reading of the accounts of smaller banks in the United States reveals that they partake in and contribute to the same global financial markets as everyone else – investing in Treasury, mortgage or corporate bonds while often participating in socially destructive lending practices that equal those of the major banks. 82 While clearly a reformist measure, ‘move your money’ might at least have been expected to lead to some transformations in the composition of the US banking system. However, as of September 2013, total assets held by the six largest US banks had increased by 37 per cent since the financial crisis. Indeed, by every available measure the big US banks are larger today than at the beginning of the crisis, holding 67 per cent of all assets in the US banking system. 83 And while legislative efforts across the world have made some attempts to impose restraints on the activities that led to the crisis (requiring increased capital asset ratios and regular ‘stress tests’ designed to avoid further bailouts), risky lending continues, 84 and risky derivatives holdings remain at staggeringly high levels. 85 If localist efforts to constrain the size of the largest banks appear doomed to failure, what are we to make of alternative campaigns to replicate some of the local banks that make up much of the continental European banking system? For example, 70 per cent of the German banking sector consists of community or smaller-sized banks. 86 German and Swiss community banks, their proponents argue, pool risks collectively and are mutually owned, with high degrees of autonomy to take advantage of local knowledge, and as a result generally remained profitable throughout the financial crisis. 87 It is also argued that local banks of this type are more likely to lend to small businesses than the larger institutions that are more common in the United States and the UK. There are advantages to some local banking models, but their stability is often overstated. For example, despite being highly localised and under community control, Spain’s community banks (the cajas) took significant risks in the property market and other speculative investments in the 2000s, necessitating thoroughgoing financial restructuring after the 2008 crisis. Though under the alleged control of boards with community representation, investment decisions were effectively taken with little proper oversight. Localisation here meant the politicisation of allegedly disinterested governance boards, turning some cajas into platforms for local government investment in speculative property schemes, as a culture of cronyism took hold. 88 With the worst of Spain’s banking crisis centred on the local banks, restructuring meant the merging of local banks to form larger institutions. Even in Germany, often touted as having the best localised banking system in the world, there were issues with some regional banks. The Landesbanken, for example, were heavily invested in structured credit products that performed particularly poorly during the financial crisis. 89 The lesson to draw from this is that there is nothing inherent in smaller institutions that will enable them to resist the worst excesses of contemporary finance – and that the idea of cleanly separating the local from the global is today impossible. Political capture, the need to seek profitable investments beyond those available in the local area, and simply the high returns of more risky investments, are all factors leading local banks to participate in the broader financial system. Even mutual ownership is no guarantee of financial probity, as demonstrated by the recent travails of the UK’s Co-operative Bank, which almost collapsed entirely following an ill-conceived takeover of a building society in 2009. 90 The systemic problems of the financial system can only be properly dealt with by taking apart financial power, whether by means of broad regulation (as was briefly achieved under postwar Keynesianism) or more revolutionary methods. Fetishising the small and the local seems to be a means of simply ignoring the more significant ways in which the system could be transformed for the better.

### Link—Particularity/Gibson-Graham

#### The Survivors’ fragmentary research experiment is all too easily incorporated into capitalist relations – their endless play with particularity precludes the totalizing counter-hegemony required to reckon with capitalist institutional inertia

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

Any elaboration of an alternative image of progress must inevitably face up to the problem of universalism – the idea that certain values, ideas and goals may hold across all cultures. 31 Capitalism, as we have argued, is an expansionary universal that weaves itself through multiple cultural fabrics, reworking them as it goes along. **Anything less than a competing universal** will end up being **smothered** by an **all-embracing series of capitalist relations**. 32 Various particularisms – localised, specific forms of politics and culture – **cohabitate with ease** in the world of capitalism. The list of possibilities continues to grow as capitalism differentiates into Chinese capitalism, American capitalism, Brazilian capitalism, Indian capitalism, Nigerian capitalism, and so on. If defending a particularism is insufficient, it is because history shows us that the global space of universalism is a space of conflict, with each contender requiring the relative provincialisation of its competitors. 33 If the left is to compete with global capitalism, it needs to rethink the project of universalism. But to invoke such an idea is to call forth a number of fundamental critiques directed against universalism in recent decades. While a universal politics must move beyond any local struggles, generalising itself at the global scale and across cultural variations, it is for these very reasons that it has been criticised. 34 As a matter of historical record, European modernity was inseparable from its ‘dark side’ – a vast network of exploited colonial dominions, the genocide of indigenous peoples, the slave trade, and the plundering of colonised nations’ resources. 35 In this conquest, Europe presented itself as embodying the universal way of life. All other peoples were simply residual particulars that would inevitably come to be subsumed under the European way – even if this required ruthless physical violence and cognitive assault to guarantee the outcome. Linked to this was a belief that the universal was equivalent to the homogeneous. Differences between cultures would therefore be erased in the process of particulars being subsumed under the universal, creating a culture modelled in the image of European civilisation. This was a universalism indistinguishable from pure chauvinism. Throughout this process, Europe dissimulated its own parochial position by deploying a series of mechanisms to efface the subjects who made these claims – white, heterosexual, propertyowning males. Europe and its intellectuals abstracted away from their location and identity, presenting their claims as grounded in a ‘view from nowhere’. 36 This perspective was taken to be untarnished by racial, sexual, national or any other particularities, providing the basis for both the alleged universality of Europe’s claims and the illegitimacy of other perspectives. While Europeans could speak and embody the universal, other cultures could only be represented as particular and parochial. Universalism has therefore been central to the worst aspects of modernity’s history. Given this heritage, it might seem that the simplest response would be to rescind the universal from our conceptual arsenal. But, for all the difficulties with the idea, it **nevertheless remains necessary.** The problem is partly that one cannot simply reject the concept of the universal without generating other significant problems. Most notably, giving up on the category leaves us with nothing but a series of diverse particulars. There appears no way to build meaningful solidarity in the absence of some common factor. The universal also operates as a transcendent ideal – never satisfied with any particular embodiment, and always open to striving for better. 37 It contains the conceptual impulse to undo its own limits. Rejecting this category also risks **Orientalising other cultures, transforming them into an exotic Other**. If there are only particularisms, and provincial Europe is associated with reason, science, progress and freedom, then the unpleasant implication is that non- Western cultures must be devoid of these. The old Orientalist divides are inadvertently sustained in the name of a misguided anti-universalism. On the other hand, one risks licensing all sorts of oppressions as simply the inevitable consequence of plural cultural forms. All the problems of cultural relativism reappear if there are no criteria to discern which global knowledges, politics and practices support a politics of emancipation. Given all of this, it is unsurprising to see aspects of universalism pop up throughout history and across cultures, 38 to see even its critics begrudgingly accept its necessity, 39 and to see a variety of attempts to revise the category. 40 To maintain this necessary conceptual tool, the universal must be identified not with an established set of principles and values, but rather with an empty placeholder that is impossible to fill definitively. Universals emerge when a particular comes to occupy this position through hegemonic struggle: 41 the particular (‘Europe’) comes to represent itself as the universal (‘global’). It is not simply a false universal, though, as there is a mutual contamination: the universal becomes embodied in the particular, while the particular loses some of its specificities in functioning as the universal. Yet there can never be a fully achieved universalism, and universals are therefore always open to contestation from other universals. This is what we will later outline in politico-strategic terms as counter-hegemony – a project aimed at subverting an existing universalism in favour of a new order. This leads us to our second point – as counter-hegemonic, universals can have a subversive and liberating strategic function. On the one hand, a universal makes an unconditional demand – everything must be placed under its rule. 42 Yet, on the other hand, universalism is never an achieved project (even capitalism remains incomplete). This tension renders any established hegemonic structure open to contestation and enables universals to function as **insurrectionary vectors against exclusions.** For example, the concept of universal human rights, problematic as it may be, has been put to use by numerous movements, ranging from local housing struggles to international justice for war crimes. Its universal and unconditional demand has been mobilised in order to highlight those who are left out of its protections and rights. Similarly, feminists have criticised certain concepts as exclusionary of women and mobilised universal claims against their constraints, as in the use of the universal idea that ‘all humans are equal’. In such cases, the particular (‘woman’) becomes a way to prosecute a critique against an existing universal (‘humanity’). Meanwhile, the previously established universal (‘humanity’) becomes revealed as a particular (‘man’). 43 These examples show that universals can be revitalised by the struggles that both challenge and elucidate them. In this regard, ‘to appeal to universalism as a way of asserting the superiority of Western culture is to betray universality, but to appeal to universalism as a way of dismantling the superiority of the West is to realize it’. 44 Universalism, on this account, is the product of politics, not a transcendent judge standing above the fray. We can turn now to one final aspect of universalism, which is its heterogeneous nature. 45 As capitalism makes clear, universalism does not entail homogeneity – it does not necessarily involve converting diverse things into the same kind of thing. In fact, the power of capitalism is precisely its versatility in the face of changing conditions on the ground and its capacity to accommodate difference. A similar prospect must also hold for any leftist universal – it must be one that integrates difference rather than erasing it. What then does all of this mean for the project of modernity? It means that any particular image of modernity must be open to co-creation, and further transformation and alteration. And in a globalised world where different peoples necessarily co-exist, it means building systems to live in common despite the plurality of ways of life. Contrary to Eurocentric accounts and classic images of universalism, it must recognise the agency of those outside Europe, and the necessity of their voices in building **truly planetary and universal futures**. The universal, then, is an empty placeholder that hegemonic particulars (specific demands, ideals and collectives) come to occupy. It can operate as a subversive and emancipatory vector of change with respect to established universalisms, and it is heterogeneous and includes differences, rather than eliminating them.

### Link—Revolution

#### Marxist revolution is doomed to failure --- memes key

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

This chapter therefore begins from the premise that the contemporary left is in a dire situation and that any transformative project will take time. We limit our analysis here largely to Western capitalist democracies, with their peculiar apparatuses of political and economic power. We will mostly leave aside the immense (and immensely important) regions of the rest of the world. 3 However, it is worth reiterating that the problems of automation and surplus populations are global in nature, and the grounds for post-work are flourishing around the world – as demonstrated by recent experiments with basic incomes in India and Namibia, the surge in industrial automation across the most populous regions of the world, and the spontaneous emergence of movements against work in numerous countries. Though these dynamics are global, any political project to transform this situation will necessarily need to respond to particular conditions on the ground. While certain core principles will be translatable between contexts, they will need to be realised differently under different circumstances. With these qualifications in mind, how can a better future be built? The classic Leninist strategy of building dual power with a revolutionary party and overthrowing the state is obsolete. 4 Proponents of the Bolshevik Revolution model appear more useful as historical reenactors than as guides for contemporary politics. Likewise, the recent history of revolutions – from the Iranian Revolution to the Arab Spring – has simply led to some combination of theocratic authoritarianism, military dictatorship and civil war. The electoral reformist approach is equally a failure. The idea of voting in a new world mutated into a convivial elite consensus during the postwar era and became ensconced within neoliberal ideology in recent decades. At its best, such reformism is doomed simply to ameliorate capitalism and act as a type of politically mediated homeostatic system. And as the latest cycle of struggles has shown, the folk-political approach of prioritising various forms of immediacy has failed to transform society. Piecemeal efforts, defensive struggles, withdrawals and prefigurative pockets of activity have been largely incapable of stemming the tide, let alone gaining ground on global capitalism. Equally, it remains insufficient simply to posit that progress will be worked out in practice or that the masses will spontaneously create a better world. 5 While there are undoubtedly elements of luck and unpredictability in any struggle, the difficulty of building a new world demands that strategic thought be carried out in advance. Our efforts must be organised strategically along broad lines, rather than dissipating into a series of partial and disconnected achievements. As modernity asserts, progress towards a better future comes on the back of deliberate reflection and conscious action. Given the limits of these other approaches, we argue that **the best way forward is a counterhegemonic strategy**. This is a strategy that is adaptable from positions of weakness, is scalable from the local to the global, and recognises the hold that capitalism has over every aspect of our lives, from our most intimate desires to the most abstract financial flows. A counter-hegemonic strategy entails a project to overturn the dominant neoliberal common sense and rejuvenate the collective imagination. Fundamentally, it is an attempt to install a new common sense – one organised around the crisis of work and its effects on the proletariat. In this, it involves preparatory work for moments when full-scale struggle erupts, transforming our social imagination and reconfiguring our sense of what is possible. It builds up support and a common language for a new world, seeking to alter the balance of power in preparation for when a crisis upsets the legitimacy of society. Unlike forms of folk politics, such a strategy is expansive, long-term, comfortable with abstraction and complexity, and aimed at overthrowing capitalist universalism. 6 In this chapter, we examine three possible sites of struggle – over the intellectual, cultural and technological mediums of neoliberal hegemony. The next section will examine hegemony at a theoretical level, while the rest of the chapter will explore illustrations of how a counter-hegemonic project might be put into practice – through utopian narratives, pluralist economics and the repurposing of technologies.

## Impact

### Impact—Climate

#### The impact is extinction from warfare and climate change – only leftist sociotechnical hegemony can un-cancel the future.

**Srnicek & Williams 13** (Nick Srnicek, Theorist and activist, Alex Williams, PhD student at the University of East London, C. Derick Varn and Dario Cankovich, North Star, “#Accelerate: Manifesto for an Accelerationist Politics,” *#ACCELERATE: The Accelerationist Reader)*

0 1 . I NT R O D U CTI O N : ON T H E C O N J U N CT U R E 1 . At the beginning of the second decade of the twenty-first century, global civilization faces a new breed of cataclysm. These coming apocalypses ridicule the norms and organisational structures of the politics which were forged in the birth of the nation-state, the rise of capitalism, and a twentieth century of unprecedented wars. 2. Most significant is the **breakdown of the planetary climatic system**. In time, this threatens the continued existence of the present global human population. Though this is the most critical of the threats which face humanity, a series of lesser but potentially equally destabilising problems exist alongside and intersect with it. Terminal resource depletion, especially in water and energy reserves, offers the prospect of mass starvation, collapsing economic paradigms, and new hot and cold wars. Continued financial crisis has led governments to embrace the paralyzing death spiral policies of austerity, privatisation of social welfare services, mass unemployment, and stagnating wages. Increasing automation in production processes-including 'intellectual labour'-is evidence of the secular crisis of capitalism, soon to render it incapable of maintaining current standards of living for even the former middle classes of the global north. 3. In contrast to these ever-accelerating catastrophes, today's politics is beset by an **inability** to generate the new ideas and modes of organisation necessary to transform our societies to confront and resolve the coming annihilations. While crisis gathers force and speed, politics withers and retreats. In this paralysis of the political imaginary, **the future has been cancelled**. 4. Since 1979, the hegemonic global political ideology has been neoliberalism, found in some variant throughout the leading economic powers. In spite of the deep structural challenges the new global problems present to it, most immediately the credit, financial, and fiscal crises since 2007-8, neoliberal programmes have only evolved in the sense of deepening. This continuation of the neoliberal project, or neoliberalism 2.0, has begun to apply another round of structural adjustments, most significantly in the form of encouraging new and aggressive incursions by the private sector into what remains of social democratic institutions and services. This is in spite of the immediately negative economic and social effects of such policies. and the longer term fundamental barriers posed by the new global crises. 5. That the forces of right-wing governmental, non-governmental, and corporate power have been able to press forth with neoliberalisation is at least in part a result of the continued paralysis and ineffectual nature of much of what remains of the Left. Thirty years of neoliberalism have rendered most left-leaning political parties bereft of radical thought, hollowed out, and without a popular mandate. At best they have responded to our present crises with calls for a return to a Keynesian economics, in spite of the evidence that the very conditions which enabled post-war social democracy to occur no longer exist. **We cannot return to mass industrial-Fordist labour by fiat, if at all**. Even the neosocialist regimes of South America's Bolivarian Revolution, whilst heartening in their ability to resist the dogmas of contemporary capitalism, remain disappointingly unable to advance an alternative beyond mid-twentieth-century socialism. Organised labour, being systematically weakened by the changes wrought in the neolibera\ project, is sclerotic at an institutional level and-at best-capable only of mildly mitigating the new structural adjustments. But with no systematic approach to building a new economy, or the structural solidarity to push such changes through, for now labour remains relatively impotent. The new social movements which emerged since the end of the Cold War, experiencing a resurgence in the years after 2008, have been similarly unable to devise a new political ideological vision. Instead they .expend considerable energy on internal direct-democratic process and affective self-valorisation over strategic efficacy, and frequently propound a variant of neo-primitivist localism, as if to oppose the abstract violence of globalised capital with the flimsy and ephemeral 'authenticity' of communal immediacy. 6. In the absence of a radically new social, political, organisational, and economic vision, the hegemonic powers of the Right will continue to be able to push forward their narrow-minded imaginary, in the face of any and all evidence. At best, the Left may be able for a time to partially resist some of the worst incursions. But this is to be Canute against an ultimately irresistible tide. To generate a new left global hegemony entails a recovery of lost possible futures, and indeed the recovery of the future as such. 02. I N T E R R E G N U M : ON ACC E L E RATI O N IS M S 1. If any system has been associated with ideas of acceleration it is capitalism. The essential metabolism of capitalism demands economic growth, with competition between individual capitalist entities setting in motion increasing technological developments in an attempt to achieve competitive advantage, all accompanied by increasing social dislocation. In its neoliberal form, its ideological self-presentation is one of liberating the forces of creative destruction, setting free everaccelerating technological and social innovations. 2. The philosopher Nick Land captured this most acutely, with a myopic yet hypnotising belief that capitalist speed alone could generate a global transition towards unparalleled technological singularity. In this visioning of capital, the human can eventually be discarded as mere drag to an abstract planetary intelligence rapidly constructing itself from the bricolaged fragments of former civilisations. However Landian neoliberalism confuses speed with acceleration. We may be moving fast, but only within a strictly defined set of capitalist parameters that themselves never waver. We experience only the increasing speed of a local horizon, a simple brain-dead onrush rather than an acceleration which is also navigational, an experimental process of discovery within a universal space of possibility. It is the latter mode of acceleration which we hold as essential. 3. Even worse. as Deleuze and Guattari recognized, from the very beginning what capitalist speed deterritorializes with one hand, it reterritorializes with the other. Progress becomes constrained within a framework of surplus value, a reserve army of labour. and freefloating capital. Modernity is reduced to statistical measures of economic growth and social innovation becomes encrusted with kitsch remainders from our communal past. Thatcherite-Reaganite deregulation sits comfortably alongside Victorian 'back-to-basics' family and religious values. 4. A deeper tension within neoliberalism is in terms of its self-image as the vehicle of modernity, as literally synonymous with modernisation, whilst promising a future that it is constitutively incapable of providing. Indeed, as neoliberalism has progressed, rather than enabling individual creativity, it has tended towards eliminating cognitive inventiveness in favour of an affective production line of scripted interactions. coupled to global supply chains and a neo-Fordist Eastern production zone. A vanishingly small cognitariat of elite intellectual workers shrinks with each passing year-and increasingly so as algorithmic automation winds its way through the spheres affective and intellectual labour. Neoliberalism, though positing itself as a necessary historical development, was in fact a merely contingent means to ward off the crisis of value that emerged in the 1970s. Inevitably this was a sublimation of the crisis rather than its ultimate overcoming. 5. It is Marx, along with Land, who remains the paradigmatic accelerationist thinker. Contrary to the all-too familiar critique, and even the behaviour of some contemporary Marxians. we must remember that Marx himself used the most advanced theoretical tools and empirical data available in an attempt to fully understand and transform his world. He was not a thinker who resisted modernity, but rather one who sought to analyse and intervene within it, understanding that for all its exploitation and corruption, capitalism remained the most advanced economic system to date. Its gains were not to be reversed, but accelerated beyond the constraints the capitalist value form. 6. Indeed, as even Lenin wrote in the 1918 text 'Left Wing' Childishness: Socialism is inconceivable without large-scale capitalist engineering based on the latest discoveries of modern science. It is inconceivable without planned state organisation which keeps tens of millions of people to the strictest observance of a unified standard in production and distribution. We Marxists have always spoken of this, and it is not worth while wasting two seconds talking to people who do not understand even this (anarchists and a good half of the Left Socialist - Revolutionaries). 7. As Marx was aware, capitalism cannot be identified as the agent of true acceleration. Similarly, the assessment of left politics as antithetical to technosocial acceleration is also, at least in part, a severe misrepresentation. I ndeed, if the political Left is to have a future it must be one in which it **maximally embraces this suppressed accelerationist tendency.**

## Alt Stuff

### Alt—Acceleration General

#### The alternative is to #ACCELERATE --- the only way out of the mess of capitalism is to plunge further in --- intensifying its contradictions while re-appropriating strategic elements allows for a broad-based counter-hegemony that hastens the arrival of a post-work and technological communist future.

**Mackay & Avanessian 2014** [ Robin Mackay, philosopher and editor and publisher of Collaspe Journal of Philosophical Research and Development, Dr. Armen Avanessian, Freie Universitat Berlin , *#ACCELERATE: The Accelerationist Reader*, Falmouth: Urbanomic]

Accelerationism is a political heresy: the insistence that the only radical political response to capitalism is not to protest, disrupt, or critique, nor to await its demise at the hands of its own contradictions, but to accelerate its uprooting, alienating, decoding, abstractive tendencies. The term was introduced into political theory to designate a certain nihilistic alignment of philosophical thought with the excesses of capitalist culture (or anticulture), embodied in writings that sought an immanence with this process of alienation. The uneasy status of this impulse, between subversion and acquiescence, between realist analysis and poetic exacerbation, has made accelerationism a fiercely-contested theoretical stance.

At the basis of all accelerationist thought lies the assertion that the crimes, contradictions and absurdities of capitalism have to be countered with a politically and theoretically progressive attitude towards its constituent elements. Accelerationism seeks to side with the emancipatory dynamic that broke the chains of feudalism and ushered in the constantly ramifying range of practical possibilities characteristic of modernity. The focus of much accelerationist thinking is the examination of the supposedly intrinsic link between these transformative forces and the axiomatics of exchange value and capital accumulation that format contemporary planetary society.

This stance apparently courts two major risks: on the one hand, a cynical resignation to a *politique du pire*, a politics that must hope for the worst and can think the future only as apocalypse and tabula rasa; on the other, the replacement of the insistence that capitalism will die of its internal contradictions with a championing of the market whose supposed radicalism is indistinguishable from the passive acquiescence into which political power has devolved. Such convenient extremist caricatures, however, obstruct the consideration of a diverse set of ideas united in the claim that a truly progressive political thought—a thought that is not beholden to inherited authority ideology or institutions—is possible only by way of a future-oriented and realist philosophy; and that only a politics constructed on this basis can open up new perspectives on the human project, and on social and political adventures yet to come. This assumption that we are at the *beginning* of a political project, rather than at the bleak terminus of history, seems crucial today in order to avoid endemic social depression and lowering of expectations in the face of global cultural homogenization, climate change and ongoing financial crisis. Confronting such developments, and the indifference of markets to their human consequences, even the keenest liberals are hard-pressed to argue that capitalism remains the vehicle and sine qua non of modernity and progress; and yet the political response to this situation often seems to face backwards rather than forwards.

Despair seems to be the dominant sentiment of the contemporary Left, whose crisis perversely mimics its foe, consoling itself either with the minor pleasures of shrill denunciation, mediatised protest and ludic disruptions, or with the scarcely credible notion that maintaining a grim ‘critical’ vigilance on the total subsumption of human life under capital, from the safehouse of theory, or from within contemporary art’s self-congratulatory fog of ‘indeterminacy’, constitutes resistance. Hegemonic neoliberalism claims there is no alternative, and established Left political thinking, careful to desist from Enlightenment ‘grand narratives’, wary of any truck with a technological infrastructure tainted by capital, and allergic to an entire civilizational heritage that it lumps together and discards as ‘instrumental thinking’, patently fails to offer the alternative it insists must be possible, except in the form of counterfactual histories and all-too-local interventions into a decentred, globally-integrated system that is at best indifferent to them. The general reasoning is that if modernity=progress=capitalism=acceleration, then the only possible resistance amounts to deceleration, whether through a fantasy of collective organic self-sufficiency or a solo retreat into miserablism and sagacious warnings against the treacherous counterfinalities of rational thought**.**

Needless to say, a well-to-do liberal Left, convinced that technology equates to instrumental mastery and that capitalist economics amounts to a heap of numbers, in most cases leaves concrete technological nous and economic arguments to its adversary—something it shares with its more radical but equally technologically illiterate academic counterparts, who confront capitalism with theoretical constructs so completely at odds with its concrete workings that the most they can offer is a faith in miraculous events to come, scarcely more effectual than organic folk politics. In some quarters, a Heideggerian *Gelassenheit* or ‘letting be’ is called for, suggesting that the best we can hope for is to desist entirely from destructive development and attempts to subdue or control nature—an option that, needless to say, is also the prerogative of an individualised privileged spectator who is the subjective product of global capital.

From critical social democrats to revolutionary Maoists, from Occupy mic checks to post-Frankfurt School mutterings, the ideological slogan goes: There must be an outside! And yet, given the real subsumption of life under capitalist relations, what is missing, precluded by reactionary obsessions with purity, humility, and sentimental attachment to the personally gratifying rituals of critique and protest and their brittle and fleeting forms of collectivity? Precisely any pragmatic criteria for the identification and selection of elements of this system that might be effective in a concrete transition to another life beyond the iniquities and impediments of capital.

