## CP

#### We affirm their theory of settler colonialism

## CP

#### The appropriation of outer space by megaconstellations is just and ought to be managed by indigenous people, including at least the establishment of an international cultural ethics office including all indigenous nations at the forefront of decision-making regarding the appropriation of outer space by private entities.

#### The appropriation of outerspace in all other forms is unjust

#### Appropriation can be good but only if it is grounded in indigenous voices. That’s key to ensure space is maintained as a cultural heritage, rather than a final frontier, and meets their role of the ballot.

Vidaurri et al. ‘20 [Monica, Department of Physics and Astronomy, Howard University, NASA Goddard Space Flight Center; Aparna Venkatesan, Department of Physics and Astronomy, University of San Francisco; James Lowenthal, Department of Astronomy, Smith College; Parvathy Prem, Johns Hopkins University Applied Physics Laboratory;. Nature Astronomy, “The impact of satellite constellations on space as an ancestral global commons,” <https://www.nature.com/articles/s41550-020-01238-3>] brett

Most students of astrophysics learn early in their careers that we, and what we consume or use daily, have been in the cores of stars multiple times or created in the death throes of stars. When we analyse the data of galaxies from billions of light years away, we know we are looking at our cosmic past. This perspective—knowing that the Universe is within us and that we and the Sun will recycle back into future generations of stars and planets—is not as removed as some may believe from the relational view of many Indigenous cultures rooted in ‘Space and Place’, or cultural views of the night sky. Space is our past and our future; we are united in this ancestry and this ultimate fate.

We advocate for a radical shift in the policy framework of international regulatory bodies towards the view of space as an ancestral global commons that contains the heritage and future of humanity’s scientific and cultural practices. We do not use the term radical lightly; this shift requires a profound change in attitude towards what space means to all of us and our inherent beliefs about human ownership of space. Such an attitude contradicts the policies of many nations and actors in space today; for example, as recently as April 2020, the White House issued an Executive Order asserting that “Outer space is a legally and physically unique domain of human activity, and the United States does not view it as a global commons”.

We also urge federal and private space agencies and corporations to immediately establish a cultural ethics office that can offer an integrative approach for cultural intelligence, supporting scientific progress and cultural protocols from a shared ethical space rather than artificially siloed perspectives, and that the reports and findings of such offices be at the forefront of decision-making. This will begin the long overdue process of involving all the stakeholders for dark skies and near-Earth space, especially historically marginalized and Indigenous communities, as we develop new policies for space treaties and planetary protection that avoid replicating the costly mistakes of the past. The exhilaration of space exploration must be grounded in long-term thinking, centring of Indigenous voices, and sustainability.

#### Constellations are key to ensure indigenous access to broadband, ecological sustainability, and bridge the rural broadband gap.

Vidaurri et al. ‘20 [Monica, Department of Physics and Astronomy, Howard University, NASA Goddard Space Flight Center; Aparna Venkatesan, Department of Physics and Astronomy, University of San Francisco; James Lowenthal, Department of Astronomy, Smith College; Parvathy Prem, Johns Hopkins University Applied Physics Laboratory;. Nature Astronomy, “The impact of satellite constellations on space as an ancestral global commons,” <https://www.nature.com/articles/s41550-020-01238-3>] brett

Satellite constellations could greatly improve communications and ongoing monitoring of Earth phenomena ranging from weather and climate to disaster management. Such large constellations also have the potential to offer global connectivity through low-cost high-speed broadband internet. In principle, this could be the critical leap needed to bridge the very real digital divide2, especially for the world’s most minoritized populations, including Indigenous communities. This divide has been exposed as a chasm during this pandemic year, affecting many millions of students and low-income workers. Broadband internet has become essential for daily life, especially during a pandemic year when remote forms of learning, teaching, work and even health (for example, telemedicine) have become the norm. In 2019, the FCC offered US$20 billion in subsidies over ten years to address the digital divide in rural communities in the United States, which was quickly followed by a number of filings for LEOsats. LEOsat broadband may benefit rural communities more than urban areas—these ‘last mile’ connections are still challenging to complete relative to concentrated (urban) populations where ground-based cable/fibre internet infrastructure is cheaper. Large satellite constellations thus have the potential to bridge the digital chasm, but time will tell whether the promise of low-cost high-speed internet worldwide is achieved, and what the financial costs to customers are. This potential democratization of space is worth noting, even if it may not lead to fair participation in space.

#### **Only ensuring large scale access to rural broadband can enable adoption of precision agriculture.**

USDA ‘19 [US department of agriculture, April 2019, A Case For Rural Broadband, accessed 8/12/21, <https://mobroadband.org/wp-content/uploads/sites/44/2020/07/case-for-rural-broadband.pdf>] brett

Across the agricultural production cycle, farmers and ranchers can implement digital technologies as other modern businesses are doing, enhancing agriculture by driving decision-making based on integrated data, automating processes to increase operational efficiency, improving productivity with tasks driven by real-time insights, augmenting the role of management in the business of farming, and creating new markets with extended geographic reach. These patterns of digital transformation create fundamental shifts in agricultural production, developing new ways of working that make the industry more productive, attractive, and financially sustainable for farmers and ranchers. Tech companies which stand to benefit from industry transformation continue to capitalize on these shifts by developing new technologies, which according to one recent study, may help position themselves to capture a portion of an estimated $254 billion to $340 billion in global addressable digital agriculture market.13 Business Management shifts decision making from instinct to integrated data Precision Agriculture is transforming the way producers collect, organize, and rely on information to make key decisions. Traditionally, producers’ long-term experiences have created a competitive advantage: years of experiments have produced insights and instincts about the land they have farmed and the animals they have raised. But the volume of data that is possible to collect today can accelerate that learning curve, helping producers learn faster and more rapidly adapt to market shifts—particularly on new fields and with new animals—and creating more nuanced insights, enabling them to act on leading indicators. This creates a disparity between producers who