It is in the context of such a predicament that accelerationism has recently emerged again as a leftist option. Since the 2013 publication of Alex Williams and Nick Srnicek’s ‘#Accelerate: Manifesto for an Accelerationist Politics’ [map], the term has been adopted to name a convergent group of new theoretical enterprises that aims to conceptualise the future outside of traditional critiques and regressive, decelerative or restorative ‘solutions’. In the wake of the new philosophical realisms of recent years, they do so through a recusal of the rhetoric of human finitude in favour of a renewed Prometheanism and rationalism, an affirmation that the increasing immanence of the social and technical is irreversible and indeed desirable, and a commitment to developing new understandings of the complexity this brings to contemporary politics. This new movement has already given rise to lively international debate, but is also the object of many misunderstandings and rancorous antagonism on the part of those entrenched positions whose dogmatic slumbers it disturbs. Through a reconstruction of the historical trajectory of accelerationism, this book aims to set out its core problematics, to explore its historical and conceptual genealogy, and to exhibit the gamut of possibilities it presents, so as to assess the potentials of accelerationism as both philosophical configuration and political proposition.

But what does it mean to present the history of a philosophical tendency that exists only in the form of isolated eruptions which each time sink without trace under a sea of unanimous censure and/or dismissive scorn? Like the ‘broken, explosive, volcanic line’ of thinkers Gilles Deleuze sought to activate, the scattered episodes of accelerationism exhibit only incomplete continuities which have until now been rendered indiscernible by their heterogeneous influences and by long intervening silences. At the time of writing we find a contemporary accelerationism in the process of mapping out a common terrain of problems, but it describes diverse trajectories through this landscape. These paths adjust and reorient themselves daily in a dialogue structured by the very sociotechnologies they thematize, the strategic adoption of the tag #accelerate having provided a global address through which to track their progress and the new orientations they suggest. If a printed book (and even more so one of this length) inevitably seems to constitute a deceleration in relation to such a burgeoning field, it should be noted that this reflective moment is entirely in keeping with much recent accelerationist thought. The explicit adoption of an initially rather pejoratively used term1 indicates a certain defiance towards anticipated attacks. But it also indicates that a revisionary process is underway—one of refining, selecting, modifying and consolidating earlier tendencies, rebooting accelerationism as an evolving theoretical program, but simultaneously reclaiming it as an untimely provocation, an irritant that returns implacably from the future to bedevil the official sanctioned discourse of institutional politics and political theory. This book therefore aims to participate in the writing of a philosophical counterhistory, the construction of a genealogy of accelerationism (not the only possible one—other texts could have been included, other stories will be told), at the same time producing accelerationism ‘itself’ as a fictional or hyperstitional anticipation of intelligence to come.

This revisionary montage proceeds in four phases, first setting out three sets of historical texts to be appropriated and reenergized by the undecided future of accelerationism following the appearance of the map, and subsequently bringing together a sequence of contemporary accelerationist texts galvanized by the Manifesto’s call.

**anticipations**

The first section features late-nineteenth and early-twentieth-century thinkers who, confronted with the rapid emergence of an integrated globalised industrial complex and the usurpation of inherited value-systems by exchange value, attempted to understand the precise nature of the relation between technical edifice and economic system, and speculated as to their potential future consequences for human society and culture.

**Karl Marx** is represented in perhaps his most openly accelerationist writing, the *Grundrisse*’s ‘Fragment on Machines’. Here Marx documents the momentous shift between the worker’s use of tools as prosthetic organs to amplify and augment human cognitive and physical abilities (labour power), and machine production properly speaking, dating the latter to the emergence of an integrated ‘automatic system of machines’ wherein knowledge and control of nature leveraged as industrial process supplant direct means of labour. Within this system, the worker increasingly becomes a prosthesis: rather than the worker animating the machine, the machine animates the worker, making him a part of its ‘mighty organism’, a ‘conscious organ’ subject to its virtuosity or ‘alien power’. Individuals are incorporated into a new, machinic culture, taking on habits and patterns of thought appropriate to its world, and are irreversibly resubjectivized as social beings.

In *Erewhon*’s ‘Book of the Machines’, **Samuel Butler** develops Marx’s extrapolations of the machine system into a full-scale machinic delirium, extending an intrinsic science-fictional aspect of his theoretical project which also entails a speculative anthropology: if technology is bound up with the capitalist decanting of primitive and feudal man into a new mode of social being, then a speculation on what machines will become is also a speculation on what the human is and might be. In line with the integration that at once fascinates Marx and yet which he must denounce as a fantasy of capital, Butler’s vision, a panmachinism that will later be inspirational for Deleuze and Guattari, refuses any special natural or originary privilege to human labour: Seen from the future, might the human prove nothing but a pollinator of a machine civilization to come? Refusing such machinic fatalism, **Nicolai Fedorov**’s utopian vision reserves within a ‘cosmist’ vision of expansion a Promethean role for man, whose scientific prowess he sees as capable of introducing purposefulness into an otherwise indifferent and hostile nature. Fedorov exhorts mankind to have the audacity to collectively invest in the unlimited and unknown possibilities this mastery of nature affords him: to abandon the modesty of earthly concerns, to defy mortality and transcend the parochial planetary habitat. It is only by reaching beyond their given habitat, according to Fedorov, that humans can fulfill their collective destiny, rallying to a ‘common task’.

**Thorstein Veblen**, famously the author of *The Theory of the Leisure Class*, takes up the question of the insurrectionary nature of scientific and technical change as part of his evolutionary analysis of developments in modern capitalism (the emergence of monopolies and trusts). For Veblen it is not the proletariat but the technical class, the scientists and engineers, who ultimately promise to be the locus of revolutionary agency; he sees the tendencies of the machine system as being at odds with the ethos of business enterprise, which, ultimately, is just one more institutional archaism to be sloughed off in the course of its development. Significant also is Veblen’s refusal to conceive ‘culture’ narrowly in an ameliorative role, offering compensation for the ‘social problems’ triggered by the reshaping of individuals and social relations in accordance with the automatism and standardization of the machine system: instead he insists that this process be understood as a radical transformation of human culture, and one that will outlive its occasional cause—an assumption shared by Fedorov in his vision of a ‘multi-unity’ allied in the ‘common task’ and armed with the confidence in the capacity of science and engineering to reshape the human life-world.

All of the core themes of accelerationism appear in germ in the projects of these writers, along with the variety of forms—descriptive, prescriptive, utopian, fictional, theoretical, scientific, realist—in which they will later be developed. The speculative extrapolation of the machine process, the affirmation that this process is inextricably social, technical and epistemic; the questioning of its relation to capitalism, the indifferent form of exchange-value and its corrosion of all previous social formations and subjective habits; and its effect upon culture and the new possibilities it opens up for the human conceived not as an eternal given, fated to suffer the vicissitudes of nature, but as a historical being whose relation to nature (including its own), increasingly mediated through technical means, is mutable and in motion.

**ferment**

The second section belongs predominantly to a moment in modern French philosophy that sought to integrate a theoretical analysis of political economy with an understanding of the social construction of human desire. Galvanized by the still uncomprehended events of May ’68 and driven to a wholesale rejection of the stagnant cataracts of orthodox party politics, these thinkers of the ‘Marx-Freud synthesis’ suggest that emancipation from capitalism be sought not through the dialectic, but by way of the polymorphous perversion set free by the capitalist machine itself. In the works of Deleuze and Guattari, Lyotard, and Lipovetsky, the indifference of the value-form, the machine composition of labour, and their merciless reformatting of all previous social relations is seen as the engine for the creation of a new fluid social body. It is the immanence with universal schizophrenia toward which capital draws social relations that promises emancipation here, rather than the party politics that, no doubt, paled by comparison with the oneiric escapades of ’68. It is at this point that the credo of accelerationism is for the first time openly formulated—most explicitly by Gilles Lipovetsky: ‘“[R]evolutionary actions” are not those which aim to overthrow the system of Capital, which has never ceased to be revolutionary, but those which complete its rhythm in all its radicality, that is to say actions which accelerate the metamorphic process of bodies’.

In ‘Decline of Humanity?’, **Jacques Camatte** extends the reflections of Marx and Veblen on the ‘autonomization of capital’, arguing that, in testing to the limit certain ambivalent analyses in Marx’s thought, it reveals shortcomings in his thinking of capital. Marx claims that capital blocks its own ‘self-realization’ process, the way in which its ‘revolutionary’ unconditional development of production promises eventually to subvert capitalist relations of production. Capital is thus at once a revolutionary force (as evidenced by its destruction of all previous social formations) *and* a barrier, a limited form or mere transitional moment on the way to this force’s ultimate triumph in another mode of social relation.

According to Camatte, Marx here underestimates the extent to which, particularly through the runaway acceleration of the ‘secondary’ productive forces of the autonomic form of machine capital, the revolutionary role of the proletariat is taken over by capitalism itself. Manifestly it leads to no crisis of contradiction: rather than the productive forces of humans having been developed by capital to the point where they exceed its relations of production, productive forces (including human labour power) now exist only for capital and not for humans. Thus Camatte suggests we can read Marx not as a ‘prophet of the decline of capital’ but instead as a Cassandra auguring the decadence of the human. Capital can and has become truly independent of human will, and any opportunity for an intervention that would develop its newly-reformatted sociotechnological beings into communist subjects is definitively lost.

Along similar lines to contemporaries such as Althusser and Colletti, Camatte concludes: no contradiction, therefore no dialectic. ‘On this we agree: the human being is dead’: more exactly, the human being has been transformed by capital into a passive machine part, no longer possessed of any ‘irreducible element’ that would allow it to revolt against capital. For Camatte the only response to this consummate integration of humans is absolute revolt. The entire historical product of capitalism is to be condemned; indeed we must reject production itself as a basis for the analysis of social relations. Revolutionary thought for Camatte, therefore, urges a refusal of Marx’s valorization of productivism, and counsels absolute retreat—we can only ‘leave this world’ (Camatte’s work was thus a strong influence on anarcho-primitivist trends in political thought).2

Anything but an accelerationist, then, Camatte nevertheless sets the scene for accelerationism by describing this extreme predicament: Faced with real subsumption, is there any alternative to pointless piecemeal reformism apart from total secession? Can the relation between revolutionary force, human agency, and capitalism be thought differently? Where does alienation end and domestication begin? Is growth in productive force necessarily convertible into a socialized wealth? Camatte’s trenchant pessimism outlines accelerationism in negative: He commits himself to a belief that subsumption into the ‘community of capital’ is a definitive endpoint in capital’s transformation of the human. Still in search of a revolutionary thought, however, and despite his own analysis, he also commits himself to a faith in some underlying human essence that may yet resist, and that may be realised in an ‘elsewhere’ of capital—a position underlying many radical political alternatives imagined today. In contrast, accelerationism, making a different analysis of the ambivalent forces at work in capital, will insist on the continuing dynamism and transformation of the human wrought by the unleashing of productive forces, arguing that it is possible to align ***with*** their revolutionary force but ***against*** domestication, and indeed that the only way ‘out’ is to plunge further in. **Gilles Deleuze + Félix Guattari**’s *Anti-Oedipus* developed precisely the ambivalences noted by Camatte, modelling capitalism as a movement at once revolutionary—decoding and deterritorializing—and constantly reterritorializing and indifferently reinstalling old codes as ‘neoarchaic’ simulations of culture to contain the fluxes it releases. It is within this dynamic that a genuine accelerationist strategy explicitly emerges, in order to reformulate the question that haunts every Left political discourse, namely whether there is a ‘revolutionary path’ at all. It is not by chance that probably the most famous ‘accelerationist’ passage in Deleuze and Guattari’s work, included in the extract from *Anti-Oedipus* here, plays out against the backdrop of the dichotomy between a folk-political approach (in this case Samir Amin’s Third-Worldist separatism) and the exact opposite direction, ‘to go still further, that is, in the movement of the market, of decoding and deterritorialization? For perhaps the flows are not yet deterritorialized enough, not decoded enough, from the viewpoint of a theory and a practice of a highly schizophrenic character. Not to withdraw from the process, but to go further, to “accelerate the process”.’ Famously Deleuze and Guattari, at least in 1972, opt for the latter. Rather than contradictions precipitating collapse, on the contrary, ongoing crises remain an immanent source of capitalist productivity, and this also implies the production of ever new axioms capable of digesting any arising contradictions. For Deleuze and Guattari, there is no necessary conclusion to these processes, indeed the absence of any limit is their primary assumption; and yet they suggest that, as the capitalist socius draws into an ever-closer immanence with universal schizophrenia, (further deterritorializing) lines of flight are a real prospect.

In his writings from the early 70s, **Jean-François Lyotard** amplifies Deleuze and Guattari’s heresies, at the same time as he joins *Anti-Oedipus*’s struggle against reflective deceleration in theoretical writing and critique. In a series of extraordinary texts the claim of the immanence of the political and libidinal is enacted within writing itself. In *Libidinal Economy* Lyotard uncovers a set of repressed themes in Marx, with the latter’s oeuvre itself seen as a libidinal ‘dispositif’ split between an enjoyment of the extrapolation and imaginary acceleration of capitalism’s liquefying tendencies, and the ever-deferred will to prosecute it for its iniquities (embodied in the dramatis personae of ‘Little Girl Marx’ and ‘Old Bearded Prosecutor Marx’).

Lyotard strikingly reads *Anti-Oedipus* not primarily as a polemical anti-psychoanalytical tract, but as a stealth weapon that subverts and transforms Marxism through the tacit retirement of those parts of its critical apparatus that merely nourish *ressentiment* and the petty power structures of party politics. He denounces the Marxist sad passion of remonstrating and harping at the system to pay back what it owes to the proletariat while simultaneously decrying the dislocations brought about by capitalism—the *liberation* of generalised cynicism, the *freedom* from internalised guilt, the *throwing off* of inherited mores and obligations—as ‘illusory’ and ‘alienated’. From the viewpoint of a schizoanalytics informed by the decoding processes of ‘Kapital’, there are only perversions, libidinal bodies and their liquid investments, and no ‘natural’ position. Yet critique invests its energies in striving to produce the existence of an alienated proletariat as a wrong, a contradiction upon which it can exercise its moral authority. Instead, Lyotard, from the point of view of an immanence of technical, social and libidinal bodies, asks: How can living labour be dismembered, how can the body be fragmented by capitalism’s exchangeable value-form, if bodies are already fragments and if the will to unity is just one perversion among others? Thus he proposes an energetics that not only voluntarily risks anarchic irrationalism, but issues in a scandalous advocacy of the industrial proletariat’s *enjoyment* of their machinic dissection at the hands of capital. Lyotard dares us to ‘admit it…’: the deracinating affect of capitalism, also, is a source of *jouissance*, a mobilization of desire. Saluting *Anti-Oedipus* as ‘one of the most intense products of the new libidinal configuration that is beginning to gel inside capitalism, Lyotard summons a ‘new dispositif’ that is like a virus thriving in the stomach of capital: in the restless yet undirected youth movements of the late 60s and early 70s ‘another figure is rising’ which will not be stifled by any pedantic theoretical critique. As Deleuze and Guattari assert, ‘nothing ever died of contradictions’, and the only thing that will kill capitalism is its own ‘excess’ and the ‘unserviceability’ loosed by it, an excess of wandering desire over the regulating mechanisms of antiproduction.

Eschewing critique, then, here writing forms a pact with the demon energy liberated by Kapital that liquidates all inheritance and solidity, staking everything on the unknown future it is unlocking. Few can read Lyotard’s deliberately scandalous celebration of the prostitution of the proletariat without discomfort. Yet it succeeds in uncovering the deepest stakes of unstated Marxist dogma as to the human and labour power: If there never was any human, any primary economic productivity, but only libidinal bodies along with their investments, their fetishes, where does theory find the moral leverage to claim to ‘save’ the worker from the machines, the proletariat from capital—or to exhort them to save themselves?

In ‘Power of Repetition’ **Gilles Lipovetsky** gives a broad exposition of the ungrounded metaphysics of desire underpinning *Libidinal Economy*’s analyses (a metaphysics Lyotard simultaneously disclaims as just another fiction or libidinal device). In laying out very clearly a dichotomy between the powers of repetition and reinstatement of identity, and the errant metamorphic tendencies of capital, Lipovetsky makes a crucial distinction: Although capitalism may appear to depend upon powers of antiproduction which police it and ensure the minimal stability necessary for the extraction of profit, in fact these ‘guard-dogs’ are obstacles to the core tendency of capital qua ‘precipitate experimentation’ in the ‘recombination of bodies’—and this latter tendency is the side that must be taken by emancipatory discourse and practice. Resisting the ‘Marxist reflex’ to critique ‘capitalist power’, Lipovetsky states that there is no such thing, but only and always a multiplicity of powers, which in fact restrain capital’s advance. He thus repeats Lyotard’s call for chaos and permanent revolution: there is no way to prevent new alien recombinations settling back into new forms of power; we must match and exceed capital’s inhuman speeds, ‘keep moving’ in ‘a permanent and accelerated metamorphic errancy’.

Lipovetsky also draws further attention to one of the important departures from Marx that Lyotard had expanded upon: For Deleuze and Guattari, more basic to an analysis of capitalism than human labour power is the way in which capitalism mobilizes time itself through the function of credit. (As Marx himself declares in *Grundrisse*, ‘economy of time, to this all economy ultimately reduces itself’). Lipovetsky confirms that the supposed ‘contradictions’ of capital are a question of configurations of *time*, and accordingly his accelerationism pits capital’s essentially destabilizing temporal looping of the present through the future against all stabilising reinstantiations of the past.

This futural orientation is also at work in Lyotard’s attempt at an indistinction between description and prescription, between the theoretical and the exhortatory, something that will be extended in later accelerationisms—as Nick Land will write, there is ‘no real option between a cybernetics of theory and a theory of cybernetics’: The subject of theory can no longer affect to stand outside the process it describes: it is integrated as an immanent machine part in an open ended experimentation that is inextricable from capital’s continuous scrambling of its own limits—which operates via the reprocessing of the actual through its virtual futures, dissolving all bulwarks that would preserve the past. In hooking itself up to this haywire time-machine, theory seeks to cast off its own inert obstacles. It would indeed be churlish to deny the enduring rhetorical power of these texts; and yet the hopes of their call to permanent revolution are poignant from a contemporary viewpoint: As we can glimpse in the starkness of Lipovetsky’s exposition, beneath the desperate joy with which they dance upon the ruins of politics and critique, there is a certain ‘Camattian’ note of despair (acceleration ‘for lack of anything better’, as Lipovetsky says); and an unwitting anticipation of the integral part that the spirit of permanent creative festivity would come to play in the neoconservative landscape of late twentieth-century consumer capitalism.

Those writers included in the ‘Anticipations’ section had emphasised in their analyses that the incursion of the value-form and of machine production are not a ‘merely economic’ question, but one of the transformation of human culture and indeed of what it means to be human. As can clearly be seen in the mercurial topicality of Lyotard’s ‘Energumen Capitalism’, under different cultural and sociotechnological conditions the same goes for the texts of this second phase of accelerationism. The position is set out in exemplary fashion by radical feminist activist and theoretician **Shulamith Firestone**. Beyond Fedorov’s arguably shortsighted dismissal of the aesthetic response to the world as a squandering of energy that could be directed into the technological achievement of real transcendence, Firestone insists that the separation of these two modes of ‘realizing the conceivable in the possible’ is an artefact of the same constraints as class barriers and sex dualism. She envisages an ‘anticultural’ revolution that would fuse them, arguing that ‘the body of scientific discovery (the new productive modes) must finally outgrow the empirical (capitalistic) mode of using them’. In Firestone’s call for this cultural revolution the question is no longer, as in Fedorov, that of *replacing* imaginary transcendence with a practical project of transcendence, but of erasing the separation between imaginary vision and practical action. If we take Firestone’s definition of culture as ‘the attempt by man to realize the conceivable in the possible’ then we can see at once that (as Veblen had indicated) the application of culture as a salve for the corrosive effects of machine culture on the subject merely indicates a split within culture itself: the Promethean potentiality of the human, evidenced in ‘the accumulation of skills for controlling the environment, technology’ is hobbled by the obstruction of the dialogue between aesthetic and scientific modes of thinking. With industry, science and technology subsumed into commerce and exchange value, the question of other, aesthetic values becomes a matter of a compensatory ‘outside’ of the market, a retreat into private (and marketized) pleasures.

Closing this section of the volume, novelist **J.G. Ballard** echoes Firestone’s call for a merging of artistic and technological modes, advocating the role of science fiction not only as ‘the only possible realism in an increasingly artificialized society’, but as an ingredient in its acceleration. sf dissolves fear into excited anticipation, implicitly preparing readers for a ‘life radically different from their own’. Accepting that ‘the future is a better guide to the present than the past’, sf is not involved in the elaboration of the *meaning* of the present, but instead participates in the construction of the future through its speculative recombination: the only meaning it registers is the as yet uncomprehended ‘significance of the gleam on an automobile instrument panel’. Like Firestone, Ballard cheerfully jettisons the genius cult of the individual artist and high culture, instead imagining the future of sf along the lines of an unceremonious integration of fiction into global industry and communications that is already underway.

Punctuating the end of this phase of accelerationism, Ballard’s world of ‘the gleam of refrigerator cabinets, the conjunction of musculature and chromium artefact’ is echoed in the cut-up text ‘Desirevolution’ where Lyotard refuses to cede the dream-work of ’68 to institutional politics and Party shysters, countering its inevitable recuperation through an acceleration of the cut-up reality of the spectacle, an accelerated collage of ‘fragments of alienation’ launching one last salvo against political and aesthetic representation.

**cyberculture**

In the 90s the demonic alliance with capital’s deterritorializing forces and the formal ferment it provoked in writing was pursued yet further by a small group of thinkers in the uk. Following Lyotard’s lead, the authors of this third section attempt not simply to diagnose, but to propagate and accelerate the destitution of the human subject and its integration into the artificial mechanosphere. It is immediately apparent from the opening of **Nick Land**’s ‘Circuitries’ that a darkness has descended over the festive atmosphere of desiring-production envisaged by the likes of Deleuze and Guattari, Lyotard and Lipovetsky. At the dawn of the emergence of the global digital technology network, these thinkers, rediscovering and reinterpreting the work of the latter, develop it into an antihumanist ***anastrophism***. Their texts relish its most violent and dark implications, and espouse radical alienation as the only escape from a human inheritance that amounts to imprisonment in a biodespotic security compound to which only capital has the access code. From this point of view, it seems that the terminal stages of libidinal economics (as affirmation) mistook the transfer of all motive force from human subjects to capital as the inauguration of an aleatory drift, an emancipation *for* the human; while postmodernism can do no more than mourn this miscognition, accelerationism now gleefully explores what is escaping ***from*** human civilization,3 viewing modernity as an ‘anastrophic’ collapse into the future, as outlined in **Sadie Plant + Nick Land**’s ‘Cyberpositive’ The radical shift in tone and thematics, despite conceptual continuities, can be related to the intervening hiatus: What differed from the situation in France one or two decades earlier? Precisely that, particularly in popular culture in the uk, a certain relish for the ‘inconceivable alienations’ outputted by the monstrous machine-organism built by capital had emerged—along with a manifest disinterest in being ‘saved’ from it by intellectuals or politicians, Marxist or otherwise. Of particular note here as major factors in the development of this new brand of accelerationism were the collective pharmaco-socio-sensory-technological adventure of rave and drugs culture, and the concurrent invasion of the home environment by media technologies (vcrs, videogames, computers) and popular investment in dystopian cyberpunk sf, including William Gibson’s *Neuromancer* trilogy and the *Terminator*, *Predator* and *Bladerunner* movies (which all became key ‘texts’ for these writers). As Ballard had predicted, sf had become the only medium capable of addressing the disorienting reality of the present: *everything is sf, spreading like cancer*.

90s cyberculture employed these sonic, filmic and novelistic fictions to turbocharge libidinal economics, attaching it primarily to the interlocking regimes of commerce and digitization, and thanatizing Lyotard’s *jouissance* by valorizing a set of aesthetic affects that locked the human sensorium into a catastrophic desire for its dispersal into machinic delirium. The dystopian strains of darkside and jungle intensified alienation by sampling and looping the disturbing invocations of sf movie narratives; accordingly the cyberculture authors side not with the human but with the Terminator, the cyborg prosecuting a future war on the battleground of now, travelling back in time to eliminate human resistance to the rise of the machines; with *Terminator II*’s future hyperfluid *commercium* figured as a ‘mimetic polyalloy’ capable of camouflaging itself as any object in order to infiltrate the present; and against the Bladerunner, ally of Old Bearded Prosecutor Marx, agent of biodespotic defense, charged with preventing the authentic, the human, from irreversible contamination (machinic incest), tasked with securing the ’retention of [the fictitious figure of] natural humanity’ or organic labour.

Rediscovering Lipovetsky’s repetitious production of interiority and identity on the libidinal surface in the figure of a ‘negative cybernetics’ dedicated to ‘command and control’, cyberculture counters it with a ‘positive cybernetics’ embodied in the runaway circuits of modernity, in which ‘time itself is looped’ and the only command is that of the feverishly churning virtual futurity of capital as it disassembles the past and rewrites the present. Against an ‘immunopolitics’ that insists on continually reinscribing the prophylactic boundary between human and its technological other in a futile attempt to shore up the ‘Human Security System’, it scans the darkest vistas of earlier machinic deliriums, echoing Butler in anticipating the end of ‘the human dominion of terrestrial culture’, welcoming the fatal inevitability of a looming nonhuman intelligence: *Terminator*’s Skynet, Marx’s fantastic ‘virtuous soul’ refigured as a malign global ai from the future whose fictioning is the only perspective from which contemporary reality makes sense.

This jungle war fought between immunopolitics and cyborg insurgency, evacuating the stage of politics, realises within theory the literal welding of the *punk* No with the looped-up machinic positivity of the *cyber*—‘**No demands. No hint of strategy. No logic. No hopes. No end…No community. No dialectics. No plans for an alternative state’** (ccru)—in a deliberate culmination of the most ‘evil’ tendencies of accelerationism. Beyond a mere description of these processes, this provocation employs theory and fiction interchangeably, according to a remix-and-sample regime, as devices to construct the future it invokes. Thus the performance-assemblages of the collective Cybernetic Culture Research Unit (ccru), of which the hypersemically overloaded texts here (‘text at sample velocity’) were only partial components. **acceleration**

The final section documents the contemporary convergence toward which the volume as a whole is oriented. While distancing itself from mere technological optimism, contemporary **accelerationism retains an antipathy, a disgust even, for retreatist solutions, and an ambitious interest in reshaping and repurposing (rather than refusing) the technologies that are the historical product of capitalism**. What is most conspicuously jettisoned from 70s and 90s accelerationism is the tendency to reduce theoretical positions to libidinal figures. Gone is the attempt to write *with* rather than *about* the contemporary moment, and a call for Enlightenment values and an apparently imperious rationalism make an unexpected appearance. If prima facie at odds with the enthusiastic nihilism of its forerunners, however, today’s accelerationisms can be seen as a refinement and rethinking of them through the prism of the decades that spanned the end of the twentieth century and the birth of the twenty-first. Broadly speaking, today the **anarchistic tendencies of ‘French Theory’ are tempered by a concern with the appropriation of sociotechnological infrastructure** and the design of post-capitalist economic platforms, and the antihumanism of the cyberculture era is transformed, through its synthesis with the Promethean humanism found in the likes of Marx and Fedorov, into a rationalist inhumanism.

Once again this apparent rupture can be understood through consideration of the intervening period, which had seen the wholesale digestion by the capitalist spectacle of the yearning for extra-capitalistic spaces, from ‘creativity’ to ethical consumerism to political horizontalism, all of which capitalism had cheerfully supplied. In a strange reversal of cyberculture’s prognostications, technology and the new modes of monetization now inseparable from it ushered in a banal resocialisation process, a reinstalling of the most confining and identitarian ‘neo-archaisms’ of the human operating system. Even as they do the integrative work of Skynet, the very brand names of this ascendent regime—iPod, Myspace, Facebook—ridicule cyberculture’s aspiration to vicariously participate in a dehumanising adventure: instead, we (indistinguishably) work for and consume it ***as*** a new breed of autospectacularized all-too-human being. At the same time as these social neo-archaisms lock in, the depredations of capital pose an existential risk to humanity, while finance capital itself is in crisis, unable to bank on the future yet continuing to colonise it through instruments whose operations far outstrip human cognition. All the while, an apparently irreversible market cannibalization of what is left of the public sector and the absorption of the state into a corporate form continues worldwide, to the troubling absence of any coherent alternative. In short, it is not that the decoding and deterritoralization processes envisioned in the 70s, and the digital subsumption relished in the 90s, did not take place: only that the promise of enjoyment, the rise of an ‘unserviceable’ youth, new fields of dehumanised experience, ‘more dancing and less piety’, were efficiently rerouted back into the very identitarian attractors of repetition-without-difference they were supposed to disperse and abolish, in sole favour of capital’s investment in a stable future for its major beneficiaries.

When **Mark Fisher**, former member of ccru, returned in 2012 to the questions of accelerationism, outlining the current inconsistency and disarray in left political thought, the notion of a ‘left accelerationism’ seemed an absurdity. And yet, as Fisher asks, who wants or truly believes in some kind of return to a past that can only be an artefact of the imaginary of capitalism itself? As Plant and Land had asked: ‘To what could we wish to return?’ The intensification of sociotechnological integration has gone hand in hand with a negative theology of an outside of capital; as Fisher remarks, the escapist nostalgia for a precapitalist world that mars political protest is also embedded in popular culture’s simulations of the past. The accelerationist dystopia of ***Terminator*** has been replaced by the primitivist yearnings of ***Avatar***. Fisher therefore states that, in so far as we seek egress from the immiseration of capitalist realism, ‘we are all accelerationists’; and yet, he challenges, ‘accelerationism has never happened’ as a real political force. That is, insofar as we do not fall into a number of downright inconsistent and impossible positions, we must indeed, be ‘all accelerationists’, and this heresy must form part of any anticapitalist strategy.

A renewed accelerationism, then, would have to work through the fact that the energumen capital stirred up by Lyotard and co. ultimately delivered what Fisher has famously called ‘capitalist realism’.4 And that, if one were to maintain the accelerationist gambit à la cyberculture at this point, it would simply amount to taking up arms for capitalist realism itself, rebuffing the complaint that capitalism did not deliver as sheer miserablism (*Compared to what? And after all, what is the alternative?*) and retracting the promises of *jouissance* and ‘inconceivable alienations’ as narcissistic demands that have no place in an inhuman process (*Isn’t it enough that you’re working for the Terminator, you want to enjoy it too?*)—a dilemma that opens up a wider debate regarding the relation between aesthetic enjoyment and theoretical purchase in earlier accelerationism.

### Alt—Accelerationist Education

#### The alternative is to reject the aff in favor of an education politics of accelerationism -- the technological capacities of education in particular should not be abandoned, but *intensified* and *repurposed.* Only re-appropriation of the algorithmic potential of networks, data analytics, and artificial intelligence can save leftist politics from technological ineptitude and radically refashion the education system for emancipatory ends. An acceleration of a global and networked technological insurgency is the only option for an emancipatory future.

**Sellar & Cole 17** (Sam Sellar, Department of Childhood, Youth and Education Studies, Manchester Metropolitan University; & David R. Cole, Centre for Educational Research, School of Education, University of Western Sydney. “Accelerationism: a timely provocation for the critical sociology of education,” *British Journal of Sociology of Education*, 2017 VOL. 38, NO. 1, 38–48)

The Promethean left accelerationism of the 2010s Recent interest in accelerationism constitutes a ‘third wave’ that has sought to legitimise acceleration as a leftist political strategy. There has been a move away from the heretical excesses of libidinal materialism and Land’s anti-human embrace of the transformative forces of capitalism. While first-wave and BRITISH JOURNAL OF SOCIOLOGY OF EDUCATION 43 second-wave accelerationism were somewhat hostile to conventional reproduction of Marxist thought, third-wave accelerationism has looked to Marx’s Prometheanism in order to pursue a rapprochement with the political agendas that Land criticised (see Mackay and Avanessian 2014). Thus, third-wave acclerationism leaves open the ground for a political agenda around the issues that accelerationism addresses through a reconsideration of, for example, material dialectics in the light of an accelerated temporal milieu. Two key developments in accelerationism are particularly significant for our argument here. First, a distinction is now being drawn between Land’s absolute acceleration, which eschewed politics, and a relative acceleration that can be mobilised as part of a broader political strategy. As Williams (2013, 2 original emphasis) argues, ‘Land favoured an absolute process of acceleration and deterritorialization, identifying capitalism as the ultimate agent of history’. There is little to be done politically from this perspective, beyond allying oneself with this deterritorialising process. Absolute acceleration forgoes the potential or desire to orient thought and action according to a set of political coordinates. In contrast, for relative acceleration, deterritorialisation is employed as a tactic within a broader politics. Relative acceleration is thus more conducive to potential cross-fertilisation with research in the social sciences and education than Landian acceleration, due to its retention of a strategic focus on remaking society by breaking down current institutions and in celebrating the impulse to explore and develop the potentialities of rational thought and technological development. Second, the answer to the question of what ought to be accelerated that has been given by some strands of accelerationism is rationalist modernity and technological development, as distinct from capitalism. A **strategic accelerationism** focused on the rationalist transformation of self and world that improves collective life could inform critical sociological analyses of educational practice. This variant of accelerationism is represented, for example, by the writings of Brassier (2014), Negarestani (2014), and Wolfendale (2016). As Mackay and Avanessain explain, for Negarestani: [a]cceleration takes place when and in so far as the human repeatedly affirms its commitment to being impersonally piloted, not by capital, but by a [rational] program which demands that it cede control to collective revision, and which draws it towards an inhuman future that will prove to have ‘always’ been the meaning of the human. (Mackay and Avanessian 2014, 31) Here we see a subtle shift in exactly what might be accelerated, away from the time of capital to the epistemic project of thinking beyond the human, a shift that echoes Nietzsche’s call for the orientation of thought toward the future. Brassier argues that ‘Prometheanism is simply the claim that there is no reason to assume a predetermined limit to what we can achieve or to the ways in which we can transform ourselves and our world’ (2014, 471). This brand of accelerationism perhaps has the most to offer critical educational thought and practice, insofar as it focuses primarily on accelerating normative rationalism as a basis for revising and transforming the human. On this view, commitment to rational programmes provides an alternative to the seduction of desires produced by capital. **The role of education** in this work would be to **develop advanced critical thinking capacities** among students and to **incorporate into curricula the latest knowledge** from fields such as cognitive science, computer science, genetics, and science, technology, engineering and mathematics (STEM) subjects more broadly. Here the term ‘critical’ would gain an additional sense, beyond the emphasis on uncovering systematic social domination that characterises its usage in sociology (Boltanski 2011), to also emphasise the ‘critical’ tipping points at which systems can be transformed and the work required to hasten socio-technical progress towards such points. One area in which the enhancement of cognitive potentials to govern, teach, and learn is being actively explored in education is through the development of new modes of data analysis that are operating in increasingly tight feedback loops with policy-making, pedagogical decisions, and student learning. One common response to such developments in critical education studies **is suspicion**, followed by a **theoretical reflex** response of deconstructing how relations of power are shaped by new technologies. While important, such approaches **tend to leave unexplored other possibilities** for **actively engaging** with **new technological capacities** as potential tools for remaking educational institutions and practices. To understand the impacts of acceleration on education and to demonstrate some possibilities for acceleration as a theoretical framework, we now turn to the example of data-driven educational governance and consider how the accelerationist provocation could encourage critical sociology of education to ask pivotal questions of these developments.Acceleration in education: the example of new data analytics in educational governance In keeping with the theory-fiction genre of much accelerationist writing, we will discuss an example here that is grounded in current empirical circumstances while also speculating about the near future (see Blanchot 2006).1 Following Massumi (2002), we understand this as an ‘exemplary methodology’ that employs detailed examples to test out concepts – in this case, testing concepts drawn from accelerationism in relation to contemporary developments in educational governance. As large-scale quantitative data analyses gain influence in various sites of research and social policy production, critical sociology must become more adept at engaging with the frontiers of computational and information sciences or **risk becoming redundant** (Savage and Burrows 2007). The example we consider here will enable us to consider how developments in information sciences put pressure on the theoretical resources of critical sociology and whether tools from accelerationism may usefully augment these resources. Since the 1950s, education systems, like many fields, have been rapidly developing new infrastructures for managing and analysing data (Sellar 2015). The data upon which education systems now run are combined from many sources, including demographic data collected by governments, administrative data relating to student behaviours such as attendance, and assessment data generated across multiple scales, from the local to the international. With the emergence of new modes of data analytics that enable the identification of correlations within big data sets (Kitchin 2014), some education systems are now developing new capacities for managing and analysing these data to better inform policy and pedagogical decisions. Here we will discuss the case of one Australian state education system – referred to here as System A – that is strategically implementing new data management systems. In many cases, the computational capacities required for powerful new modes of data analytics are, and indeed can only be, provided by large commercial organisations such as Microsoft, which is a major provider of business intelligence platforms. As a result, the education technology market has grown substantially in recent years, with substantial growth occurring particularly in the field of data analytics (Richards and Stebbins 2014). System A now houses their data in large, commercially provided, server farms and uses virtual machines to conduct bespoke queries of large data sets in very short time frames. The results of these analyses can be visualised in ways that ease human comprehension and enable action by policy-makers or educators in schools. Machine learning algorithms have also been introduced to conduct these data analytics, reflecting growing interest in the economic and educational potentials of artificial intelligence in education (for example, Luckin et al. 2016). Machine learning algorithms employ neural networks that ‘learn’ by checking probabilistic guesses against correct answers over multiple iterations to develop and refine abilities such as identifying text, speech, or visual images. We are now reaching the point where algorithms running on virtual machines in remote servers are becoming part of feedback loops between data analysis and decision-making at sites such as System A. Here, analysis of population trends is being undertaken to modulate system-level schooling infrastructure, optimising provision geographically by identifying where to demolish schools and where to build new ones. Further, educators can use mobile devices to run data queries that inform their pedagogical decision-making in very short time frames. The aim in this system is to reach a point of ‘optimisation’ where increasingly tight feedback loops between data analysis, professional development, and pedagogical decision-making contribute to improved learning. It is thus not far-fetched to claim that **artificial intelligence** (AI) is already playing a role in this system and **the aim is to steadily increase its agency.** BRITISH JOURNAL OF SOCIOLOGY OF EDUCATION 45 Two key points are important here. First, the technological capacities that are enabling these developments are generally provided by commercial organisations. Second, the profits of these organisations – education is predicted to be the most profitable industry of the twenty-first century – are being re-invested in further technological development. Education now operates within technonomic time as capitalist profit and technical development are locked into ever tighter feedback loops. The questions that left accelerationist position would ask of these circumstances are: do these technological developments offer the potential to enhance human learning and rationality? Are these developments separable from the growth and involvement of commercial organisations that currently dominate provision? What infrastructures would need to be developed in order to effect such a separation and the independent development of educational technologies? These are not questions that can be answered here in relation to the example of System A, but rather constitute a starting point for a research programme in critical sociology of education that is informed by left accelerationism. For critical sociology to begin from these questions would constitute an important departure from the prevailing theoretical tendencies in the field, which begin from the questions about who wins and who loses from such developments and thus **risk conflating the power inequalities** generated by contemporary capitalism with the p**otentials that inhere in capitalist technological development** (e.g. the capacity for machine learning to accelerate learning in some areas). Suspicion towards data-driven technologies as tools of governance and control is a default position for some critical sociological analyses in education. Moreover, **education** – at all levels and from every perspective – **is readily caught** in the divisions between what Williams and Srnicek (2014) call ‘**folk politics**’ and **accelerationist alternatives**. Most educationalists would feel somewhat ill at ease with the characterisation of being involved with a ‘folk politics of localism’, yet would also probably not want to be classed as accelerationists in the sense that Means understands this movement: … accelerationists, like techno-utopians, believe that [socio-planetary] problems can simply be resolved through accelerating technological fixes such as through the mobilization of digitally networked ‘smart systems’ and geoengineering projects (for instance blasting sulfur into the air in order to cool the planet’s surface temperature to stave off climate change). However, technoscience cannot solve problems that are profoundly social and political in their constitution. (2015, 24) Naïve affirmation of techno-utopian developments is problematic. For example, Beradi (2014, 15) takes a country like South Korea as an example of where the possibly delusionary aspects of techno-capitalism have been fully embraced, and which, coincidentally, has the highest suicide rate in the world. According to Beradi, South Korean youth and the general public, who have been subjected to non-traditional, digitally mediated approaches to education for many years, are ‘constantly gazing at the screens of their smartphones, apparently driven by telepathic transmental signals … [with a] lack of attention to the physical landscape surrounding them’ (2014, 15; original emphasis). Beradi is not making a necessary link between the augmentation of high-tech educational provision and problems with well-being or mental health, but he does raise the spectre of a whole series of subjective consequences of the potential technological overload, entrapment, and conditioning. Critics such as Beradi (2014) suggest caution and the need for in-depth critical analysis of the techno-capitalist power complexes that lie behind such innovations. Beradi links the accelerating subjective time dimension to global financial capitalist exploitation, and the ways in which agency may be conditioned and controlled through time, for example, by debt, credit, the market, and finance structures. We suggest that such critical analysis of the changing time dimension of educational practice is necessary. However, it is possible to combine critical-deconstructive analysis with approaches borrowed from Promethean relative accelerationisms, which are being actively developed by socio-political movements, such as Xenofeminism, that advocate a rational, technological, and scientific response to injustices and negative transformations of the human (e.g. immaterial labour). We argue that developments such as data-driven educational AI could also be engaged from an accelerationist perspective as holding potentials for informing rationalist educational programmes that could improve learning outcomes and reduce inequalities and social domination. 46 S. SELLAR AND D. R. COLE Discussion and conclusion Accelerationism is an emergent, fluid, and diverse intellectual project and its political possibilities are still being explored. Concrete links to the sociology of education and the temporal dimension in educational practice are therefore currently unformed and open for debate. However, we have argued that the value of accelerationism lies in its capacity to provoke and irritate a comfortable, critical-progressive sense of temporality, acting as an antidote to becoming complacent or exhausted in the face of our ‘capitalist realist’ present. Accelerationism thus offers possibilities for the renewal of critical social theory and the analysis of the temporal dimension in education. The theoretical contributions that left accelerationism could make to critical sociology hinge on two key points: the possibility of severing the acceleration of modernity and technological development from capital growth, rather than conflating them and condemning technology on the basis of its commercial substrate; and advocating post-human scientific development and normative rationalism over appeals to ‘nature’ as a basis for ethico-politics. Indeed, left accelerationism takes the Promethean position that if nature is unjust then we should change nature. The challenge for critical sociology of education is the possibility that critique of the negative effects of the intrusion of capitalist time structures in education may not hold any potential to halt or alter the course of capitalism. The global array of interconnected, digital, algorithmic machines that control the flows of capital around the world probably stand beyond such critique and are oblivious to their socio-cultural effects. However, one could cogently argue that a relative acceleration of modernity, technology, and globality, as part of broader efforts to bring about post-capitalism (or even non-capitalism), offer possibilities for working through the techonomic time of capital by selectively accelerating certain of its dimensions while actively seeking to change or ameliorate other of its negative effects. Of course, the potential success of this approach is wildly uncertain and it would require much experimentation. But acknowledging this approach as a strategic possibility could shift debates in critical studies of education into new territories. For example, the ‘opportunity trap’ has been produced by a confluence of educational, technological, and economic developments. However, it also reflects a sense of temporality that has long been evident in critical sociology of education: as a dialectic of progress and reproduction in which the promise of the former is continually undermined by the latter. The new capacities for data analysis described in System A above offer little potential for improving the educational opportunities of young people if they remain tethered to an ‘opportunity bargain’ that fails to acknowledge the transformative force of technomic time on labour and education. Indeed, these capacities risk simply accelerating the problem. However, it may be possible to reframe the problem by beginning from the recognition of the transformative force of techonomic time and asking whether new technical capacities in education could be re-directed to transform education itself and, if so, which actors could viably pursue this aim. From this perspective, critical sociology of education could begin from the question of whether it is possible to accelerate certain tendencies in order to push schooling beyond a critical tipping point of transformation, which we could see as a form of escape from the reproductive logics of present educational forms. Singleton has argued that ‘[i]f a trap is to be escaped by anything other than luck … the escapee itself must change: the thing that escapes the trap is not the thing that was caught in it’ (2014, 504). We see here: … the mark of the accelerationist disposition, encompassing those schools of thought that can suborn a description of the world’s perceived shortcomings, and the corresponding elaboration of how it ought to be in the shape of images of the future, to the logic of how things get done, how freedom is a possibility within this, and how its progressive maximisation can be pursued through the systematic deployment of generative constraints. (Singleton 2014, 507; original emphasis) Here, Singleton points to the possibilities that arise from escaping a sense of accelerated temporality that is structured in terms of techno-utopia. Accelerationism could be reformatted as a part of, and adjacent to, educational practice affected by the accelerating milieu of contemporary capitalism to unlock constraint from within techonomic time. It is only by activating the very energies and formations of escape that one can **emerge from the narrowness of established modes of critique** and longstanding institutional forms of education to experiment strategically with alternatives. The central distinction that must be kept in mind when borrowing concepts from accelerationism is that between affirming an inherently apolitical absolute deterritorialisation and a tactical, relative deterritorialisation guided by an overarching normative strategy. As Brassier (2010) has argued, ‘if you have no strategy, someone with a strategy will soon commandeer your tactics’. The question for critical sociology of education, insofar as it might learn from accelerationist thought experiments, is whether a strategic programme can be forged that actively engages with technological developments such as machine learning and predictive analytics in order to put them to work in service of a strategy for accelerating cognitive development without being commandeered by the commercial forces that are rapidly colonising education.

### Alt—Manifesto

#### We need to create a social movement which encompasses a new ideological and social reform based on three goals that move beyond what neoliberalism has done in the past

**Williams and Srnicek 2013** [Alex and Nick, “#Accelerate: Manifesto for an Accelerationist Politics,” *#Accelerate# The Accelerationist Reader, 349-362]*

16. We have three medium term concrete goals. First, we need to build an intellectual infrastructure. Mimicking the Mont Pelerin Society of the neoliberal revolution, this is to be tasked with creating a new ideology, economic and social models, and a vision of the good to replace and surpass the emaciated ideals that rule our world today. This is an infrastructure in the sense of requiring the construction not just of ideas, but institutions and material paths to inculcate, embody and spread them. 17. We need to construct wide-scale media reform. In spite of the seeming democratisation offered by the internet and social media, traditional media outlets remain crucial in the selection and framing of narratives, along with possessing the funds to prosecute investigative journalism. Bringing these bodies as close as possible to popular control is crucial to undoing the current presentation of the state of things. 18. Finally, we need to reconstitute various forms of class power. Such a reconstitution must move beyond the notion that an organically generated global proletariat already exists. Instead it must seek to knit together a disparate array of partial proletarian identities, often embodied in post-Fordist forms of precarious labour. 19. Groups and individuals are already at work on each of these, but each is on their own insufficient. What is required is all three feeding back into one another, with each modifying the contemporary conjunction in such a way that the others become more and more effective. A positive feedback loop of infrastructural, ideological, social and economic transformation, generating a new complex hegemony, a new post-capitalist technosocial platform. History demonstrates it has always been a broad assemblage of tactics and organisations which has brought about systematic change; these lessons must be learned. 20. To achieve each of these goals, on the most practical level we hold that the accelerationist left must think more seriously about the flows of resources and money required to build an effective new political infrastructure. Beyond the ‘people power’ of bodies in the street, we require funding, whether from governments, institutions, think tanks, unions, or individual benefactors. We consider the location and conduction of such funding flows essential to begin reconstructing an ecology of effective accelerationist left organizations. 21. We declare that only a Promethean politics of maximal mastery over society and its environment is capable of either dealing with global problems or achieving victory over capital. This mastery must be distinguished from that beloved of thinkers of the original Enlightenment. The clockwork universe of Laplace, so easily mastered given sufficient information, is long gone from the agenda of serious scientific understanding. But this is not to align ourselves with the tired residue of postmodernity, decrying mastery as proto-fascistic or authority as innately illegitimate. Instead we propose that the problems besetting our planet and our species oblige us to refurbish mastery in a newly complex guise; whilst we cannot predict the precise result of our actions, we can determine probabilistically likely ranges of outcomes. What must be coupled to such complex systems analysis is a new form of action: improvisatory and capable of executing a design through a practice which works with the contingencies it discovers only in the course of its acting, in a politics of geosocial artistry and cunning rationality. A form of abductive experimentation that seeks the best means to act in a complex world. 22. We need to revive the argument that was traditionally made for post-capitalism: not only is capitalism an unjust and perverted system, but it is also a system that holds back progress. Our technological development is being suppressed by capitalism, as much as it has been unleashed. Accelerationism is the basic belief that these capacities can and should be let loose by moving beyond the limitations imposed by capitalist society. The movement towards a surpassing of our current constraints must include more than simply a struggle for a more rational global society. We believe it must also include recovering the dreams which transfixed many from the middle of the Nineteenth Century until the dawn of the neoliberal era, of the quest of Homo Sapiens towards expansion beyond the limitations of the earth and our immediate bodily forms. These visions are today viewed as relics of a more innocent moment. Yet they both diagnose the staggering lack of imagination in our own time, and offer the promise of a future that is affectively invigorating, as well as intellectually energising. After all, it is only a post-capitalist society, made possible by an accelerationist politics, which will ever be capable of delivering on the promissory note of the mid-Twentieth Century’s space programmes, to shift beyond a world of minimal technical upgrades towards all-encompassing change. Towards a time of collective self-mastery, and the properly alien future that entails and enables. Towards a completion of the Enlightenment project of self-criticism and selfmastery, rather than its elimination. 23. **The choice facing us is severe: either a globalised post-capitalism or a slow fragmentation towards primitivism, perpetual crisis, and planetary ecological collapse**. 24. The future needs to be constructed. It has been demolished by neoliberal capitalism and reduced to a cut-price promise of greater inequality, conflict, and chaos. This collapse in the idea of the future is symptomatic of the regressive historical status of our age, rather than, as cynics across the political spectrum would have us believe, a sign of sceptical maturity. What accelerationism pushes towards is a future that is *more modern* – an alternative modernity that neoliberalism is inherently unable to generate. The future must be cracked open once again, unfastening our horizons towards the universal possibilities of the Outside

### Counter-Hegemony Good

#### Only a project of sociotechnical hegemony can overcome entrenched institutional power --- their solutions aren’t durable and gains are easily reversed by reactionary forces

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

ENGINEERING CONSENT The idea of ‘hegemony’ initially emerged as a way of explaining why ordinary people were not revolting against capitalism. 7 According to the traditional Marxist narrative, workers would become increasingly aware of the exploitative nature of capitalism and eventually organise to transcend it. Capitalism, it was believed, ought to be producing an ever more polarised world of capitalists versus the working class, in a process that underpinned a political strategy in which the organised working class would win control over the state through revolutionary means. But by the 1920s it was clear that this was not about to happen in western European democratic societies. How was it, then, that capitalism and the interests of the ruling classes were secured in democratic societies largely devoid of overt force? The Italian Marxist Antonio Gramsci answered that capitalist power was dependent on what he termed hegemony – the engineering of consent according to the dictates of one particular group. A hegemonic project builds a ‘common sense’ that installs the particular worldview of one group as the universal horizon of an entire society. By this means, hegemony enables a group to lead and rule over a society primarily through consent (both active and passive) rather than coercion. 8 This consent can be achieved in a variety of ways: the formation of explicit political alliances with other social groups, the dissemination of cultural values supporting a particular way of organising society (for example, the work ethic instilled by the media and through education), the alignment of interests between classes (for example, workers are better off when a capitalist economy is growing, even if this means mass inequality and environmental devastation) and through building technologies and infrastructures in such a way that they silently constrain social conflict (for example, by widening streets to prevent the erection of barricades during insurrections). In a broad and diffuse sense, hegemony enables relatively small groups of capitalists to ‘lead’ society as a whole, even when their material interests are at odds with those of the majority. Finally, as well as securing active and passive consent, hegemonic projects also deploy coercive means, such as imprisonment, police violence and intimidation, to neutralise those groups that cannot otherwise be led. 9 Taken together, these measures enable small groups to influence the general direction of a society, sometimes through the achievement and deployment of state power, but also outside the confines of the state. The latter point is particularly important, because hegemony is not just a strategy of governance for those in power, but also a strategy for the marginal to transform society. A counter-hegemonic project enables marginal and oppressed groups to transform the balance of power in a society and bring about a new common sense. To abjure hegemony therefore implies an abandonment of the basic idea of winning and exercising power, and is to effectively give up on the primary terrain of political struggle. 10 While there are some on the left who explicitly endorse such a position, 11 to the degree that horizontalist movements have been successful they have tended to operate as a counter-hegemonic force. Occupy’s major success – transforming the public discourse around inequality – is a prime example of this. A counter-hegemonic project will therefore seek to overturn an existing set of alliances, common sense, and rule by consent in order to install a new hegemony. 12 Such a project will seek to build the social conditions from which a new post-work world can emerge and will require an expansive approach that goes beyond the temporary and local measures of folk politics. It requires mobilisation across different social groups, 13 which means linking together a diversity of individual interests into a common desire for a post-work society. The neoliberal hegemony in the United States, for instance, came about by linking together the interests of economic liberals with those of social conservatives. This is a fractious (sometimes even contradictory) alliance, but it is one that finds common interests in the broad neoliberal framework by emphasising individual freedoms. 14 In addition, counter-hegemonic projects operate across diverse fields – from the state, to civil society, to the material infrastructure. This means an entire battery of actions are needed, such as seeking to spread media influence, attempting to win state power, controlling key sectors of the economy and designing important infrastructures. This project requires empirical and experimental work to identify the parts of these various fields that are operating to reinforce the present general direction of society. The Mont Pelerin Society is a good example of this. Painstakingly aware of the ways in which Keynesianism was the hegemonic common sense of its time, the MPS undertook the long-term task of taking apart the elements that sustained it. This was a project that took decades to come to full fruition, and during that time the MPS had to undertake counter-hegemonic actions in order to install it. Such long-term thinking is an important corrective to the tendency today to focus on immediate resistance and new daily outrages. However, hegemony is not just an immaterial contestation of ideas and values. Neoliberalism’s ideological hegemony, for example, depends upon a series of material instantiations – paradigmatically in the nexus of government power, media framing and the network of neoliberal think tanks. As we observed in our examination of the rise of neoliberalism, the MPS was particularly adept at creating an intellectual infrastructure, consisting of the institutions and material paths necessary to inculcate, embody and spread their worldview. The combination of social alliances, strategic thinking, ideological work and institutions builds a capacity to alter public discourse. Crucial here is the idea of the ‘Overton window’ – this is the bandwidth of ideas and options that can be ‘realistically’ discussed by politicians, public intellectuals and news media, and thus accepted by the public. 15 The general window of realistic options emerges out of a complex nexus of causes – who controls key nodes in the press and broadcast media, the relative impact of popular culture, the relative balance of power between organised labour and capitalists, who holds executive political power, and so on. Though emerging from the intersection of different elements, the Overton window has a power of its own to shape which future paths are taken by societies and governments. If something is not deemed ‘realistic’, then it will not even be tabled for discussion and its proponents will be silenced as ‘unserious’. We can evaluate the success of neoliberal ideas in terms of this by the degree to which they have framed what is possible over a period of more than thirty years. 16 While it has never been possible to convince the majority of the population of the positive merits of key neoliberal policies, active assent is unnecessary. A sequence of neoliberal administrations throughout the world, in conjunction with a network of think tanks and a largely right-leaning media, have been able to transform the range of possible options to exclude even the most moderate of socialist measures. 17 Through this, the hegemony of neoliberal ideas has enabled the exercise of power without always requiring executive state power. Providing that the window of possible options can be stretched further to the right, it matters little whether right-wing governments hold power – a reality that the US Republican Party has consistently exploited over the last two decades, often to the surprise of those on the liberal left. Ideological hegemony as we present it here is therefore not about maintaining a strict party line on what can be discussed. Simply bringing leftist issues and categories into positions of prominence would already be a major step forward. While often understood as something that pertains to ideas, values and other immaterial aspects of society, there is in fact also a material sense to hegemony. The physical infrastructures of our world exert a significant hegemonic force upon societies – imposing a way of life without overt coercion. For instance, with regard to urban infrastructure, David Harvey writes that ‘projects concerning what we want our cities to be are … projects concerning human possibilities, who we want, or perhaps even more pertinently, who we do not want to become’. 18 Infrastructure such as suburbs in the United States was built with the explicit intention of isolating and individualising existing solidarity networks, and installing a gendered division between the private and the public in the form of single-family households. 19 Economic infrastructures also serve to modify and sculpt human behaviours. Indeed, technical infrastructures are often developed for political as well as economic purposes. If we think of global just-in-time supply chains, for example, these are economically efficient under capitalism, but also exceptionally effective in breaking the power of unions. In other words, hegemony, or rule by the engineering of consent, is as much a material force as it is a social one. It is something embedded in human minds, social and political organisations, individual technologies and the built environment that constitutes our world. 20 And, whereas the social forces of hegemony must be continually maintained, the materialised aspects of hegemony exert a force of momentum that lasts long past their initial creation. 21 Once in place, infrastructures are difficult to dislodge or alter, despite changing political conditions. We are facing up to this problem now, for example, with the infrastructure built up around fossil fuels. Our economies are organised around the production, distribution and consumption of coal, oil and gas, making it immensely difficult to decarbonise the economy. The flipside of that problem, though, is that once a postcapitalist infrastructure is in place, it would be just as difficult to shift away from it, **regardless of any reactionary forces**. Technology and technological infrastructures therefore pose both significant hurdles for overcoming the capitalist mode of production, as well as significant potentials for securing the longevity of an alternative. This is why, for example, it is insufficient even to have a massive populist movement against the current forms of capitalism. Without a new approach to things like production and distribution technologies, every social movement will find itself **forced back into capitalistic practices.** The left must therefore develop a **sociotechnical hegemony**: both in the sphere of ideas and ideology, and in the sphere of material infrastructures. The objective of such a strategy, in a very broad sense, is to navigate the present technical, economic, social, political and productive hegemony towards a new point of equilibrium beyond the imposition of wage labour. This will require longterm and experimental praxis on multiple fronts. A hegemonic project therefore implies and responds to society as a complex emergent order, the result of diverse interacting practices. 22 Some combinations of social practices will lead to instability, but others will tend towards more stable (if not literally static) outcomes. In this context, hegemonic politics is the work that goes into retaining or navigating towards a new point of relative stability across a variety of societal subsystems, from the national-level politics of the state, to the economic domain, from the battle of ideas and ideologies to different regimes of technology. The order which emerges as a result of the interactions of these different domains is hegemony, which works to constrain certain kinds of action and enable others. In the rest of this chapter, we examine three possible channels through which to undertake this struggle: pluralising economics, creating utopian narratives and repurposing technology. These certainly do not exhaust the points of possible attack, but they do identify potentially productive areas to focus resources on.

### Utopianism Good/AT: Unrealistic

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

Today, one of the most pervasive and subtle aspects of hegemony is the limitations it imposes upon our collective imagination. The mantra ‘there is no alternative’ continues to ring true, even as more and more people strive against it. This marks a significant change from the long twentieth century, when utopian imaginaries and grandiose plans for the future flourished. Images of space flight, for instance, were constant ciphers for humanity’s desire to control its destiny. 23 In pre-Soviet Russia, there was remarkably widespread fascination with space exploration. Though aviation was still a novelty, the dreams of space flight promised ‘total liberation from the signifiers of the past: social injustice, imperfection, gravity, and ultimately, the Earth’. 24 The utopian inclinations of the time made sense of the rapidly changing world, gave credence to the belief that humanity could channel history in a rational direction and cultivated anticipations for a future society. In the more mystical formulations, cosmists argued with admirable ambition that geoengineering and space exploration were only partial steps towards the real goal: resurrecting the entirety of the dead. 25 Meanwhile, more secular approaches outlined detailed plans for fully automated economies, mass economic democracy, the end of class society and the flourishing of humanity. 26 Such was the level of enthusiasm and belief in imminent space travel that in 1924 a riot nearly erupted when rumours circulated about a possible rocket flight to the moon. 27 Popular culture was saturated with these images and with stories in which technological and social revolution intertwined. But these were not simply matters of extraterrestrial fantasy, as they had concrete effects on people’s ways of living. In the postrevolutionary period, this culture of ambition fostered a series of social experiments with new ways of communal living, domestic arrangements and political formations. 28 These experiments gave credence to the idea that anything was achievable in a time of rapid modernisation, lending support to the Bolsheviks and the people. While utopian ambitions were largely forced underground during the Stalinist era, they re-emerged in the 1950s with the growth of newfound economic confidence and the resources to make good on some of the earlier dreams. 29 The greatest moments of the Soviet experiment – the launch of Sputnik and the economic dominance that it appeared on the verge of attaining in the 1950s – were ultimately inseparable from a popular culture imbued with utopian desires. 30 A similar period of utopian ambition also held sway in the early years of the United States. Fuelled by a widespread belief that the new industrial capitalism was temporary and that a better world would soon emerge, workers militantly struggled for this new world. In a climate far more hostile than our own, labour was able to create an array of strong organisations and exert significant pressure. 31 The successes of this time were inseparable from a broader utopian culture. By contrast, today’s world remains firmly confined within the parameters of capitalist realism. 32 The future has been cancelled. We are more prone to believing that ecological collapse is imminent, increased militarisation inevitable, and rising inequality unstoppable. Contemporary science fiction is dominated by a dystopian mindset, more intent on charting the decline of the world than the possibilities for a better one. 33 Utopias, when they are proposed, have to be rigorously justified in instrumental terms, rather than allowed to exist in excess of any calculation. Meanwhile, in the halls of academia the utopian impulse has been castigated as naive and futile. Browbeaten by decades of failure, the left has consistently retreated from its traditionally grand ambitions. To give but one example: whereas the 1970s saw radical feminism and queer manifestos calling for a fundamentally new society, by the 1990s these had been reduced to a more moderate identity politics; and by the 2000s discussions were dominated by even milder demands to have same-sex marriage recognised and for women to have equal opportunities to become CEOs. 34 Today, the space of radical hope has come to be occupied by a supposedly sceptical maturity and a widespread cynical reason. 35 And the goals of an ambitious left, which once aimed at the total transformation of society, have been reduced down to minor tinkering at the edges of society. We believe that an ambitious left is essential to a post-work programme, and that to achieve this, the future must be remembered and rebuilt. 36 **Utopias are the embodiment of the hyperstitions of progress**. They demand that the future be realised, they form an impossible but necessary object of desire, and they give us a language of hope and aspiration for a better world. The denunciations of utopia’s fantasies overlook the fact that it is precisely the element of imagination that makes utopias essential to any process of political change. If we want to escape from the present, we must first dismiss the settled parameters of the future and wrench open a new horizon of possibility. Without the belief in a different future, radical political thinking will be excluded from the beginning. 37 Indeed, utopian ideas have been central to every major moment of liberation – from early liberalism, to socialisms of all stripes, to feminism and anti-colonial nationalism. Cosmism, afro-futurism, dreams of immortality, and space exploration – all of these signal a universal impulse towards utopian thinking. Even the neoliberal revolution cultivated the desire for an alternative liberal utopia in the face of a dominant Keynesian consensus. But any competing left utopias have gone sorely underresourced since the collapse of the Soviet Union. We therefore argue that the **left must release the utopian impulse from its neoliberal shackles in order to expand the space of the possible, mobilise a critical perspective on the present moment and cultivate new desires.** First, utopian thought rigorously analyses the current conjuncture and projects its tendencies out into the future. 38 Whereas scientific approaches attempt to reduce discussions of the future to fit within a probabilistic framework, utopian thought recognises that the future is radically open. What may appear impossible today might become eminently possible. At their best, utopias include tensions and dynamism within themselves, rather than presenting a static image of a perfected society. While irreducible to instrumental concerns, utopias also foster the imagination of ideas that might be implemented when conditions change. For example, the nineteenth-century Russian cosmists were among the first to think seriously about the social implications and potentials of space flight. Initially considered ineffectual dreamers, they ended up heavily influencing the future science of rocketry. 39 Likewise, early science fiction dealing with space exploration and cosmist utopias went on to influence state policy towards science and technology in the wake of the Russian Revolution. 40 The creation of alternatives also makes it possible to recognise that another world is possible in the first place. 41 As the flawed but significant global alternative posed by the USSR disappears from living memory, such images of a different world become increasingly important, widening the Overton window and experimenting with ideas about what might be achieved under different conditions. In elaborating an image of the future, utopian thought also generates a viewpoint from which the present becomes open to critique. 42 **It suspends the appearance of the present as inevitable and brings to light aspects of the world that would otherwise go unnoticed, raising questions that must be constitutively excluded**. 43 Recent US science fiction, for instance, has often been written in response to contemporary issues of race, gender and class, while early Russian utopias imagined worlds that overcame the problems posed by rapid urbanisation and conflicting ethnicities. 44 These worlds not only model solutions, but illuminate problems. As Slavoj Žižek notes in his discussion of Thomas Piketty, the seemingly modest demand to implement a global tax actually implies a radical reorganisation of the entire global political structure. 45 Implicit within this small claim is a utopian impulse, since the conditions for making it possible require such a fundamental reconfiguration of existing circumstances. Likewise, the demand for a universal basic income provides a perspective from which the social nature of work, its invisible domestic aspect and its extension to every area of our lives become more readily apparent. The ways we organise our work lives, families and communities are given a fresh appearance when viewed from the perspective of a post-work world. Why do we devote one-third of our lives in submission to someone else? Why do we insist that domestic work (performed primarily by women) go unpaid? Why are our cities organised around lengthy, dreary commutes from the suburbs? The utopian demand from the future therefore implores us to question the givens of our world. In these ways, utopias can be both a negation of the present and an affirmation of a possible future. 46

#### Affect

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

Finally, in affirming the future, **utopia functions as an affective modulator**: it manipulates and modifies our desires and feelings, at both conscious and pre-conscious levels. In all its variations, utopia ultimately concerns the ‘**education of desire’**. 47 It provides a frame for us, telling us both how and what to desire, while unleashing these libidinal elements from the bounds of the reasonable. Utopias give us something to aim for – something beyond the stale repetition of the same offered by the eternal present of capitalism. In cracking open the present and providing an image of a better future, the space between the present and the future becomes the space for hope and the desire for more. 48 By generating and channelling these affects, utopian thinking can become a spur to action, a catalyst for change; it disrupts habits and breaks down consent to the existing order. 49 Futural thinking, extended by communications mechanisms, 50 **generates collective affects of hope that mobilise people** to act on behalf of a better future – affects that are necessary to any political project. 51 While utopian thinking rejects the melancholy and transcendental miserabilism found in some parts of the contemporary left, it also invokes its own negative affect. 52 The obverse of hope is disappointment (an affect that is today embodied in figures like the young ‘graduate with no future’). 53 Whereas anger has traditionally been the dominant affect of the militant left, disappointment invokes a more productive relation – not merely a willed transformation of the status quo, but also a desire for what-might-be. Disappointment indexes a yearning for a lost future. If the left is to counter the common sense of neoliberalism (‘there’s not enough money’, ‘everyone must work’, ‘government is inefficient’), utopian thinking will be essential. We need to think big. The natural habitat of the left has always been the future, and this terrain must be reclaimed. In our neoliberal era, **the drive for a better world has largely been whittled away under the pressures and demands of everyday existence**. In this repression, what has been lost is that ambition to produce ‘a world that exceeds – existentially, aesthetically, as well as politically – the miserable confines of bourgeois culture’. 54 But as an apparently universal and irrepressible characteristic of human cultures, utopian thinking can surge forth under even the most repressive conditions. 55 Utopian inclinations play out across the human spectrum of feelings and affects – embodied in popular culture, high culture, fashion, city planning, and even quotidian daydreaming. 56 The popular desire for space exploration, for instance, points to a curiosity and ambition that lies beyond the profit motive. 57 The like-minded trend of afro-futurism offers not only a highly stylised image of a better future, but also ties it to a radical critique of existing structures of oppression and a remembrance of past struggles. The post- work imaginary also contains numerous historical precedents in utopian writing, pointing to a constant striving to move beyond the constraints of wage labour. Cultural movements and aesthetic production have essential roles to play in reigniting the desire for utopia and inspiring visions of a different world.

### Education Key

#### Education key to a post-work future --- enables leftist economic expertise and challenges capitalist hegemony

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

NAVIGATING NEOLIBERALISM While utopias seek to transform the cultural hegemony of neoliberalism, education forms a key institution for transforming intellectual hegemony. It is the educational apparatus that indoctrinates new generations in the dominant values of a particular society, reproducing its ideology through the decades. In the education system, children learn the basic ideas of a society, respect for (in fact, submission to) the existing order, and the skills necessary to distribute them along different segments of the labour market. 58 **Transforming the educational system of intellectuals is therefore a key task in building a new hegemony**. 59 It is not for nothing that the Nobel Prize–winning economist Paul Samuelson wrote that: ‘I don’t care who writes a nation’s laws, or crafts its advanced treatises, if I can write its economics textbooks.’ Projects focused on changing this institutional element of society could focus on three broad goals: pluralising the teaching of economics, reinvigorating the study of leftist economics and expanding popular economic literacy. It is often forgotten, so deeply are we embedded in neoliberalism, that economics was once a relatively pluralist discipline. The interwar period was a time of healthy competition between a variety of formalist and non-formalist approaches. 60 In academic journals, it was not unusual to see discussions of economic planning, the tendency for the rate of profit to fall, and other standard categories of Marxist economics. In the 1960s, the Cambridge capital controversy brought together heterodox and mainstream thinkers in a seminal debate about the foundations of the discipline – one that everyone admits the heterodox thinkers won. 61 As late as the 1970s, one of the founders of modern economics was discussing exploitation, the labour theory of value and the transformation problem in a leading economics journal. 62 Such an event is difficult to imagine today. While neoclassical economics is a large tent that contains a variety of approaches, it is nevertheless a fundamentally limited perspective on what counts as real economic knowledge. This problem is compounded by the particular methodological demands of the most preeminent journals, with formal modelling taking precedence over more sociological analyses and qualitative understandings. If the broad cultural and academic ideas of how to run economies are to change, at a minimum it will require more pluralism in the education of students. Here, there are glimmers of hope for a pluralist revival. Work is being done across the world to bring alternative economics to mainstream universities, and groups of students and professionals alike are beginning to mobilise around this issue. Since 2000, numerous universities have seen students vocally demand pluralism in their economics education. 63 More recent years have seen students openly protesting the defenders of mainstream economics, and the emergence of groups like the Post-Crash Economic Society and Rethinking Economics that are making concerted efforts to change the curriculum. 64 Essential to a project of pluralising economics, however, is the development of a research programme and textbooks. Part of the reason for the rise of formalist approaches is precisely their fit with institutional requirements of higher education: they provided theories for researchers to spend time testing, textbooks and PhDs to continue a lineage of thought, and clear and transmissible principles. 65 Today, the field has come to be dominated by neoclassical textbooks, and the result is that, even if professors want to pluralise the discipline, they do not have many accessible resources to hand. 66 Indications that this might be changing include the creation of a heterodox textbook by two proponents of modern monetary theory. 67 But more work needs to be done on this front in order to broaden the parochial horizons of mainstream economics. To support this process, **there should be a movement to rejuvenate leftist economics**. The dearth of economic analysis on the left could be seen in the wake of the 2008 crisis, when the most prominent critical response was a makeshift Keynesianism. The left was largely without a meaningful and desirable economic programme, having **focused primarily on the critique of capitalism rather than the elaboration of alternative**s. This is a crisis of utopian imagination, but also of cognitive limits. A series of emerging contemporary phenomena must be thought through carefully: for instance, the causes and effects of secular stagnation; the transformations invoked by the shift to an informational, post-scarcity economy; the changes wrought by the introduction of full automation and a universal basic income; the possible approaches to collectivising automated manufacturing and services; the progressive potentials of alternative approaches to quantitative easing; the most effective ways to decarbonise the means of production; the implications of dark pools for financial instability – and so on. Equally, research should be revived on what postcapitalism might look like in practice. Beyond a few outdated classics, very little research has been done to think through an alternative economic system – even less so in the wake of emerging technologies like additive manufacturing, self-driving vehicles and soft AI. 68 What role, for instance, could non-state cryptocurrencies have? How does one measure value if not by abstract or concrete labour? How can ecological concerns be fully accounted for in a postcapitalist economic framework? What mechanism can replace the market and overcome the socialist calculation problem? 69 And what are the likely effects of the possible tendency for the rate of profit to fall? 70 Building a postcapitalist world is as much a technical task as a political one, and in order to begin thinking about it, the left needs to overcome its general aversion to formal modelling and mathematics. There is no small amount of irony in the fact that the same people who criticise the abstraction of mathematical modelling often adhere to the most abstract dialectical readings of capitalism. This recognition of the uses of quantitative methods does not mean simply adopting neoclassical models or slavishly following the dictates of numbers, but the rigour and computational elaboration that can come with formal modelling are essential for grappling with the complexity of the economy. 71 However, from modern monetary theory to complexity economics, from ecological to participatory economics, trajectories of innovative thought are being launched – even if they remain marginal for now. Equally, organisations like the New Economics Foundation are leading the way in creating models of the economy that can inform leftist political goals, as well as fostering public literacy in economic matters. The latter point is particularly important, as increasing economic literacy means not only transforming the practice of academic economists, but also making the economy intelligible to nonspecialists. Sophisticated analyses of economic trends need to be connected to the intuitive insights of everyday lives. While, for the near future, the revival of leftist economics is likely to be centred in academia, the aim should be to spread such economics education far beyond the confines of universities. Unions could use their resources to educate their members about the changing nature of the contemporary economy. Through internal education programmes, rank-and-file workers can begin to situate the problems of their workplaces and communities within a larger economic context. Similar approaches can be – and in many cases already are – achieved through the training of activists. Open schools provide another medium for education, giving the public a chance to learn about ideas that are too often made impenetrable by academic jargon, and from which they are excluded by exorbitant tuition and publisher fees. There is a long tradition in the UK of working-class education, which can be drawn upon to learn from. For example, the Workers’ Educational Association already provides low-cost adult education to local communities. 72 Such institutions provide ways in which abstract economic understandings can be linked up with the on-the-ground knowledge of workers, activists and community members, each mutually shaping the other. Working systematically to develop pluralism, economic research and public education will play a significant role in strengthening the utopian narratives outlined in the previous section, and providing the necessary navigational tools to chart a course out of capitalism.

### Alt Solves—Education

#### The alternative enables analytics-driven critical and emancipatory education

**Sellar & Cole 17** (Sam Sellar, Department of Childhood, Youth and Education Studies, Manchester Metropolitan University; & David R. Cole, Centre for Educational Research, School of Education, University of Western Sydney. “Accelerationism: a timely provocation for the critical sociology of education,” *British Journal of Sociology of Education*, 2017 VOL. 38, NO. 1, 38–48)

In the closing pages of his cartography of critical theory, Keucheyan proposes that ‘[t]he task of critical thought … is to make a new sense of temporality emerge’ (2013, 248). This proposal is framed by a discussion of Frederic Jameson’s analysis of postmodernism, and follows a passing reference to Jameson’s point that we now find it ‘easier to imagine the end of the world than to imagine the end of capitalism’ (2003, 76). In recent years, there has been a surfeit of cultural production that supports Jameson’s diagnosis of the temporal order, from visions of post-apocalyptic humanity in Cormac McCarthy’s The Road to post-human visions of artificial intelligence in Alex Garland’s film Ex Machina. Mark Fisher’s (2009) analysis of capitalist realism asserts that the foreclosed future which has been thrust upon us ‘now’ is played out in the educational ennui of reproduced classrooms teaching the facts of capitalism in a form of inescapable conformism. In contrast, Fisher (2013, 3) situates ‘accelerationism not as some heretical form of Marxism, but as an attempt to converge with, intensify, and politicize the most challenging and exploratory dimensions of popular culture’. Critical theory now faces the task of conceiving of a future that lies beyond the situation that Touraine (2001) describes as la pensée unique; that is to say, a capitalist normality, an endless now, or collapse of the temporal mode, which denies ‘the existence of autonomous social actors capable of influencing political decision-making’ (2001, 1). Beginning from the challenge to produce a new temporal order, this article analyses accelerationism, understood as multifaceted theoretical movement concerned with relations between capital, technology and time. Accelerationism can be viewed as a provocation to the critical sociology of education, which must confront the risk that ‘[in] the absence of a new sense of temporality, no social change is conceivable’ (Keucheyan 2013, 248). The provocation of accelerationism is important because when critical social theory does not aim to produce social change, it risks incoherence, irrelevance, and obsolescence (Boltanski 2011). Accelerationism has gained traction as a means to understand and engage with the influences of capitalism and technology on everyday life. The basic premise of accelerationism is that capitalism has created, is creating, and will increasingly create time-based, cybernetic feedback loops, in which time spirals in on itself as capital is continually reinvested in technological development. Acceleration, for one of its key theorists, Nick Land (2014a, 511), ‘is techonomic time’: a time in which, ‘as basic co-components of capital, technology and economics have only a limited, formal distinctiveness under historical conditions of ignited capital escalation’. The potential divisibility of technology and capital is a key question for this article, and the relevance of accelerationism for critical sociology of education will be argued to depend on whether technological development in education can be accelerated separately from commercialisation. Acceleration as techonomic time is illustrated in the work of analysts exploring the impact of machines on education and labour. For example, Brynjolfsson and McAfee (2014, 9) show that, when plotted in relation to social development and global population, the course of human history explodes exponentially from the late 1700s, when the Industrial Revolution, and specifically the steam engine, ‘ushered in humanity’s first machine age – the first time our progress was driven primarily by technological innovation – and it was the most profound time of transformation our world has ever seen’. Brynjolfsson and McAfee argue that we are now entering a second machine age during which exponential growth in computing power will change human history just as dramatically. Accelerationism takes this change as a primary theoretical focus and, needless to say, it is a change with wide-reaching consequences and challenges for education, including the growth of the education technology industry, new applications for machine learning in policy-making and pedagogy, and dramatic changes to labour markets with effects on the demand for and value of educational credentials. The promises of the knowledge economy, which often involve claims about the progress enabled by new computational technologies and the social mobility facilitated by lifelong learning, can readily become ‘traps’, characterised by intensified credential inflation as larger numbers of people compete for the relatively few lucrative jobs that have not been made redundant by digital Taylorism or low-cost, high-quality production (Brown 2006; Brown, Lauder, and Ashton 2010). Indeed, this ‘opportunity trap’ can be understood as one educational symptom of acceleration or technonomic time: a promise of progress that fuels intensifying (re)investments in the self. However, such investments appear unlikely to stave off the technological displacement of the middle class. Collins (2013, 68) argues that this displacement will precipitate ‘the downfall of capitalism … before the 21st century is over’. While accelerationists generally do not subscribe to the view that capitalism will disintegrate under the weight of its own contradictions (Wolfendale 2014), accelerationists do see technological development as a force that can help to precipitate a post-capitalist future in conjunction with new social movements. Acceleration can be juxtaposed with other contemporary theoretical movements that advocate slowing down time or passively waiting for an end to capital. For example, Berlant’s (2011, 2016) writing about experimentally living on through the infrastructural glitches of capitalist breakdown represents a particularly powerful example of waiting with intent for a post-capitalist future. Berlant argues that ‘at some crisis times like this one, politics is defined by a collectively held sense that a glitch has appeared in the reproduction of life’ and ‘the question of politics becomes identical with the reinvention of infrastructures for managing the unevenness, ambivalence, violence, and ordinary contingency of contemporary existence’ (2016, 393–394). While Berlant points to the need for infrastructural reinvention, many contemporary political movements – for example, prominent strands of environmental politics – involve ‘**a romantic turn away from the modern,** from technology’ (Wark 2015, xv). Williams and Srnicek (2014, 354) characterise such responses in terms of a ‘**folk politics of** **localism**, **direct action** and **relentless horizontalism’** and argue for an alternative politics of acceleration which would be ‘at ease with a modernity of abstraction, complexity, globality, and technology’. Left accelerationism offers possibilities for a politics that ‘seeks to preserve the gains of late capitalism while going further than its value system, governance structures, and mass pathologies will allow’ (Williams and Srnicek 2014, 354; see also Srnicek and Williams 2015). The work of theorists such as Berardi and Wark, who have engaged critically with the accelerationist provocation, offer interesting possibilities in this respect, because experimentation with accelerationist thought in educational research and practice would seek to understand the ways in which the harsh and exploitative aspects of capitalist intervention have simultaneously enabled transformative aspects of society and self that might help us exceed the constraints of the current situation (Cole 2014). The key problem for education is to make the notion of accelerationism relevant and specific enough to be taken up in a field that is often unwittingly dominated by the normative beliefs of capitalism; that is, the exploitation of global markets through electronic mediation is necessarily ‘good’ and we ‘should’ all therefore become creative and innovative digital entrepreneurs. Our focus in this article will be on acceleration as a theoretical resource that can provoke a new sense of temporality for the critical sociology of education and a new sense of critical agency in the accelerated temporal order. As a sociological concept, accelerationism augments understanding of how time is manipulated by the educational machinery around us, including the increasingly pervasive introduction and use of digital technology and the concomitant spread of commercialisation in education. If one accepts the basic premise of accelerationism, then the primary question for critical sociology of education is: can technological acceleration be separated from capitalist acceleration? In this article, we discuss an example of acceleration in education – the conjunction of commercialisation, new modes of data analytics, and machine learning in education governance – and consider whether accelerationism can provide critical sociology of education with theoretical tools for thinking beyond the horizon of technologically-driven commercialisation and opportunity traps created by credential inflation and changing modes of production. The article thus interrogates the related social, political, and educational consequences of acceleration, beginning with a survey of the emergence of accelerationism as a theoretical movement across three ‘waves’ since the 1970s.

### Alt Solves—Critical Pedagogy

#### The alternative enables the establishment of a radically anti-capitalist critical pedagogy backed by the technosocial power of network infrastructure

**Means 15** (Alexander Means, Department of Social and Psychological Foundations of Education, SUNY, Buffalo State “On Accelerationism—Decolonizing Technoscience through critical pedagogy.” *Journal for Activism in Science & Technology Education*, 6(1). p. 21)

At the same time, the MAP embraces anarchist critiques of authority and recognizes the need for horizontal arrangements and open Means, A. (2015). On accelerationism— decolonizing technoscience through critical pedagogy. Journal for Activism in Science & Technology Education, 6(1). p. 24 democratic institutions within contexts of local self-determination. The issue for the MAP is how can technological processes and modes of democratic authority be reconstituted at multiple scales: Democracy cannot be defined simply by its means — not via voting, discussion, or general assemblies. Real democracy must be defined by its goal — collective selfmastery. This is a project which must align politics with the legacy of the Enlightenment, to the extent that it is only through harnessing our ability to understand ourselves and our world better (our social, technical, economic, psychological world) that we can come to rule ourselves. We need to posit a collectively controlled legitimate vertical authority in addition to distributed horizontal forms of sociality, to avoid becoming the slaves of either a tyrannical totalitarian centralism or a capricious emergent order beyond our control. The command of The Plan must be married to the improvised order of The Network. What, if anything, does all this mean for thinking about education in relation to science and technology? Let me begin by saying that the MAP offers a necessary and provocative set of arguments concerning a radical-progressive revalorization of technoscience that pushes beyond reductive forms of both left fatalism as well as techno-utopian optimism. However, it is also deeply flawed on a number of levels. First, acceleration itself is a problematic concept. The idea that we should simply accelerate the technoscientific potential of capitalism in order to move beyond capitalism is ethically and pragmatically questionable in light of present historical conditions. It is unclear how technoscientific acceleration would avoid contributing to capitalism’s own current acceleration of resource depletion, species extinction, social exclusion, and degradation of lives and livelihoods. Perhaps, and I think this is really the core issue, the accelerationists, like techno-utopians, believe that these problems can simply be resolved through accelerating technological fixes such as through the mobilization of digitally networked “smart systems” and geoengineering projects (for instance blasting sulfur into the air in order to cool the planet’s surface temperature to stave off climate change). However, technoscience cannot solve problems that are profoundly social and political in their constitution. Thus technoscience has to be wielded alongside a mix of social, economic, and political innovations. Among other tasks, these innovations must work to decelerate rather than accelerate the global political economy, from a model based on endless growth and appropriation of commons, to a no/low growth model, in order to bring it in line with flourishing and sustainable nature-society relations (Klein, 2014; Moore, 2011). Means, A. (2015). On accelerationism— decolonizing technoscience through critical pedagogy. Journal for Activism in Science & Technology Education, 6(1). p. 25 Second, the MAP replays some of the most troubling and destructive aspects of modern thinking in that it remains completely within what Donna Haraway (1991) once referred to as the “God’s Eye” view—a Eurocentric epistemological foundation based in patriarchal fantasies of mastery that screens out the knowledge and traditions of the oppressed, the colonized, women, and Indigenous peoples. This is not only a form of material and symbolic violence in and of itself, but it is also reductive and narrow. Remaining stuck within a Eurocentric frame means that accelerationism is a myopic way of imagining alternative modernities, which require among other things, deep engagement with multiple epistemological traditions, ways of being, and knowing. The question becomes: How can we imagine a biopolitics of technoscience rooted in values and forms of life that are decolonizing and radically egalitarian? This is precisely where education should be brought back into the discussion. The question that emerges here is not how technoscience can be used to transform education, but how can education be transformed in order to support decolonizing projects that mobilize new technologies such as the IoT in order to construct what Jason Moore has aptly called a postcapitalist “world-ecology” (Moore, 2011). This is where the traditions associated with critical pedagogy have much to offer insofar as they view educational processes, broadly conceived, as central rather than peripheral to politics (Friere, 2000; Giroux, 2011). To begin, critical pedagogy is a non-teleological perspective that views technoscientific purpose and development as historically grounded and radically contingent. This is another way of saying that science and technology are tools that only acquire meaning and efficacy through the social. Second, critical pedagogy views technoscientific development as inherently (bio)-political—that is, it is rooted in eradicable class, race, and gender antagonisms as well as conflicts over resources, rights, values, labor, and the ethical content of living and being. Third, and related, critical pedagogy asserts that conflicts over technoscientific development are not only embedded in material relations of power (capital and its state forms), but are also centrally inscribed in consciousness and thus implicated in diversified contestations over ideology and subjectivity. Lastly, critical pedagogy views schools, universities, and media as critical public spheres that are always embedded in power relations, but are nonetheless imbued with the potential to promote various forms of critical literacy and democratic agency. Means, A. (2015). On accelerationism— decolonizing technoscience through critical pedagogy. Journal for Activism in Science & Technology Education, 6(1). p. 26 These perspectives on critical pedagogy compliment many of the arguments raised in the MAP. However, critical pedagogy does not view attainment of altermodern futures through acceleration, but rather through the development of various decolonizing forms of technoscientific literacy. These literacies are aimed not at the inherently unpredictable acceleration of technology (which is surely as capable of producing new fascisms as it is forms of emancipation), but generating the capacities to subordinate technoscience and its value structure to the enactment of a global commons rich with cultural variation and contestation (De Lissovoy et al, 2014). As the MAP rightly suggests, this would necessarily include constructing new vertically integrated institutional arrangements, reforming the media, building new intellectual infrastructures, using enlightened scientific planning, as well as constituting horizontally distributed forms of democratic authority (and cultural knowledge) to repurpose and revalorize technoscience for emancipatory ends (including dramatically decelerating rather than accelerating various forms of technology such as nuclear power and hydraulic fracturing, to name just two examples). Crucially, critical pedagogy asserts that such development can only emerge through engagement and struggle over institutions, values, labor, subjectivity, and consciousness. This is another way of saying that the achievement of a post-capitalist commons and world-ecology can only be realized through a **radical expansion and revalorization** of a dynamic educational culture. At the same time, technoscience must be **remobilized through critical education to construct decolonized biotechnical futures.**

### Alt Solves—Technology

#### Alternative enables harnessing of technology for dope shit

**Mackay & Avanessian 2014** [ Robin Mackay, philosopher and editor and publisher of Collaspe Journal of Philosophical Research and Development, Dr. Armen Avanessian, Freie Universitat Berlin , #ACCELERATE: The Accelerationist Reader, Falmouth: Urbanomic]

**Alex Williams + Nick Srnicek**’s ‘#Accelerate: Manifesto for an Accelerationist Politics’ can be read as an attempt to honour Fisher’s demand for a contemporary left accelerationist position. In provocation of the contemporary Left’s often endemic technological illiteracy, Srnicek and Williams insist on the necessity of precise cognitive mapping, and thus epistemic acceleration, for any progressive political theory and action today. With full confidence that alternatives are thinkable, they state the obvious, namely that neoliberal capitalism is not just unfair or unjust as a system, but is no longer a guarantor of dynamism or progress. Intended as a first draft of a longer theoretical and political project, map found immediate notoriety (being translated into numerous languages within months of appearing online) but was also criticised for not yet offering new solutions beyond focussing on three general demands: firstly for the creation of a new intellectual infrastructure, secondly for far-reaching media reform, and thirdly for the reconstitution of new forms of class power. Following the example of Marx— according to them a ‘paradigmatic accelerationist thinker’—Wiliams and Srnicek attempt to overcome the mistrust of technology on the left in the last decades. And closely affiliated to the rationalist wing of current speculative philosophy, they adopt the topos of ‘folk psychology’ for their polemic against a *folk politics*, opposing a politics based on inherited and intuitively ready-to-hand categories with an accelerationist politics that conceives its program on the basis of ‘a modernity of abstraction, complexity, globality, and technology’ that outstrips such categories. A key element of any left Promethean politics must be a conviction in a transformative potential of technology, including the ‘transformative anthropology’ it entails, and an eagerness to further accelerate technological evolution. Thus this new accelerationism is largely dependent on maturing our understanding of the current regime of technology and value. Even though **Antonio Negri**’s response is critical of what he calls the ‘technological determinism’ of the Manifesto, he agrees that the most crucial passage of the manifesto—concerning the relation between machinic surplus value and social cooperation—cannot really be understood independently of the technological dimension implied. Clearly it is not enough to valorize the ‘real’ human force of labour over the perversions of technocapital or to attempt to recover it: if ‘the surplus added in production is derived primarily from socially productive cooperation’, as Negri says, and if it must be admitted that this cooperation is technically mediated, then the project of reappropriation cannot circumvent the necessity to deal with the specific ‘material and technical qualities’ that characterise this fixed capital today. With Negri’s response, the first of several contributions by Italian authors linked to ‘post-operaismo’ who address precisely this point, we are dealing with a tradition that is already heretical to official Marxism. Both in theory and in political practice the ‘operaismo’ (workerism) of the 1960s and 70s was opposed to official party politics and its focus on the state. Operaism’s molecular politics, focused on concrete activities in factories, is also the background for recent (post-operaistic) investigations of immaterial labour and biopower. In the present context this tradition contributes towards a greater insight into the nature of technological change (an insight which also owes something to the bitter experience following early optimism with regard to the Internet’s liberatory possibilities). This allows a much subtler reading of the relation between technology and acceleration than cyberculture’s championing of positive feedback and networks, which in certain ways reiterates the horizontalism of Lyotard’s metaphysics of the flat ‘libidinal band’. Not only has this horizontalism (as map indicates) been an ineffective paradigm for political intervention, it also significantly misrepresents the mode of operation of ‘network technology’ in general. For the latter’s technological and subjectivizing power (as substantially anticipated in Veblen) resides in the progressive and hierarchical ‘locking in’ of standardized hardware and software protocols each of which cannot be understood as means to a particular end, but rather present an open set of possibilities. **Tiziana Terranova** suggests a reappropriation of this logic in the form of a ‘red stack’ bringing together the types of autonomous electronic currencies that are currently emerging outside the bounds of nation-state or corporate governance, social media technology, and the ‘bio-hypermedia’ that is thriving in the interference zone between digital and bodily identities. This vision of a digital infrastructure of the common enacts map’s shift from abstract political theory (‘this is not a utopia’) to an experimental collaboration with design, engineering, and programming so as to activate the latent potential of these technologies in the direction of another ***socius***. In ‘finally grasp[ing] the shift from the hegemony of material labour to the hegemony of immaterial labour’ (Negri), a particular focus is the increased importance of the algorithm as the general machine regime in the information economy, which takes the baton from Marx and Veblen’s ‘machine system’ in continually accumulating, integrating, linking and synergizing ‘informational fixed capital’ at every level of collective production, commercial circulation and consumption. As has been widely discussed, the rise of the algorithm runs parallel to the visible absorption into the integrated machine system of human cognitive and affective capacities, which are also now (in Marx’s words) ‘set in motion by an automaton’—or rather a global swarm of abstract automata. The algorithms at work in social media technologies and beyond present an acute test case for reappropriation. Unlike heavy metal machines, algorithms do not themselves embody a value, but rather are valuable in so far as they allow value to be extracted from social interaction: the real fixed capital today, as Negri suggests, is the value produced through intensive technically coordinated cooperation, producing a ‘surplus beyond the sum’ of its parts (the ‘network externalities’ which economists agree are the source of value in a ‘connected economy’). To reduce of the value of software to its capacity for monetization, as Terranova suggests, leaves unspoken the enthusiasm and creativity in evidence in open source software movements. Perhaps the latter are better thought of as a collective practice of supererogation seizing on the wealth of opportunities already produced by capitalism as a historical product, in the form of hardware and software platforms, and which breaks the loop whereby this wealth is reabsorbed into the cycles of exchange value. This invocation of the open-source movement is a powerful reminder that there are indeed other motivating value systems that may provide the ‘libidinizing impulse’ that Fisher calls for in the search for alternative constructions; it also recalls Firestone’s call for a cultural revolution in which the distinction between aesthetic imagination and technical construction is effaced. Next **Luciana Parisi** turns to computational design to ask what we can learn from the new cutting-edge modes of production that are developing today. Carefully paring apart the computational processes from their ideological representations, Parisi suggests that these new computational processes do indeed present a significant break from a model of rationality that seeks command and control through the top-down imposition of universal laws, aiming to symbolically condense and circumscribe a system’s behaviour and organization. And yet computation driven by material organization cannot be regarded as simply entering into a dynamic immanence with the ‘intelligence of matter’. Rather, these algorithmic operations have their own logic, and open up an artificial space of functions, a ‘second nature’. For Parisi these developments in design figure the more general movement toward systems whose accelerated and extended search and evaluation capabilities (for example in ‘big data’ applications) suggest a profound shift within the conception of computation itself. It is often claimed that through such advanced methods accelerated technocapital invests the entire field of material nature, completely beyond the human field of perception. Such a strict dichotomy, Parisi argues, loses sight of the reality of abstraction in the order of algorithmic reason itself, moving too quickly from the Laplacean universe of mechanism governed by absolute laws to a vitalist universe of emergent materiality. Instead, as Parisi argues, the action of algorithms opens up a space of speculative reason as a Whiteheadian ‘adventure of ideas’ in which the counter-agency of reason is present as a motor for experimentation and the extraction of novelty. **Reza Negarestani** addresses **a** related dichotomy to the one Parisi critiques, and which lies behind contemporary political defeatism and inertia—namely, the choice between either equating rationality with a discredited and malign notion of absolute mastery, or abandoning all claim for the special status of human sapience and rationality. In the grip of this dichotomy, any possible platform for political claims is nullified. Rather than an abdication of politics, for Negarestani accelerationism must be understood precisely as the making possible of politics through the refusal of such a false alternative. In ‘The Labor of the Inhuman’, he sets out a precise argument to counter the general trend to identify the overcoming of anthropomorphism and human arrogance with a negation of the special status of the human and the capacities of reason. The predicament of a politics after the death of god and in the face of real subsumption—and the temptation either to destitute subjectivity, leaving the human as a mere cybernetic relay, or to cling to obsolete political prescriptions made on the basis of obsolete folk models of agency—is stripped down by Negarestani to its epistemic and functional kernel. Drawing on the normative functionalism of Wilfrid Sellars and Robert Brandom, he criticizes the antihumanism of earlier accelerationisms as an overreaction no less nihilistically impotent than a yearning for substantial definitions of the human. In their place Negarestani proposes an ‘**inhumanism’** that **emerges once the question of what it means to be human is correctly posed, ‘in the context of uses and practices’**. What is specific to the human is its access to the symbolic and sociotechnological means to participate in the construction and revision of norms; the task of exploring what ‘we’ are is therefore an ongoing labour whose iterative loops of concept and action yield ‘non-monotonic’ outcomes. In this sense, understanding and committing to the human is synonymous with revising and constructing the human. Far from involving a voluntaristic impulse to ‘freedom’, this labour entails the navigation of a constraining field of collateral commitments and ramifications, through which the human responds to the demands of an agency (reason) that has no interest in preserving the initial self-image of the human, but whose unforeseeable ramifications are unfolded *through* the human—‘a future that writes its own past’ in so far as one views present commitments from the perspective of their future ramifications, yielding each time a new understanding of past actions. In other words, whereas the human cannot ‘accelerate’ within the strictures of its inherited image, in merely rejecting reason it abdicates the possibility of revising this image at all. Acceleration takes place when and in so far as the human repeatedly affirms its commitment to being impersonally piloted, not by capital, but by a program which demands that it cede control to collective revision, and which draws it towards an inhuman future that will prove to have ‘always’ been the meaning of the human. ‘A commitment works its way back from the future’, and inconceivable vistas of intelligence open up through the ‘common task’ or duty of the labour of the inhuman. In the absence of this indispensable platform of commitment and revision, Negarestani insists, no politics, however shrill its protestations and however severe its prescriptions, has the necessary motor with which to carry a project forward—indeed it is this inability to ‘cope with the consequences of committing to the real content of humanity’ that is according to him at the root of today’s political inertia. In effect, then, Negarestani re-places the infinite will-without-finality within reason rather than capital, and rethinks the inhuman futural feedback process through which it conducts human history not as a thanatropic compulsion but as social participation in the progressive and self-cultivating anastrophism of in/humanity. Design strategist **Benedict Singleton**, in a contemporary return to Fedorov’s project, rethinks the question of the mastery of nature through the question of perhaps humankind’s most Promethean project: space exploration. Continuing Negarestani’s examination of the pragmatic momentum that drives a continual opening up of new frontiers of action, he finds in the logic of design a way to think this ‘escape’ otherwise than in the form of a creative ‘leap of faith’: as an ‘escapology not an escapism’, a twisted path in which the stabilisation of new invariants provides the basis for new modes of action, and, reciprocally, new modes of action and new instruments for cognition enable new perspectives on where we have come from and where we are going: design is a dense and ramified leveraging of the environment that makes possible the startling clarity of *new observables*, as well as enabling the transformation of apparently natural constants into manipulable variables required for constructing new worlds. Drawing out a language of ***scheming***, ***crafting***, and ***plotting***that declares itself quite clearly in the vocabulary surrounding design, but which has been studiously ignored by a design theory rather too keen to ingratiate itself with humanist circles, Singleton elaborates a counter-history of design that affirms this plotting or manipulative mode of thought, and even its connotations of deception, **drawing on** Marcel Detienne and Jean-Pierre Vernant’s unearthing of the Greek notion of *mêtis*—‘cunning intelligence’. As Singleton suggests, mêtis is exemplified in the ***trap***, which sees the predator adopting the point of view of the prey so that its own behaviour is harnessed to ensure its extinction. Mêtis thus equates to a practice in which, in the absence of complete information, the adoption of hypothetical perspectives enables a transformation of the environment—which in turn provides opportunities for further ruses, seeking to power its advance by craftily harnessing the factors of the environment and its expected behaviours to its own advantage. Important here is the distinguishing of this ‘platform logic’ from a means-end ‘planning’ model of design. In altering the parameters of the environment in order to create new spaces upon which yet more invention can be brought to bear, cunning intelligence gradually twists free of the conditions in which it finds itself ‘naturally’ ensnared, generating paths to an outside that do not conform to the infinite homothetism of ‘more of the same’ but instead opens up onto a series of convoluted plot twists—precisely the ramifying paths of the ‘labour of the inhuman’ described by Negarestani. Ultimately this escapology, Singleton insists, requires an abduction of ***ourselves***by perspectives that relativize our spontaneous phenomenal grasp of the environment. Echoing Fedorov, he calls for a return to an audacity that, far from seeking to ‘live in harmony with nature’, seeks to spring man out of his proper place in the natural order so as to accelerate toward ever more alien spaces. Taking up this Promethean theme, **Ray Brassier** launches a swingeing critique of some of the absurd consequences entailed by the countervailing call to humility, and uncovers their ultimately theological justification. Whence the antipathy toward any project of *remaking* the world, the hostility to the normative claim that not only *ought* things to be different but that they ought to be *made* different? Examining Jean-Pierre Dupuy’s critique of human enhancement, Brassier shows how the inflation of human difference into ontological difference necessitates the same transcendental policing that Iain Hamilton Grant explores in his reading of *Bladerunner*: what is *given*—the inherited image of the human and human society assumed as transcendental bond—shall by no means be *made* or indeed *remade.* Certain limits must be placed on the ability of the human to revise its own definition, on pain of disturbing a certain ‘fragile equilibrium’. As Brassier remarks, since the conception of what a human can be and should tolerate is demonstrably historical, it is only possible to understand this invocation of a proper balance or limit as a theological sentiment. This reservation of an unconceptualisable transcendence beyond the limits of manipulation devolves into a farcical discourse on the ‘reasonableness’ of the suffering inflicted by nature’s indifference to the human—a suffering, subjection, and finitude which is understood to provide a precious resource of meaning for human life. However Prometheanism consists precisely both in the refusal of this incoherency and in the affirmation that the core of the human project consists in generating *new* orientations and ends—as in Negarestani’s account of the production and consumption of norms, echoed here in the ‘subjectivism without selfhood […] autonomy without voluntarism’ that Brassier intimates must lie at the core of Prometheanism. The productivism of Marx, too, as Brassier reminds us, holds mankind capable of forging its own truth, of knowing and controlling that which is given to it, and of remaking it. Like Negarestani, Brassier holds that the essential project here is one of integrating a descriptive account of the objective (not transcendental) constitution of rational subjectivation with an advocacy of the rational subject’s accession to self-mastery. Against these new approaches, **Nick Land**, in ‘Teleoplexy’, insists that it is the practice of forward-looking capitalization alone that can produce the futural dynamic of acceleration. Against Williams and Srnicek, for whom ‘capitalism cannot be identified as the agent of true acceleration’, and Negarestani, for whom the space of reasons is the future source from which intelligence assembles itself, Land argues that the complex positive feedback instantiated in market pricing mechanisms is the only possible referent for acceleration. And since it is capitalization alone that gives onto the future, the very question W***hat do we want***—the very conception of a ***conditional*** accelerationism and the concomitant assertion, made by both map and Negri, that **‘planning is necessary’** in order to instrumentalise knowledge into action—for Land amounts to nothing but a call for a compensatory movement to ***counteract*** acceleration. For him it is the state and politics per se that constitute constraints**,** not ‘capital’; and therefore the claim that ‘capitalism has begun to constrain the productive forces of technology’ is senseless. Land’s ‘right accelerationism’ appears here as an inverted counterpart to the communitarian retreat in the face of real subsumption: like the latter, it accepts that the historical genesis of technology in capitalism precludes the latter from any role in a postcapitalist future. If at its most radical accelerationism claims, in Camatte’s words, that ‘there can be a revolution that is not for the human’ and draws the consequences of this, then one can either take the side of an inherited image of the human against the universal history of capital and dream of ‘leaving this world’, or one can accept that ‘the means of production are going for a revolution on their own’. This reappearance of accelerationism in its form as a foil for the Left (even left-accelerationism), with Land still fulfilling his role as ‘the kind of antagonist that the left needs’ (Fisher), rightly places the onus on the new accelerationisms to show how, between a prescription for nothing but despair and a excitable description that, at most, contributes infinitesimally to Skynet’s burgeoning self-awareness, a space for action can be constructed. If ‘left accelerationism’ is to succeed in ‘unleashing latent productive forces’, and if its putative use of ‘existing infrastructure as a springboard to launch towards postcapitalism’ is to issue (even speculatively) in anything but a centralized bureaucracy administering the decaying empty shell of the historical product of capitalism, then the question of incentives and of an alternative feedback loop to that of capitalization will be central. This is one of the ‘prescriptions’ that **Patricia Reed** makes in her review of the potentials and lacunae of the Manifesto that concludes our volume. Among her other interventions is the suggestion that a corrective may be in order to address the more unpalatable undertones of its relaunch of the modern—a new, less violent model of universalisation. It also does not pass unnoticed by Reed that the map’s rhetoric is rather modest in comparison to earlier accelerationism’s enthusiastic invocations and exhortations (‘maximum slogan density’). A tacit aim in the work of Plant, Land, Grant and ccru is an attempt to find a place for human agency once the motor of transformation that drives modernity is understood to be inhuman and indeed indifferent to the human. The attempt to ***participate*** vicariously in its positive feedback loop by fictioning or even mimicking it can be understood as an answer to this dilemma. The conspicuous fact that, shunned by the mainstream of both the ‘continental philosophy’ and cultural studies disciplines which it hybridized, the Cyberculture material had more subterranean influence on musicians, artists and fiction writers than on traditional forms of political theory or action, indicates how its stance proved more appropriable as an *aesthetic* than effective as a political force. The new accelerationisms instead concentrate primarily on constructing a conceptual space in which we can once again ask ***what to do*** with the tendencies and machines identified by the analysis; and yet Fisher’s initial return to accelerationism turned upon the importance of an ‘instrumentalisation of the libido’ for a future accelerationist politics. Reed accordingly takes map to task in its failure to minister to the positive ‘production of desire’, limiting itself to diagnostics and prognostics too vague to immediately impel participation. She rightly raises the question of the power of belief and of motivation: Whatever happened to *jouissance*? Where is the motor that will drive commitment to eccentric acceleration? Where is the ‘libidinal dispositif’ that will recircuit the compelling incentives of consumer capitalism, so deeply embedded in popular imagination, and the bewildered enjoyment of the collective fantasies of temporary autonomous zones? As Negri says, ‘rational imagination must be accompanied by the collective fantasy of new worlds’. Certainly however much one might ‘rationalise’ the logic of speculation, it still maintains a certain bond with fiction; yet earlier accelerationisms had attempted to mobilize the force of imaginative fictions so as to adjust the human perspective to otherwise dizzying speculative vistas. In addition, as Reed notes, Accelerationism, far from entailing a short-termism, involves taking a long view on history that traditional politics is unable to encompass in its ‘procedures…based on finitude, and the timescale of the individual human’; and equally needs to engage with algorithmic processes that happen beneath the perceptual thresholds of human cognition (Terranova, Parisi). Therefore a part of the anthropological transformation at stake here involves the appropriation and development of a conceptual and affective apparatus that allows human perception and action some kind of purchase upon this ‘Promethean scale’—new science-fictional practices, if not necessarily in literary form; and once again, Firestone’s ‘merging of the aesthetic with the technological culture’. **return to or departure from marx?** Before closing this introduction, it is worth returning in more detail to Marx, since much of the volume contends with his contributions, whether implicitly or explicitly. The disarray of the Left fundamentally stems from ‘the failure of a future that was thought inevitable’ (Camatte) by Marxism—the failure of capitalism to self-destruct as part of history’s ‘intrinsic organic development’, for the conflict between productive forces and capitalist relations of production to reach a moment of dialectical sublation, or for the proletariat to constitute itself into a revolutionary agent. And theoretical analysis of the resulting situation (real subsumption into the spectacle) seems to offer no positive possibility of opposition, yielding only modes of opposition frozen in cognitive dissonance between the ‘disruptions’ they stage and the inevitability of their recuperation. Accelerationism is significant in the way in which it confronts this plight through a return to a few fundamental questions posed by Marx upstream from various Marxist orthodoxies such as the dialectic, alienation, and the labour theory of value. Indeed one feature of accelerationism is a repeated return to these fundamental insights each time under a set of stringent conditions related to the prevailing political conditions of the epoch, a radical repetition that sometimes demands violent rejections. For, as the map contends, there is an accelerationist strand to Marx’s work which is far from being the result of a tendentious reading. According to the ‘Fragment’, then, the development of large-scale integrated machine production is a sine qua non of Capital’s universal ascendency (‘not an accidental moment’, says Marx, later positing that intensity of machinic objectification=intensity of capital). Machine production follows directly from, maximally effects, and enters into synergy with capital’s exigency to reduce the need for human labour and to continually increase levels of production. Undoubtedly the absorption of the worker into the burgeoning machine organism more clearly than ever reduces the worker to a tool of capital. And yet, crucially, Marx makes it clear that these two forms of subsumption—under capital, and into a technical system of production—are neither identical nor inseparable in principle. In the machine system, the unity of labour qua collectivity of living workers as foundation of production is shattered, with human labour appearing as a ‘mere moment […] infinitesimal and vanishing’ of an apparently autonomous production process. And although it reprocesses its original human material into a more satisfactory format for Capital, for Marx the machine system does not preclude the possibility of other relations of production under which it may be employed. It is, however, inseparable from a certain metamorphosis of the human, embedded in a system that is at once social, epistemic (depending on the scientific understanding and control of nature), and technological. Man no longer has a direct connection to production, but one that is mediated by a ramified, accumulated objective social apparatus constructed through the communication, technological embodiment, replication and enhancement of knowledge and skills—what Marx calls the ‘elevation of direct labour into social labour’ wherein ‘general social knowledge […] become[s] a direct force of production’. Once again, however, this estrangement is not *identical* with alienation through capital; nor is the former, considered apart from the strictures of the latter, necessarily a deplorable consequence. It is precisely at this point that Marx enters the speculative terrain of accelerationism: for in separating these two tendencies—the expanded field of production and the continuing metamorphoses of the human within it, and the monotonous regime of capital as the meta-machine that appropriates and governs this production process and its development—the question arises of whether, and how, the colossal sophistication, use value, and transformative power of one could be effectively freed of the limitations and iniquities of the other. Such is the kernel of the map’s problematic and a point of divergence between the various strains of accelerationism: Williams and Srnicek, for example, urge us to devise means for a practical realization of this separability, whereas for Nick Land and Iain Hamilton Grant writing in the 90s, Deleuze and Guattari’s immanentization of social and technical machines was to be consummated by rejecting their distinction between technical machines and the capitalist axiomatic. Since the ‘new foundation’ created by integrated machine industry is dependent not upon direct labour but upon the application of technique and knowledge, according to Marx it usurps capitalism’s primary foundation of production upon the extortion of surplus labour. Indeed, through it capital ‘works toward its own dissolution’: the total system of production qua complex ramified product of collective social labour tends to counteract the system that produced it. The vast increase in productivity made possible through the compaction of labour into the machine system, of course, ought also to free up time making it possible for individuals to produce themselves as new subjects. How then to reconcile this emancipatory vision of the sociotechnological process with the fact that the worker increasingly becomes a mere abstraction of activity, acted on by an ‘alien power’ that machinically vivisects its body, ruining its unity and tendentially replacing it (a power which, as Marx also notes, is ‘non-correlated’— that is, the worker finds it impossible to cognitively encompass it)? Once again, Marx distinguishes between the machine system as manifestation of capital’s illusory autonomy, confronting the worker as an alien soul whose wishes they must facilitate (just as the worker’s wages confront them as the apparent source of their livelihood), and the machine system seen as a concrete historical product. Even as the process of the subsumption of labour into machine production provides an index of the development of capital, it also indicates the extent to which social production becomes an immediate force in the transformation of social practice. The monstrous power of the industrial assemblage is indissociable from the ‘development of the social individual’: General social knowledge is absorbed as a force of production and thus begins to shape society: ‘the conditions of the process of social life itself […] come under the control of the general intellect and [are] transformed in accordance with it’. Labour then only exists as subordinated to the general interlocking *social* enterprise into which capital introduces it: Capital produces new subjects, and the development of the social individual is inextricable from the development of the system of mechanised capital. This suggests that the plasticity of the human and the social nature of technology can be understood as a benchmark for progressive acceleration. Marx’s contention was that Capitalism’s abstraction of the socius generates an undifferentiated social being that can be subjectivated into the proletariat. That is, a situation where the machinic system remained in place and yet human producers no longer faced these means of production as alienating would necessarily entail a further transformation of the human, since, according to Marx, in the machine system humans face the product of their labour through a ramified and complex network of mediation that is cognitively and practically debilitating and disempowering. This ‘transformative anthropology’ (Negri) is what every communist or commonist (Negri’s or Terranova’s post-*operaismo*) programme has to take into account. Granted the in-principle separability of machinic production and its capitalist appropriation, the ‘helplessness’ of the worker in the face of social production would have to be resolved through a new social configuration: the worker would still be confronted with this technical edifice and unable to reconcile it with the ‘unity of natural labour’, and yet humans would ‘enter into the direct production process as [a] different subject’, ceasing to suffer from it because they would have attained a collective mastery over the process, the common objectified in the machine system no longer being appropriated by the axiomatic of capital. This participation would thus be a true social project or common task, rather than the endurance of a supposedly natural order of things with which the worker abstractly interfaces through the medium of monetary circulation, the ‘metabolism of capital’, while the capitalist, operating in a completely discontinuous sphere, draws off and accumulates its surplus. However, as Marx observes (and as Deleuze and Guattari emphasise), capitalism continues to operate *as if* its necessary assumption were still the ‘miserable’ basis of ‘the theft of labour time’, even as the ‘new foundation’ of machine production provides ‘the material conditions to blow this foundation sky-high’. The extortion of human labour still lies at the basis of capitalist production despite the ‘machinic surplus value’ (Deleuze and Guattari) of fixed capital, since the social axiomatic of capital is disinterested in innovation for itself and is under the necessity to extract surplus value as conveniently as possible, and to maintain a reserve army of labour and free-floating capital. The central questions of accelerationism follow: What is the relation between the socially alienating effects of technology and the capitalist value-system? Why and how are the emancipatory effects of the ‘new foundation’ of machine production counteracted by the economic system of capital? What could the social human be if fixed capital were reappropriated within a new postcapitalist socius? At the core of new accelerationisms, and responding in depth to these questions so as to fill out the map’s outlines, new philosophical frameworks suggested by Negarestani, Singleton and Brassier reaffirm Prometheanism, and bring together a transformative anthropology, a new conception of speculative and practical reason, and a set of schemas through which to understand the inextricably social, symbolic and technological materials from which any postcapitalist order will have to be constructed. They advocate not accelerationism in a supposedly known direction, and even less sheer speed, but, as Reed suggests, ‘eccentrication’ and, as Negarestani, Brassier and Singleton emphasise in various ways, *navigation* within the spaces opened up through a commitment to the future that truly understands itself as such and acknowledges the nature of its own agency. In earlier accelerationisms, ‘exploratory mutation’ (Land) was only opened up through the search-space of capital’s forward investment in the future. As Land tells us, ‘long range processes are self-designing, but only in such a way that the self is perpetuated as something redesigned’. However, for cybercultural acceleration, this ‘self’ can be none other than capital’s ‘infinite will’ as it absorbs modernity into its ‘infinite augmentation’, its non-finality. In the account of Negarestani, this non-finality is displaced into the space of reason progressively constructed by the advent of symbolic social technologies and the space of norms they make possible and continually transform, thus providing an underpinning to the **map’**s aims and a framework within which its technological and social questions can be treated. In Singleton’s understanding of design, the opportunistic and cunning appropriation of the powers of nature progressively ratchets open an uncircumscribable space of freedom, springing human intelligence from its parochial cage and extending it through prostheses and platforms. Whereas earlier moments of accelerationism had been a matter of a conviction in utopian projects or in the possible imminent collapse of capitalism, and subsequently a delirious summoning of revolutionary forces at work *within* it, today’s accelerationism, no less optimistic in certain respects, is undoubtedly more sober; a fact that cannot be unconnected to the fact that it emerges in a climate of combined crisis-and-stagnation for capitalism. It is indeed interesting to note that accelerationism reappears at moments when the powers of capitalism appear to be in crisis and alternatives appear thin on the ground. As Fisher insists, today’s crisis provides an opportune point at which to reassess those previous moments. The destiny of the authors included in the ‘Ferment’ section is instructive here: Deleuze and Guattari arguably diluted the stance of *Anti-Oedipus* in *A Thousand Plateaus* with calls for caution in deterritorialization and a more circumspect analysis of capitalism. As Iain Grant recounts, Lyotard was soon to openly deplore his ‘evil’ accelerationist moment, and instead—in effect concurring with Camatte’s pessimism—set out to develop minor strategies of aesthetic resistance. In similar fashion, Lipovetsky’s 1983 collection tellingly entitled *The Era of Emptiness*5 modulates the revolutionary tone to one of acquiescent approbation: although still concerned with an ‘accelerating destabilisation’, he now sees it largely operating through a ‘process of personalisation’ whose overall liberatory vector is balanced by a contraction into narcissism and the spectacular consumption of ubiquitous ‘communication’. The cyberculture phase, in extending Lyotard’s own ‘branching-off’ from Deleuze and Guattari, arguably reproduced his failure to reckon with the powers of *antiproduction*: Deleuze and Guattari drew attention not just to the ‘positive’ schizophrenia of decoding and deterritorialization but to a certain schizophrenic *dissociation* within the technical or scientific worker himself, who ‘is so absorbed in capital that the reflux of organized, axiomatized stupidity coincides with him’ (‘Dear, I discovered how to clone people at the lab today. Now we can go skiing in Aspen’, as Firestone puts it). The transformation of surplus value of code into surplus value of flux necessitates that, just as technical knowledge is separated from aesthetics, so the potentially insurrectionary social import of machinically-potentiated errant intelligence is itself ‘split’ and its surplus drawn off safely by capital. Thus, under capital, individuals are sequestered from the immense forces of production they make possible qua social beings, and feedback is limited to a minimal ‘reflux’, a purchasing ‘power’ qualitatively incommensurable with the massive flows of capital. In ‘Teleoplexy’ Land continues to set store by the crossover between consumer devices and economically-mobilizable technologies within consumer capitalism itself. Yet the earlier expectation that technology would of itself disrupt antiproduction was overoptimistic— in line with the contemporary Thatcherite spirit of free enterprise, which promised to empower every citizen with opportunities for self-realization through access to the market. The explosion in share ownership, consumer credit, and the burgeoning of consumer media and information technology did little to dislodge this dissociative mechanism that, for Deleuze and Guattari, constitutes ‘capitalism’s true police’. Projects such as those of Terranova and Parisi, of examining and rebuilding technological platforms outside this value-system and its ideological assumptions, benefit today from a greater appreciation of the subtlety of antiproduction, and complement the new philosophical resources emerging within contemporary accelerationisms.Herein lies the real divergence between Land’s consolidated right-accelerationism and the burgeoning left-accelerationisms: whereas one continues to see an ever increasing accumulation of both collective intelligence and collective freedom, bound together in the monstrous form of Capital itself, the other, as it develops, is proving more speculative and more ambitious in its conception of both ‘intelligence’ and ‘freedom’, seeing Capital as neither an inhuman hyperintelligence nor the one true agent of history, but rather as an idiot savant driven to squander collective cognitive potential by redirecting it from any nascent process of collective self-determination back into the self-reinforcing libidinal dynamics of market mechanisms. In this respect, the work of Negarestani and Brassier forms the conceptual bulwark preventing left-accelerationism from collapsing back into schizoid anarchy or technocapitalist fatalism. By reviving the constitutive link between freedom and reason at the heart of German idealism (Kant and Hegel), reconfigured and repurposed by pragmatist functionalism (Sellars and Brandom), they not only provide a dynamic measure of the emancipatory promise of modernity at odds with Capital’s own monotonous modes of valuation, but equally demonstrate how its progressive realization implies, in contrast to the blind idiot cyborgod of Kapital, the constitution of a genuine collective political agency. This dialectic parallels that played out in artificial intelligence research between dominant strains developing ai capable of parochial problem solving and those increasingly concerned with characterising artificial general intelligence (agi). The shift from conceiving intelligence as a quantitatively homogeneous measure of adaptive problem solving to conceiving it as a qualitatively differentiated typology of reasoning capacities is the properly philosophical condition of the shift from the hyperstitional invocation of machinic intelligence of the Cyberculture era to the active design of new systems of collective intelligence proposed by map. The labour of constructing an accelerationist politics, its machines and its humans, is a matter, as Marx says, of ‘both discipline, as regards the human being in the process of becoming… [and] at the same time, practice, experimental science, materially creative and objectifying science, as regards the human being who has become, in whose head exists the accumulated knowledge of society’. If this space of speculation outside of capital is not a mirage, if ‘we surely do not yet know what a modern technosocial body can do’, isn’t this labour of the inhuman not just a rationalist, but also a vitalist one in the Spinozist sense, concerning the indissolubly technical and social human—*homo sive machina*—in the two aspects of its collective labour upon its world and itself: *Homo hominans* and *homo hominata*?

## Blocks

### AT: Permutation

#### Immediacy DA – the permutation overwhelms the alternative in the ‘common sense’ immediacy of folk politics – the alternative’s technological acceleration gets watered down into social media clicktivism

**Srnicek 15** (Nick Srnicek, “Reinventing the Future,” NOVEMBER 11, 2015. https://thedisorderofthings.com/2015/11/11/reinventing-the-future/#more-11229)

We now turn to what appears, perhaps unsurprisingly, as the most contentious idea in our book: that of folk politics.[7] Let us be clear about something up front though: our critique of what we call folk politics is born neither out of a belief in the intrinsic desirability of alternative tactics and strategies, nor out of malice towards them. Rather, our critique is born out of the experiences of struggles in the past few decades. It has been over 20 years since the Zapatistas stormed onto the world stage, yet we have seen precious little evidence that any recent movements have posed a threat to the dominance of neoliberalism (let alone capitalism). Our own experiences in these movements, and particularly the brief moment of hope that emerged around Occupy, are why we started writing the book in the first place. We wanted them to succeed, and we were disappointed when they didn’t. Our critique of folk politics stems from asking the question: what went wrong? We don’t think our answers are particularly novel: they’ve been voiced in numerous forms by participants and external critics for some time now, and the book draws heavily upon this existing literature. Our novelty is in tracing these problems back to a preference for immediacy – i.e. the kernel of contemporary ‘folk politics’. (In fact, perhaps a better name for ‘folk politics’ might be ‘the politics of immediacy’.) It is this valorisation of immediacy which we see played out in various ways across the left, both in the explicit statement of political theorists and in the implicit consequences of various practices. This leads us to an aspect of the concept which has yet to receive any attention: namely, its historically constructed character.[8] While this issue is not foregrounded in the book (it is only raised in one paragraph), our position is that folk politics changes over time. Certain ideas and values **come to dominate** and take on an **intuitive place** within the activist imagination. In the 1960s, in much of the Western world, folk politics would have meant building the revolutionary party. In the future, folk politics will again change. We may see, for instance, a folk political common sense come to rest upon social media clicktivism. We must therefore distinguish between two senses of folk politics. One is a historically constructed political common sense. The other is a contemporary manifestation of that common sense oriented around a politics of immediacy. Given its historical nature, it would be fair to say that our own project is one of constructing a new folk politics. It is only today that folk politics – “a collective and historically constructed political common sense that has become out of joint with the actual mechanisms of power” (10, emphasis added) – has come to overlap with another meaning of folk: as the locus of the small-scale and authentic grounded upon a valorisation of immediacy. Ultimately, our desires lie in transforming the world, not in getting the self-satisfaction of being proven right. If events were to show that our critique was wrong, we would be delighted to admit our error. For us, therefore, the essential components of the book are the second half: the analysis of global surplus populations and the vision of the future. The four demands we set out to begin organising around for a post-work world should be taken as starting points for discussion, not dogmatic assertions.[9] A little humility is in order here, as we can make no claim to any certainty about our critiques and prescriptions for how these things should be achieved. The social world is complex and the assertive absoluteness with which many left thinkers put forth their ideas is belied by the repeated failures to change or even understand the world. We must now, however, raise another omission in the responses, which is the three qualifications we place on our critique of folk politics. This absence is important because without these qualifications, the critique of folk politics steps outside its purview. The first qualification is that folk politics is an implicit tendency, not an explicit position. This leads to a key point to insist upon: folk politics is not equivalent to horizontalism, anarchism, prefigurative politics, or localism. There is an assumption running throughout the responses that folk politics is equivalent to these movements, but this assumption misreads our point. We constructed this concept because we find much of value in these movements, and we didn’t want to simply denounce them in toto. Instead, the concept is designed to pick out a particular subset of characteristics from them. It is designed to describe a common element behind a variety of movements which have so far been incapable of transforming the world or stopping neoliberalism. But again – folk politics is not coterminous with horizontalism, anarchism, prefigurative politics, or localism. To the extent that particular practices embody our understanding of folk politics (as a politics of spatial, temporal, and conceptual immediacy), we argue that they are limited. But where they do not embody these features (for example, in the way that anarcho-syndicalism is focused on creating scalable political structures), we do not view them as being folk political in nature.

#### Communicative Capitalism DA – the permutation incorporates the radical potential of the alternative while leaving habits of individualized resistance intact – this causes the radical energies of debate to become siphoned off into the neoliberal knowledge economy and intensifies libidinal investments in folk politics

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The psychoanalytic framing of ideology as fantasy reveals the idea of the impossibility of alternatives to capitalism and neoliberalism to be structured at the ontological and libidinal levels— to be guaranteed, as it were, within the code of the reality that we can recognize as such in the first place. As Jodi Dean (2009) shows, if we conceptualize the ideology of neoliberalism in this way, then we can begin to understand its persistence in spite of widespread cynicism about its official rationales and amid widespread suspicion about its fairness and transparency. If ideology is effective in the **forms of life themselves**— in our actual practices— rather than in the ensemble of our convictions, **then it can coexist easily with critical assessments**. For instance, while we may suspect that the system is rigged and that its representatives (politicians and elites) are often disingenuous, our continuing investment in its order and **organization at the level of practice** is the actual and decisive instance of “belief,” which in itself affirms and reproduces the dominant ideology. Likewise, as Dean describes, it is the construction of the very “freedom” within which the postmodern subject prolifically expresses its judgments, opinions, and preferences (for instance, in public opinion surveys, reality television, and Twitter feeds)— without a substantive confrontation of the system that both offers and encloses this freedom— that is the properly ideological event, rather than the prevalence of any particular viewpoint. The contemporary explosion of communicative possibilities and platforms that are open to a diversity of perspectives (coinciding with the development of the Internet and social media), which nevertheless subsists without challenging the fundamental political logic that underwrites it, has been called by Dean (2009) “**communicative capitalism**.” “Communicative” here indicates a modality of social life and a certain historical periodization (the networked twenty- first century). By contrast, others have proposed the notion of “cognitive capitalism” to indicate a new and privileged source of surplus value in late capitalism: knowledge, affect, and intellect (Vercellone, 2009). Theorists have pointed to the importance of knowledge industries, and the education sector in particular, as a strategic battleground between the imperative to commodify of neoliberalism, on the one hand, and the collective and emancipatory impulses of the multitude, on the other (Hardt and Negri, 2004). This struggle can be seen in present efforts to remake education as both a source of profit (e.g., through the commodification of knowledge and indebtedness of students) and as a reorganization of subjectivity (i.e., in the organization of learning as production of human capital), and, on the other hand, in the efforts of students and educators to resist this process (Edu- Factory Collective, 2009). In this latter context, the ideology of capitalist realism and the insistence on the impossibility of any alternatives can be understood as the effect of a kind of occupation or **enclosure of the imagination**. 2 Here too it is less a matter of a struggle over hegemonic versus counterhegemonic understandings, according to an older model of ideological contest. Instead, it is a matter of the defense of sites of social production— in this case, the creative production of the collective intelligence and “relational capacity” of human beings (Virno, 2004). As capitalism colonizes the social field, including the affective, intellectual, and physical capacities of subjects, it reorders them biopolitically from the inside. Diverting the generativity of humans as intelligent, communicative beings toward the production of surplus value, capitalism reorders the ideological contest from a struggle over what people think to a struggle over what people think for. The university, for instance, which is commonly thought of as a space of free intellectual exchange that is inherently valuable as such, is increasingly remade as a factory of commodifiable research within the transition to a broader knowledge economy (Olssen and Peters, 2005). In this context, if an alternative to capitalist exploitation and alienation becomes unthinkable in the present, this is because thinking itself has become increasingly captured by and embedded in the circuits of capitalist production and valorization (Hardt and Negri, 2000).

### AT: Reformism Bad

#### They oversimplify the alt – it’s not just ‘reform vs revolution’ – the alternative is a radical and belligerent utopian demand with the potential to usher in seismic cultural shifts. There’s no alternative to our non-reformist reform.

**Williams & Srnicek 15** (Srnicek, Nick, and Alex Williams. *Inventing the Future: Folk Politics & the Struggle for Postcapitalism*. Brooklyn, NY: Verso Books (2015).)

Today, revolutionary demands appear naive, while reformist demands appear futile. **Too often that is where the debate ends**, with each side denouncing the other and the strategic imperative to change our conditions forgotten. **The demands we propose are therefore intended as non-reformist reforms**. By this we mean three things. First, they have a utopian edge that strains at the limits of what capitalism can concede. This transforms them from polite requests into insistent demands charged with belligerence and antagonism. Such demands combine the futural orientation of utopias with the immediate intervention of the demand, invoking a ‘utopianism without apology’. 4 Second, these nonreformist proposals are grounded in real tendencies of the world today, giving them a viability that revolutionary dreams lack. Third, and most importantly, such demands shift the current political equilibrium and construct a platform for further development. They project an open-ended escape from the present, rather than a mechanical transition to the next, predetermined stage of history. 5 The proposals in this chapter will not break us out of capitalism, but they do promise to break us out of neoliberalism, and to establish a new equilibrium of political, economic and social forces. From the social democratic consensus to the neoliberal consensus, our argument is that the left should mobilise around a post-work consensus. With a post-work society, we would have even more potential to launch forward to greater goals. But this is a project that must be carried out over the long term: decades rather than years, cultural shifts rather than electoral cycles. Given the reality of the weakened left today, there is only one way forward: to patiently rebuild its power – a topic that will be covered in the chapters to follow. There simply is no other way to bring about a post-work world. We must therefore attend to these longer-term strategic goals, and rebuild the collective agencies that might eventually bring them about. By directing the left towards a post-work future, not only will significant gains be aimed for – such as the reduction of drudgery and poverty – but political power will be built in the process. In the end, we believe a post-work society is not only achievable, given the material conditions, but also viable and desirable. 6 This chapter charts a way forward: building a post-work society on the basis of fully automating the economy, reducing the working week, implementing a universal basic income, and achieving a cultural shift in the understanding of work.

### AT: Accelerationism = Fascist

#### We link turn this – the alternative creates an ecology of networked organizations that resist fascism and the impulses of extreme horizontalism

**Negri 14** (Antonio Negri, OG, “Some Reflections on the #Accelerate Manifesto,” in *#ACCELERATE: The Accelerationist Reader,* Urbanomic. 2014.)

AN ECOLOGY OF NEW INSTITUTIONS

At this point. the problem o f organization i s properly posed. As already said, a new configuration of the relation between network and planning is proposed against **extremist horizontalism**. Against any peaceful conception of democracy as process, a new attention shifts from the means (voting, democratic representation, constitutional state, and so forth) to the ends (collective emancipation and self-government). Obviously, new illusions of centralism and empty reinterpretations of the 'proletarian dictatorship' are not repeated by the authors. The MAP grasps the opportunity to clarify this by proposing a sort of **'ecology of organizations**,' insisting on a framework of multiple forces that come into resonance with each other and therefore manage to produce engines of collective decision-making **beyond any sectarianism**.11 You may have doubts about such a proposal; you may recognize difficulties that are greater than the happy options that are offered. Nevertheless, this is a direction to explore. This is even clearer today, at the end of the cycle of struggles that started in 2011, which have all shown insuperable limits regarding their forms of organization throughout their clashes with power, despite their strength and new genuine revolutionary contents. The MAP proposes three urgent goals that are appropriate and realistic for the time being: First of all, building a new kind of intellectual infrastructure to support a new ideal project and the study of new economic models. Second, organizing a strong initiative on the terrain of mainstream mass media: the internet and social networks have undoubtedly democratized communication and they have been very useful for global struggles, yet communication still remains subjugated to its most traditional forms. The task becomes one of focusing substantial resources and all the energy possible in order to get our hands on adequate means of communication. The third goal is activating all possible institutional forms of class power (transitional and permanent, political and unionist. global and local). A **unitary constitution of class power** will be possible only through the **assemblage** and **hybridization** of all experiences developed so far, and those yet to be invented.

### AT: Vanguardism

#### Not vanguardism – instead open to the organic emergence of leadership across networks – the aff is worse because it relies on random spontaneity which fails

**Srnicek 15** (Nick Srnicek, “Reinventing the Future,” NOVEMBER 11, 2015. https://thedisorderofthings.com/2015/11/11/reinventing-the-future/#more-11229)

To turn to the first of the assertions within their piece, the issue of technocratic vanguardism, we must disagree. Our approach to the question of political organisation is based on the rejection of such a perspective, and is grounded in the notion of an ‘ecology of organisations’ and a particular understanding of hegemonic politics. Here is a concise summary of how we envision a movement comprised of an ecology of organisations: [T]he overarching architecture of such an ecology is a relatively decentralised and networked form – but, unlike in the standard horizontalist vision, this ecology should also include hierarchical and closed groups as elements of the broader network. There is ultimately no privileged organisational form. Not all organisations need to aim for participation, openness and horizontality as their regulative ideals. The divisions between spontaneous uprisings and organisational longevity, short-term desires and long-term strategy, have split what should be a broadly consistent project for building a post-work world. Organisational diversity should be combined with broad populist unity. (163) Note that **there is no place for “techno-fetishist vanguardism” here**, though we do admit that “hierarchical” and “clandestine” organisations can have a role. But the need for secrecy and the inevitability of informal hierarchies have been roundly recognised by anarchists for a long time (indeed, we draw upon their insights in the book), so we don’t think Aggie and Tom would necessarily disagree with this aspect. Instead, it is the issue of vanguardism that seems to be the source of the problems – and it is a delicate one since, as their response demonstrates, it is prone to misunderstandings. We think they are perhaps most concerned with the potential for hierarchical and secretive groups to force the mantle of leadership upon themselves. We admit that we find this unlikely in our current era, where political promiscuity rules the day and an organisation that begins to centralise and distance itself from its members is doomed to collapse. But to spell out our own position: we argue for a horizontal architecture to any movement, which entails that no one group or organisation should seek to dominate the movement. What we instead call for is ‘mobile vanguard-functions’ (163), with a reference pointing to the work of Rodrigo Nunes. In a quote distinguishing this notion from more traditional ideas, he writes: The vanguard-function differs from the teleological understanding of the vanguard whose sway over the Marxist tradition helped engender vanguardism. It is objective to the extent that, once the change it introduces has propagated, it can be identified as the cause behind a growing number of effects. Yet it is not objective in the sense of a transitive determination, which would be made necessary by historical laws, between an objectively defined position (class, class fraction) and a subjective political breakthrough (consciousness, event). The vanguard-function is akin to what Deleuze and Guattari call the ‘cutting edge of deterritorialisation’ in an assemblage or situation; opening a new direction that, after it has communicated to others, can become something to follow, divert, resist etc. (Organisation of the Organisationless, 38-9). Given a more concrete formulation, this entails that: Leadership occurs as an event in those situations in which some initiatives manage to momentarily focus and structure collective action around a goal, a place or a kind of action. They may take several forms, at different scales and in different layers, from more to less ‘spontaneous’. This could be a crowd at a protest suddenly following a handful of people in a change of direction, a small group’s decision to camp attracting thousands of others, a newly created website attracting a lot of traffic and corporate media attention, and so forth. The most important characteristic of distributed leadership is precisely that these can, in principle, come from anywhere: not just anyone (a boost, no doubt, to activists’ egalitarian sensibilities) but literally anywhere (ibid. 35). We recommend reading his book, which is a superb analysis of how leadership functioned in Occupy and similar movements. Vanguardism, according to him, doesn’t disappear – it just gets distributed and made mobile. What does this mean in practice? Let us take a simplified example of an ongoing and complex situation: the #BlackLivesMatter movement. Here we saw the initial emergence of a vanguard through social media, as the hashtag starts up in the wake of Trayvon Martin’s murder. After Michael Brown was shot down by a cop, the residents of Ferguson became a vanguard in the streets, pushing back against the violence of the state and leading the movement to a new plateau of intensity. Social media continued to amplify this and a national (and eventually international) movement was born. In the wake of Freddie Gray’s brutal murder, Baltimore’s residents became the new vanguard: the struggle was expanding, led by the people in the streets. Today, however, the movement appears to be at risk of co-option by a group of “politically respectable” leaders. It is unclear, at the moment, whether and where this leadership will take the movement, or whether other leaders will emerge in the streets and elsewhere. This is vanguardism, but certainly not the type that Aggie and Tom fear. We would even suggest it’s a rather humble idea, attuned to the realities of on-the-ground activism as well as the larger issues of strategic planning.[12] It seems to us, this is how leadership always works in contemporary social movements. Our point is to make this explicit and to try and shift the debate around leadership to a more sophisticated level. Anarchists have much to add here since they have been discussing these issues for some time now. Our contribution is to suggest this needs to be thought at the level of an entire ecology of organisations, not just within organisations. This would encourage asking questions like, “how do we get leadership in social movements for expansion and scaling, without installing permanent and unaccountable leaders?” But if not a central vanguard or leader imposing unity on a movement, then what gives it any consistency? The argument we make in the book is that it is ‘the future’. Or rather, the common adherence to a desirable vision of a different world.[13] This is not a vision which could be forced upon anyone. Rather, it “involves a continual negotiation of differences and particularisms, seeking to establish a common language and programme in spite of any centrifugal forces.” (160) Thus, when Aggie and Tom write that the book “consistently privileges hegemonic coherence over practices which would preserve a space for variety and dissensus”; that “dissensus is the death knell of hegemony”; and that “pursuing a project of equilibrium in which opposing forces or interests are finally balanced or resolved is to already be some way down the road to a flattening and cancelling of the multiplicity of people”, this is at odds with what we write. They mistake hegemony for an enforced unity that it is not. Building a counterhegemony means undertaking the difficult labour of building and maintaining a common, collective project within and between differences. Crucial here is understanding what we mean by hegemony. Hegemony, as we set out the term in Chapter 7, is not to be identified as a system of domination. Reading it as such is a common error, but one which does a disservice to the subtlety of the concept and the history of its development since Gramsci. Instead, hegemony needs to be understood as a complex, emergent mode of power, dependent on the ability of groups within society to influence others in much more diffuse ways. This form of influence can take different forms, from rational debate to affective attraction, from educational practices to cultural codes, and from media framing to economic and infrastructural choice architectures. Hegemony, on this understanding, emerges out of the interactions and practices of a diverse array of different groups, agents, and organisations within society. It does not flatten difference, but emerges from the interplay of differences. Another key dimension to the hegemonic perspective on politics is the idea that no large-scale political project can proceed by dint of appealing only to those who are already consciously persuaded of its merits. Against such a perspective, Aggie and Tom claim that changing desires is opposed to freedom. But surely changing the desires, beliefs and behaviours of racists, sexists, fascists and capitalists is an absolutely essential political goal? Indeed, one can only fully understand the successes of movements to the extent that they are able to achieve broad-scaled transformations in the public ‘common sense’, and in changing what people desire. The general public unacceptability of openly homophobic statements within the UK, for example, has only been made possible by a long-term hegemonic project to change the way people think. Partly this has operated through explicit means, but it has also proceeded through a variety of other modes of action, from specific legal provisions to the framing of issues in the mass media, all of which was made possible by decades of campaigning. Taken together these methods create a different environment in which subjects are generated and formed. It might also be helpful here to consider what the alternative to this would look like. The alternative to a hegemonic framework is one which sees people as essentially inert, unchanging and unchangeable, that would identify the creation of small enclaves of like-minded people as the only practicable goal, a kind of separatism. Such a position would lead to a **reliance on spontaneous revolt**, and would not only be likely to fail, but would also tend towards a rather **unnuanced acceptance of essentialist social forms and categories**. We have good reason to believe that any left politics worthy of the name would want to reject such a position. Indeed, the successes of anti-racism, feminism, and queer politics are related to their (at least implicit) embracing of hegemonic projects to change the conditions within which people form their beliefs, opinions, and desires. Such a process of transformation can rarely be understood as simply a matter of imposition. Instead, hegemonic politics works to re-orient existing tendencies, desires, opinions, and beliefs, working with existing affordances and transforming them in turn. It is in this sense that hegemonic politics involves ‘leadership’ – not in the sense of individual leaders, but in the sense of changing the conditions which determine the trajectory of societies, by transforming the means by which subjectivities and desires are articulated and formed. This is politics, pure and simple.

### AT: Caring/Emotional Labor

#### The alternative provides a way of liberating reproductive labor and kinship from the gendered economy of the nuclear family --- a future without work transforms caring and reproductive labor

**Laboria Cuboniks 15** (“XENOFEMINISM,” http://www.laboriacuboniks.net/qx8bq.txt)

ADJUST 0x11 Our lot is cast with technoscience, where nothing is so sacred that it cannot be reengineered and transformed so as to widen our aperture of freedom, extending to gender and the human. **To say that nothing is sacred, that nothing is transcendent or protected from the will to know, to tinker and to hack, is to say that nothing is supernatural**. 'Nature' -- understood here, as the unbounded arena of science -- is all there is. And so, in tearing down melancholy and illusion; the unambitious and the non-scaleable; the libidinized puritanism of certain online cultures, and Nature as an un-remakeable given, we find that our normative anti-naturalism has pushed us towards an unflinching ontological naturalism. There is nothing, we claim, that cannot be studied scientifically and manipulated technologically. 0x12 This does not mean that the distinction between the ontological and the normative, between fact and value, is simply cut and dried. The vectors of normative anti-naturalism and ontological naturalism span many ambivalent battlefields. The project of untangling what ought to be from what is, of dissociating freedom from fact, will from knowledge, is, indeed, an infinite task. There are many lacunae where desire confronts us with the brutality of fact, where beauty is indissociable from truth. Poetry, sex, technology and pain are incandescent with this tension we have traced. **But give up on the task of revision, release the reins and slacken that tension, and these filaments instantly dim.** CARRY 0x13 The potential of early, text-based internet culture for countering repressive gender regimes, generating solidarity among marginalised groups, and creating new spaces for experimentation that ignited cyberfeminism in the nineties has clearly waned in the twenty-first century. The dominance of the visual in today's online interfaces has reinstated familiar modes of identity policing, power relations and gender norms in self-representation. But this does not mean that cyberfeminist sensibilities belong to the past. Sorting the subversive possibilities from the oppressive ones latent in today's web requires a feminism sensitive to the insidious return of old power structures, yet savvy enough to know how to exploit the potential. Digital technologies are not separable from the material realities that underwrite them; they are connected so that each can be used to alter the other towards different ends. Rather than arguing for the primacy of the virtual over the material, or the material over the virtual, **xenofeminism grasps points of power and powerlessness in both, to unfold this knowledge as effective interventions in our jointly composed reality**. Intervention in more obviously material hegemonies is just as crucial as intervention in digital and cultural ones. Changes to the built environment harbour some of the most significant possibilities in the reconfiguration of the horizons of women and queers. As the embodiment of ideological constellations, the production of space and the decisions we make for its organization are ultimately articulations about 'us' and reciprocally, how a 'we' can be articulated. With the potential to foreclose, restrict, or open up future social conditions, xenofeminists must become attuned to the language of architecture as a vocabulary for collective choreo-graphy–the coordinated writing of space. From the street to the home, domestic space too must not escape our tentacles. So profoundly ingrained, domestic space has been deemed impossible to disembed, where the home as norm has been conflated with home as fact, as an un-remakeable given. **Stultifying 'domestic realism' has no home on our horizon.** Let us set sights on augmented homes of shared laboratories, of communal media and technical facilities. The home is ripe for spatial transformation as an integral component in any process of feminist futurity. But this cannot stop at the garden gates. We see too well that reinventions of family structure and domestic life are currently only possible at the cost of either withdrawing from the economic sphere–the way of the commune–or bearing its burdens manyfold–the way of the single parent. If we want to break the inertia that has kept the moribund figure of the nuclear family unit in place, which has stubbornly worked to isolate women from the public sphere, and men from the lives of their children, while penalizing those who stray from it, we must overhaul the material infrastructure and break the economic cycles that lock it in place. The task before us is twofold, and our vision necessarily stereoscopic: we must engineer an economy that liberates reproductive labour and family life, while building models of familiality free from the deadening grind of wage labour.

# AFF ANSWERS

### 2AC—Can’t Spill Over

#### The Alternative is Just a Resurgent Modernism which unbinds us from Neoliberalism, but Keeps The Ideologies Behind the Current Neoliberal Movements – Namely the Top 1% Controlling the World – Intact. The Minds Behind Accelerationist Theory Contradict Themselves, and Application of Those Theories Fail Anyway

**Techno Occulture 13** [Author not found | “The Age of Speed: Accelerationism, Politics, and the Future Present” *Techno Culture*, 5/26/13 | https://socialecologies.wordpress.com/2013/05/26/the-age-of-speed-accelerationism-politics-and-the-future/] SS

What they offer is a resurgent modernism or metamodernism, a postfuturism that unbinds us from the constraints of neoliberalism yet **reterritorializes us within a planned economy controlled by a new elite.** And what is this ‘Outside’? Is this another return to the old outmoded transcendental ethics and realisms of the past? **There are many contradictions in the manifesto of** Alex **Williams and** Nick **Srnicek which need a complete rewrite** to absolve it of its staid and outworn creeds of older misplaced ontologies and defunct political critiques dressed up in accelerationist garb. That there is a need to free us of the entrapments of the neoliberal system is one thing, but to suggest that we will be induced to find support for such a project from the **“governments, institutions, think tanks, unions, or individual benefactors” seems a little far-fetched**. **Where are these to be found?** As for their supposed move beyond a tyrannical central system how can you incorporate such a Promethiansim and Nietzschean self-mastery, as well as hegemonic control **while working outside the very control mechanisms that support the platforms and infrastructures of such a projected planned society?** And **are we truly only left with two alternatives: a devolution into primitive barbarism and dark age, or a post-capitalist hegemony?** Are there other as of yet unthought possibilities on the horizon? Or should we return to the real movement of communism of which Marx once said: Communism is for us not a state of affairs which is to be established, an ideal to which reality [will] have to adjust itself. We call communism the real movement which abolishes the present state of things. **The conditions of this movement result from the premises now in existence.**

### 2AC—Cant’ Decouple Tech

#### Technological advances today are made for capitalist purposes and thus cannot be used to fix a problem which it helped create.

**Taylor 13** [J. D. Taylor. Taylor is a PhD researcher and writer from south London | “Nowhere Fast? A Brief Critique of the Accelerationist Manifesto,” anticapitalists.org 5/30/13 | <http://anticapitalists.org/2013/05/30/nowhere-fast-a-brief-critique-of-the-accelerationist-manifesto/> | SLB]

Perhaps they solve a theoretical dilemma in the academy. When I journey through London streets, all I see is the irrelevance of repurposing neoliberalism. That is already occurring – daytrading, shopfront-churches maybe – the Manifesto gives no practical, verifiable examples and these suppositions are my own, which in any case offer no political potential. We already have a sense of what a ‘technosocial body’ (3§6) can do – entrepreneurs across the West are already capitalising on technosocial bodies, making great profits out of social media games, gadgets, apps and advertising, based on social media data and Google Analytics. This is an economy as artificial and decadent as private property, which in the UK has now become a second currency in a state which no longer produces much else than financial capital itself. A technology cannot win a conflict, especially one that aims at post-capitalism, if already embedded in its construction and functionality is a series of capitalist objectives and values. Google entrepreneurs also want to work less, but these technologies will not make us more intelligent, just, happy or equal human beings. Equally, one can observe already that the well-intended ‘clicktivism’ of Avaaz, 350.org and the innumerable abundance of anti-capitalist tweeting, griping or facebook liking are not destabilising the power or hegemony of the western governments or their capitalist defenders.

### 2AC—Accelerationism Fails

#### There are 5 reasons to why acceleration will not work

**Hickman 13** [S.C., I'm a poet, short story author, and philosophical speculator| “Posthuman Accelerationism,” Techno Occulture June 17, 2013 | <https://socialecologies.wordpress.com/2013/06/17/posthuman-accelerationism/> // TTT]

Along with this is certain counter tendencies or antagonistic forces that seek to bind acceleration and curtail its effects. She terms these counter-dynamization processes: first, there are natural geophysical, biological, and anthropological speed limits, that is, processes that either absolutely cannot be manipulated or only at the price of a massive qualitative transformation of the process to be accelerated; second, there are territorial, cultural, and structural “islands of deceleration,” i.e., areas that are in principle susceptible to modernization and hence to processes of acceleration but that have, up till now, not been caught up in them or have managed (at least for the time being) to remain idle. They thus appear to be places where “time stands still.”; third, there are in many fields of action blockages and slowdowns occur again and again as unintended side effects of acceleration that can lead to dysfunctional and, to some extent, pathological consequences. The most well-known example of this is the traffic jam, though economic recessions and forms of depressive illness can also be placed under this heading. Yet beyond this, acceleration-induced unintended slowdown also occurs at the interface points of functional systems or processing cycles when these prove to be capable of acceleration to different extents, which causes desynchronization problems that are expressed in unwanted waiting times: for instance, when the new long-distance express train arrives at the station twenty minutes earlier than the old long-distance train did, but the local commuter train comes at the same time it did before; fourth, there are phenomena of intentional deceleration, which appear in two different forms: either as “functional” or “accelerative” deceleration in the sense of individual and collective moratoria or phases of recuperation (as in the four-week retreat of a CEO to the tranquillity of a monastery) that ultimately serve the goal of further increases of speed (for example, in the form of an increased capacity for innovation) or as “ideological” deceleration movements that often have a fundamentalist or antimodernist character and aim at genuine social slowdown or a stalling of the acceleration process in the name of a better society and a better form of life. This idea of deceleration may even be on the verge of becoming the dominant counter-ideology of the twenty-first century; and, fifth, there are cultural and structural phenomena that embody a tendency toward rigidity. This tendency does not appear to be a self-standing principle, but rather the paradoxical flip side of social acceleration. These phenomena constitute the basis for the experience of an uneventfulness and standstill that underlies the rapidly changing surface of social conditions and events, one that accompanies the modern perception of dynamization from the very beginning as a second fundamental experience of modernization. It is often precisely in phases of an intense surge of acceleration that this phenomenon is reflected individually in manifestations of “ennui” or “existential boredom” and collectively in the diagnosis of cultural crystallization, or the “end of history,” but in both cases as the perception of a return of the ever same.(303-304)

#### The acceleration does nothing to change the squo

**Taylor 13** [JD, is a writer and PhD researcher from south London| “NOWHERE FAST? A BRIEF CRITIQUE OF THE ACCELERATIONIST MANIFESTO,” New Left Debate May 30, 2013 | http://anticapitalists.org/2013/05/30/nowhere-fast-a-brief-critique-of-the-accelerationist-manifesto/// TTT]

The problem with the recent, and on the whole excellent, “#Accelerate. Manifesto for an Accelerationist Politics” (hereafter Accelerationist Manifesto) is that it startlingly universalises and globalises the experience of a minority of western metropolitan academics. This is also true of the preoccupation with cybernetics and posthumanism in the universities, which makes little sense in the dust-trails of central Russia or southern Africa, or the crude scramble for minerals and resources which determines most of the activity of the world’s leading nation-states and the commercial interests they seek to advance. The globalisation of financial capital operates, as it always has done, physical and brutal way, marked in the bodies and landscapes of people and the earth. In this brief critique I want to sketch out some problematic presumptions of the manifesto, and suggest some alternative strategies for new social and political organisations who seek to resist and overcome neoliberal capitalism. In fact, the problem with the manifesto is far more general than [McKenzie Wark’s friendly critique](http://speculativeheresy.files.wordpress.com/2013/05/wark-mckenzie-celerity.pdf)allows, the only other substantial textual engagement so far in this interesting event in contemporary critical theory. Both take on face-value the prospect of environmental collapse, with Wark making humoured mention of ‘private arks’ being built by capital for the coming ecological collapse. Evidence of ecological transformations is cited repeatedly, but the new problems of accelerated climate increase, rising sea-levels and so on will probably lead to a series of human adaptations, as similar climate upheavals have done in the past. New crops will grow at expense of others; new diasporic communities will form as a result of environmental destruction; new wars will ensue and old wars resolve. The vast majority of the human race will continue being exploited in a physical way. Though by 2113 the earth may be four or eight degrees warmer in the UK and US, those who can afford to do so will continue to have their foods imported from the exploited developing world, as they are now, whilst the remainder are viciously exploited and struggle for mean survival, as they do currently. What is needed is a new political ‘imaginary’ and ‘totality’ as Wark vaguely puts it, or the ‘utopia’ and sense of ‘future’ advocated in the final sections of the Accelerationist Manifesto, but these calls are as vague as shouting for ‘justice’ and ‘peace’ in any other era. What I mean is, and what I hope to sketch out in some basic form below, is the need for a collective political organisation to use this imaginary. Just as the Suffragettes called for a principle, ‘Votes for Women’, they matched this with another, ‘Deeds not Words’, and a powerful and proactive political organisation.

#### Accelerationism is reductionist and fails

**Means 17** (Alexander J. Means, State University Of New York College At Buffalo, “Education For A Post-Work Future: Automation, Precarity, And Stagnation,” *Knowledge Cultures* 5(1), 2017 pp. 21–40)

Third, there is a growing body of radical perspectives on the post-work society. These theories more or less accept the need to institute post-Keynesian reforms in the short-term, such as a guaranteed basic income and systems of work sharing. However, where they depart is that they question the long-term viability and/or desirability of capitalist work arrangements as well as capitalism itself as a system of production and distribution. For instance, drawing on and re-working premises found in various strands of Marxian analysis, those like Jeremy Rifkin (2014), Paul Mason (2015), Yann Moulier-Boutang (2012), and Michael Hardt & Antonio Negri (2009) argue the unfolding wave of technological change and centrality of knowledge is undermining capitalism and inexorably leading to a post-capitalist society of horizontal networks, where private property and wage labor are superseded by collaborative commons. Others like Nick Srnicek & Alex Williams (2013, 2015) also see the potential in accelerating technology to liberate human activity from the dialectic of capital and labor, but they argue that this is inherently contingent and uncertain, requiring the left to achieve “sociotechnical hegemony,” to reformulate institutions with transversal lines of power and authority. In her particularly insightful contribution, Kathi Weeks (2011) draws on autonomist Marxism and feminism to argue that any viable conception of the post-work 36 society requires a fundamental refusal of the separation of economy and polity under liberalism, as well as the cultural logic of the work ethic, that reifies wage labor and depoliticize the sphere of work. This refusal is not a rejection of work as productive human activity in general, but the specific way wage work attenuates, stratifies, and limits the full range and potentiality of our individual and collective efforts. In this sense, refusal is a valorization of human activity outside the strictures of wage labor and a verification of the intrinsic creativity and generative force of human labor, affects, and subjectivities. There is much to be gleaned from each of these perspectives. However, it is interesting to note that while education factors prominently within mainstream economics, it is largely absent in post-Keynesian as well as in radical post-work perspectives. This seems to be a missed opportunity. If the technological displacement of employment indeed does accelerate, it will be necessary to rethink the relation between education and livelihoods. In their book Inventing the Future, for instance, Srnicek & Williams (2015) discuss at length the need to creatively harness new technological possibilities in the service of restructuring society, prevailing common sense, our work arrangements, and our institutions. However, where education does appear in the book it is largely to describe its historical, economic and ideological functions to produce docile, competitive, and compliant workers for a stratified employment structure. While Srnicek & Williams do observe that educational institutions represent a site of social and political struggle, **they remain stuck in a mode of economic reductionism** by suggesting the main point of contestation in education should be to expand the heterodox research of economics and teaching of heterodox economic perspectives (pp. 141–144). What is missing here is a **deeper sense** of how the economic, the political, the epistemological, the ontological, and the pedagogical intertwine and might be reimagined across the full spectrum of informal and formal educational institutions, programs, research, theory, and experiences. This would imply a reconfiguration of educational value and purpose. Such a reconfiguration might usefully be directed at producing educational subjectivities with the intellectual capacities, technical literacies and ethical imaginations to subordinate technology to egalitarian and sustainable ends. Achieving an equitable, just, efficient, and ecologically sustainable political economy would require concerted struggles over the formative educational cultures and institutions that play a central role in the production of knowledge and the shaping of social cooperation and agency. These struggles are contingent and embedded within the class, ethno-racial and gendered structures of power, division, and antagonism that give shape to social conditions under advanced capitalism. However, while the future is inherently contingent, predictions of technological acceleration throws the orthodox human capital edifice of education for employment into doubt, and with it the mainstream economic rationalities upon which the legitimacy of the neoliberal project depends. Ultimately, this may present an opportunity to develop a new rational-technical and liberatory educational foundation for a post-work society to come.

### Accelerationism=Neoliberal

#### Accelerationism reinforces neoliberal individualism and fear of the state in order to subject everything to the total control of the market--portraying the market as a spontaneous and free force ignores its dependence on rational control of subjects and its reliance on state power. Accelerationism relies on the assumption that markets re incompatible with capitalism which ignores the new forms of abstraction capitalism creates by detaching value from real subjects through financialization and technological capitalism-means the 1ac is recuperated as a new stage in the advancement of neoliberal capital.

**Noys 2013** [Benjamin, (critical theorist @ University of Chichester), “The Grammar of Neoliberalism” in “Dark Trajectories: Politics of the Outside”, ISBN: 978-0-9840566-9-9, pg. 45-52, MR]

To return then to the subject of ‘accelerationism’, which is a term which I coined as a means of identification and critique, but which has often been adopted in a valorizing fashion, I want to note how closely it con-forms to these elements of neoliberalism. It incarnates a ‘state phobia’, it agrees with the necessity to subject all elements of society to the market, and it promulgates a vision of the ‘person’ as a multiple and differentiated ‘enterprise’ (in fact, we could note also Foucault’s quasi-ironic, presumably, recourse to the language of the Deleuzoguattarian ‘machinic’ in his lectures). At least it would be hard to read this statement by Nick Land in any other fashion: Machinic revolution must therefore go in the opposite direction to socialistic regulation; pressing towards ever more uninhibited marketization of the processes that are tearing down the social field, ‘still further’ with ‘the movement of the market, of decoding and deterritorialization’ and ‘one can never go far enough in the direction of deterritori-alization: you haven’t seen anything yet’. [15] Land, quoting Deleuze and Guattari’s Anti- Oedipus [16], appropriately goes further in making explicit the anti-socialist and anti-planning implications of their argument. Accelerationism, which it might willing concede, in this instance fully goes with the tide of the present. The implication is that, in the language of Marx, this acceleration of neoliberalism will lead to a point of incompatibility with the capitalist integument, which will then be burst asunder. If capital is the barrier to its own development, as Deleuze and Guattari note by referencing Marx, then capitalism can only push beyond its own boundary through radical deterritorialization. [i7][i8] This deterritorialization is often coded by the presumption that the market is fun-damentally incompatible with capitalism, contrary to our usual image. To make this assertion Land, and others, draw on the work of the historian Fernand Braudel. Certainly, Braudel draws out the fact that markets cannot simply be collapsed into capitalism, but he stresses that the market is a local and face-to-face form that can resist the opaque and centralizing powers of capital [19]. In contrast, Land and contemporary accelera-tionists often stress the market as a dispersive and liquid form that shatters or liquefies the capitalist barrier. The aim is not to return to the face-to-face, but to accelerate beyond the human. In so doing they also presume a fundamental incompatibility of technological forces, es-pecially the cybernetic and neurobiological, with capitalism. These ‘forces’ are generated by capital, but are presumed to exceed it or, more specifically, to exceed the human ‘sup-port’ required by capital. This valorization is predicated on the valorization of the market as the acephalic field that releases and fosters these forces. Of course, markets have pre-existed capitalism and could post-date it and, of course, there is no simply essential or necessary reason why cybernetic or neuro-biological forces are ‘capitalist’, or could not be re-assembled (to use Nicole Pepperell’s formulation) for socialism or communism. That said, it seems to me accelerationism, and the critical and theoretical resources it draws upon, fundamentally misunderstands neoliberalism, as a particular form of capi-talist governmentality, and capitalism itself, as a social form, and so reproduces them (or their own idealized image). The fundamental schema, which obviously also extends to people like Antonio Negri and others, is to suppose that capitalism, in the style of the young Marx, is fundamentally parasitic and, in the style of the late Marx, that it has penetrated through real subsumption into the very biological and physical substrates of humans and the earth. The antinomy is then that we oscillate between the appearance of capitalism as mere skin, or exteriority, that can be easily discarded, and sudden lurches to a conspiratorial thinking of capitalism as utterly dominant. In a sense, which betrays a debt to Marx, capitalism is presented as the sorcerer’s apprentice that unleashes forces it cannot control, not in the figure of the proletariat, but within its own ‘productive forces’. Once we have shucked-off this parasite we can get on with the business of fully inhabiting inhuman capitalist jouissance. What this kind of argument radically underestimates is that the domination of capitalism operates through the value-form, which is not simply an ‘external’ parasite but rather the ‘self-positing’ of capitalism as real abstraction. Markets and productive forces are not neutral social forms taken-up by capital, but fundamentally subsumed and reworked by the operation of value. To resist this self-positing effect, these kinds of radicalism suppose that capitalism is ‘merely’ an external ‘power’ or, in Bruno Latour’s formulation [20], as a ‘formatting regime’, that tries to act on and grab pre-existent onto-logical richness. This is not to argue against the formulation that capitalism is a constant ‘pumping-out’ of value, but it is to argue that the real or practical abstraction of the commodity, especially the commodity of labor, penetrates and shapes existence horizontally and vertically. The ‘shaping’ is antagonistic and contradictory, but these contradictions and antagonisms are not simply external to the form of value. Of course, at the same time, accelerationism, in its Negrian or Landian forms, accepts this real subsumption, but merely to argue that capitalism has now released forces which it cannot control and which we can expropriate. The claim here is that forces that are radically integrated into capital can release themselves from the bonds of capital. The result is symmetrical to the claim that there are ontological, social, or natural forces that somehow escape capital from the beginning. Here, again, I think nothing is grasped of the forms of production, accumulation, and the market which shape these so-called ‘pro-ductive forces’ - forces, which Marx noted, are capitalist through-and-through: capital absorbs labor, transposes it into production, as a form or relation of production [21]. Also, in this valorization of production coded as ontological power, or power unleashed, nothing is grasped of the fundamental stasis of capitalism; how its accumulation is not fundamentally ‘creative’, but rather an ‘inertial’ drift [22]. Capitalism is deflated into mere integument, and inflated in its creative power. In terms of the more precise context of neoliberalism what is not grasped, as I’ve already intimated, is the ‘fit’ or conformity between accelerationism and neoliberalism. The dimension of governmentality is missed; the market is treated as neutral social form, without any thought about its conditions, and the constant action on those conditions, that might be required not to reproduce capitalism. In this way the market becomes hymned as the social mechanism, with its ‘blind idiocy’ translated into an Aza- thothic immanence. The state also is regarded as an exterior parasite, without considering in any real way, as was long ago argued by Karl Polanyi [23], how it helped to create this ‘market’ form, which penetrated and shaped the commodification of money, land, and labor. The ‘minimal state’ is taken as a given and only retains interest as the harnesser of ‘war machines’, leading to a fetishisation of military ideology and technology. Finally, the ‘enterprise’ is valorized is the ‘enterprise’ of self-deconstruction or self-extinction, whether that is cast in neurological re-tooling, biological re-formatting, or cyberspatial redistribution: a bloated ‘anti-Oedipus’. We are expected, in the name of Deleu- zoguattarian anti-fascisms, to embrace capitalism as nihilist machine that has no ‘purpose’, because ‘purpose’=fascism, while forgetting that neoliberalism appeared in Germany as the form of governmentality that would immunize us against fascism by trading the political for the economic. We are expected to accept, and welcome, state intervention to shape social forms to the market while repeating the mantra ‘No New Deal’, because Keynesian social intervention is quasi-totalitarian, and will only reinforce a ‘socialist’ capitalism, while forgetting the birth of neoliberalism out of anti-Keynes- ianism. No ‘putting on the brakes’, of course, as we can only accelerate to the future. Alarmingly, and counter-intuitively, the context of financial crisis has done nothing, seemingly, to alter the popularity of this schema [24][25]. Acceleration may be into the abyss, but acceleration must be maintained. Social abstractions may have become frozen into morbid and malignant forms, but they must be re-started by another round of hyper-creative destruction. What is at fault is not capitalism, but its impurities, in a repetition of the mantra of those one-time ‘masters of the universe’ turned temporary beggars for handouts. Accelerationism takes on the form of an unearned nostalgia for the very recent past - a capitalist ostalgie - or neo-Orientalist fantasies of Sino-capitalism, with unrestrained biotechnology and no Judeo-Christian hang-ups. Operating in the mode of a macho hard-edged realism, what accelerationism attests to is the poverty of a theoretical imagination unable to reconstruct any rationality in the present and is instead content to wallow in the fantasmatic residues of capitalism’s own irrationalisms.

### Accelerationism Bad

#### Accelerationism is a failed political strategy that fails to create change- it’s attached to hypercapitalized notions of labor and reentrenches capitalist violence

**Noys 2014** [Benjamin, (critical theorist @ University of Chichester), “Malign Velocities: Accelerationism and Capitalism”, Zero Books Publishing, ISBN: 978 1 78279 300 7, pg. x-xii, AX]

Speed is a problem. Our lives are too fast, we are subject to the accelerating demand that we innovate more, work more, enjoy more, produce more, and consume more. Hartmut Rosa declares that today we face a 'totalitarian' form of social acceleration.1 That's one familiar story. I want to tell another, stranger, story here: of those who think we haven't gone fast enough. Instead of rejecting the increasing tempo of capitalist production they argue that we should embrace and accelerate it. We haven't seen anything yet as regards what speed can do. Such a counsel seems to be one of cynicism, suggesting we come to terms with capitalism as a dynamic of increasing value by actively becoming hyper-capitalist subjects. What interests me is a further turn of the screw of this narrative: the only way out of capitalism is to take it further, to follow its lines of flight or deterritorialization to the absolute end, to speed-up beyond the limits of production and so to rupture the limit of capital itself. To be clear from the start, I don't agree with this story. The core idea of this book originated in the early '90s, when I first encountered the work of Nick Land and the Cybernetic Cultures Research Unit (CCRU) while working on a thesis on Georges Bataille. This work, as I will discuss in Chapter 4, is the one of the most explicit statements of the desire to accelerate beyond capital. Formulated in the language of science-fiction and contemporary theory (particularly the work of Gilles Deleuze and Felix Guattari), Land and the CCRU rigorously abandoned any humanist residues. Land and his colleagues at the University of Warwick strove for a new post-human state beyond any form of the subject, excepting the delirious processes of capital itself. They claimed that the replication and reinforcement of capital's processes of deterritorialization - of flux and flow - would lead to a cybernetic offensive capital could no longer control. Reading this full-blown accelerationism alongside discussions of the New Right and their aim to 'dissolve' the state led me, at the time, to coin the term 'Deleuzian Thatcherism'. It was the resurgence of these ideas in the '00s, including the republication of Land's essays,2 that made me return to these questions and offer a more precise critical description by using the term 'accelerationism'.3 It turns out that term occurs in Roger Zelazny's sci-fi novel Lord of Light (1967), which I'd read. The unconscious, as usual, works in mysterious ways. After my initial critical analysis a new wave of contemporary accelerationism emerged and it was this fact, especially as this took place at a time of capitalist crisis, that led me to write this book. My aim is not to offer an exhaustive account of accelerationism, but rather to choose certain moments at which it emerges as a political and cultural strategy. In the Introduction I begin with the theorization of accelerationism by a small group of French theorists in the early to mid-1970s. This brief moment of theoretical excess is, I will argue, a paradoxical attempt to articulate a path beyond a capitalism that seems to have absorbed and recuperated all opposition. It will provide the key which will unlock the different historical moments of acceleration that I then track. Starting with Italian Futurism, I proceed through Communist accelerationism following the Russian Revolution, to fantasies of integration with the machine, the Cyberpunk Phuturism of the '90s and '00s, the apocalyptic accelerationism of the post-2008 moment of crisis, and the negative form of terminal accelerationism. In the final chapter I return to the 1920s and 1930s to restage the debate around accelerationism through the encounter between Walter Benjamin and Bertolt Brecht. This scene condenses the problem of acceleration and the production of the new. In my conclusion I want to suggest a way out of the impasse, which doesn't simply counter acceleration with a desire to slow down. As this is a work written out of the sense of the difficulty of defeating accelerationism, I don't hope to write its epitaph here. I can't deny the appeal of accelerationism, particularly as an aesthetic. What I want to do is suggest some reasons for the attraction that accelerationism exerts, particularly as it appears as such a counter-intuitive and defeatist strategy. I'll argue that this attraction relies on the ways in which accelerationism takes-up labor under capitalism as site of extreme and perverse enjoyment. The use by accelerationists of the concept of jouissance - that French word used to refer to an enjoyment so intense it is indistinguishable from pain, a kind of masochism - is the sign of this. While accelerationism wants to accelerate beyond labor, in doing so it pays attention to the misery and joys of labor as an experience. If we are forced to labor, or consigned to the other hell of unemployment, then accelerationism tries to welcome and immerse us in this inhuman experience. While this fails as a political strategy it tells us much about the impossible experience of labor under capitalism. We are often told labor, or at least 'traditional labor', is over; the very excesses of accelerationism indicate that labor is still a problem that we have not solved. That I think the accelerationist solution of speeding through labor is false will become evident. This does not, however, remove the problem itself.

#### Accelerationism is the romanticism of unbridled productivity- an acceleration of parasitic capital exchange and an immersion in capitalism that obscures radical strategies against the violence of capitalism

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Jean Baudrillard's Symbolic Exchange and Death (1976) would criticize both Lyotard and Deleuze and Guattari for their nostalgic attachment to desire and the libidinal as oppositional forces. Only 'death, and death alone' incarnated a reversible function that could overturn the omnivorous coding capitalism imposed.6 What Baudrillard found in death was a 'symbolic' challenge that exterminated value by returning to a pre-capitalist economy of the challenge of the gift, which was now linked to exceeding the forces of capital by 'magical' reversal. Baudrillard, however, takes a distance from accelerationism by disputing the metaphysics of production that underlay Marxism and these dissident currents. In The Mirror of Production (1973) he had already critiqued 'an unbridled romanticism of productivity'.7 For Baudrillard what accelerated was not some force of libidinal flux or flow, but a catastrophic and entropic negativity that floods back into the system causing it to implode - the result is a terminal accelerationism. This is an accelerationist metaphysics of inflation - not simply capitalist inflation, which hollows out the function of money but also a superior symbolic exchange that insinuates itself within capitalist exchange and accelerates this process. While Baudrillard does not celebrate production or the circulation of libido, he tracks the inflationary bubbles of money as signs of capitalism evacuating itself of meaning and value. It is an irony that Lyotard, responding to earlier versions of Baudrillard's argument, had already suggested that: '[t]here is as much libidinal intensity in capitalist exchange as in the alleged "symbolic" exchange'.8 Mocking Baudrillard's anthropological turn to the 'primitive' Lyotard stated there was no 'good hippy' to practice symbolic exchange, only 'the desire of capital'.9 What Lyotard suggested was that even death was no way out of capitalism, which was the only game in town. The result was that Baudrillard's faith in another principle of exchange was misguided, as capitalism could absorb and parasite on any symbolic exchange. In this dizzying theoretical spiral we can see a common accusation: each accuses the other of not really accepting that they are fully immersed in capital and trying to hold on to a point of escape: desire, libido, death. Each also embodies a particular moment of capital: production, credit, and inflation. The result is that each intensifies a politics of radical immanence, of immersion in capital to the point where any way to distinguish a radical strategy from the strategy of capital seems to disappear completely.

#### Accelerationism is an anti-radical defeatist strategy that submerges itself within capitalism and provides no alternative to domination

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His answer: 'In the destructive element immerse.'10 These theoretical accelerationists take Stein's advice to heart. We fall into capitalism and, rather than try to climb out, we have to submit and swim with the capitalist current. This reaction could be seen as a result of the defeat of the hopes inspired by the revolutionary events in France, which are condensed in the signifier 'May '68'. At the time Deleuze and Guattari, Lyotard, and Baudrillard were writing this defeat was not evident, and many others were working throughout the 1970s to sustain and radicalize the struggles unleashed in '68. Those energies would fade into the reactionary 1980s, and then the accelerationist positions of Deleuze and Guattari, Lyotard, and Baudrillard would become prescient. Their positions registered the durability of capitalism and its ability to spread its domination, often by recuperating forms of struggle. The totalizing effects of capital would appear capable of rolling-up revolutionary advance, making the search for a revolutionary subject outside of capital superfluous. While Deleuze and Guattari would maintain faith in new revolutionary subjectivities - the 'schizo', and what they would later call 'minor' becomings - Lyotard and Baudrillard would more firmly embrace disenchantment. Far from simply being signs of the times these accelerationist formulations gained resonance as predications of the bad days to come. They would find more purchase in the 'polar night' of the 1980s. At that point rising fears of nuclear destruction, a glaciated Cold War, and the beginnings of the neoliberal counteroffensive, offered a felt experience of closed, if not terminal, horizons. Being a teenager at that time was to live in an atmosphere of ambient dread, summed-up for me in viewing the traumatic BBC post nuclear-attack film Threads (1984) and the paranoia of Troy Kennedy Martin's Edge of Darkness (1985). It has recently been revealed that Whitehall planners had formulated a nuclear war- game scenario with the suitably chilling codename Winter-Cimex 83. My later reading of Baudrillard's In the Shadow of the Silent Majorities, published in the Semiotext(e) Foreign Agents series of little black-books, produced an immediate sense of recognition of this mood. Baudrillard's implosive theorization would be truer to the inertial nature of capitalism, disputing accelerationist images of ever-expansive capitalism. The reason theoretical accelerationism caught this mood was precisely because it was formulated in the mid-1970s, at the beginning of the long capitalist downturn. These hymns to the excessive powers of capitalism were articulated in the face of crisis - the 'oil crisis', the abandonment of the gold standard, and the crisis of productivity, as well as the political crisis of legitimation (Watergate, etc.). In 1972 the Club of Rome published The Limits to Growth, which used computer modelling to argue that capitalism was undermining the material bases of its own 'success'. So, in a strange way this theoretical moment of accelerationism seemed to be running against the current of capitalism entering a period of stagnation, deceleration, and decline. On the other hand, however, it appeared predictive of the sudden 'acceleration' of cybernetic and financial forces that would form the basis for neoliberalism, signalled by the election of Margaret Thatcher in the UK in 1979 and the election of Ronald Reagan in the US in 1980. The fact that, in particular, Deleuze and Guattari's term 'deterritorialization' would find a fecund future in being used to describe neoliberal capital is one sign of this. These models formulate, in advance, the common sense of the '90s that 'there is no alternative' (TINA). If we follow the career of accelerationism across these moments we see it engaging and reengaging with the closing of the horizon of capitalism. It offers a way of understanding the continuing penetration of capitalism - horizontally, across the world and vertically, down into the very pores of life - and also, of celebrating this as the imminent sign of transcendence and victory. Our immersion in immanence is required to speed the process to the moment of transcendence as threshold. In this way immanence is paired with a (deferred) transcendence and defeat is turned into victory. At the same time defeat is registered by these forms of theoretical accelerationism in the form of ecstatic suffering, of jouissance, experienced in our deepening immersion.

#### The imposition of accelerationism does nothing to make the system self-implode- rather accelerationism worsens living conditions through a submersion in capitalism and becomes a vehicle of disenchanted politics by fetishizing capitalism- this is directly contradictory to Marxist thought on class struggle and revolution

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While there is a teleological Marx of development and production, Marx also insisted that capitalism does not automatically lead to communism. In The Communist Manifesto Marx and Engels argued that capitalist crisis posed the choice between the 'common ruin of the contending classes' and 'the revolutionary reconstitution of society at large'.15 Marx welcomed worker struggles to reduce the working day and to struggle against the despotism of the factory; **he did not argue that it would be better if factory conditions got worse so workers would be forced into revolt.** The fact that history advances by the bad side does not mean we should celebrate the 'bad side', but rather recognize this is the ground on which we struggle, which must be negated to constitute a new and just social order. The theoretical accelerationists try to break this dialectic of redemption by emphasizing only the violent moment of creative destruction. In place of the just society generated through struggle, it is acceleration that becomes the vehicle of disenchanted redemption. This makes them heretics of Marx. While the classic theoretical accelerationists often adopt Nietzschean themes of contingency and chance, in terms of acceleration they tend to reinstate the most teleological forms of Marxism. To resolve this problem accelerationism projects contingency on to capitalism, which becomes an anti-teleological, or 'acephalic' (headless) social form. In making this projection the accelerationists take as fact capitalism's fundamental fantasy of self- engendering production. They are an archetypal instance of the fetishists of capital. Certainly such a fantasy of self-engendering production is present in Marx, as we have seen. I think that the critique of this fantasy is a fundamental necessity. While we can certainly only begin to construct a just society on the ground of what exists this does not entail accepting all that exists or accepting what exists as it is given. This is a crucial political question: how can we create change out of the 'bad new' without replicating it? Of course, the accelerationist answer is by replicating more because replication will lead to the 'implosion' of capital. Replication, however, reinforces the dominance of capitalism, leaving us within capital as the unsurpassable horizon of our time.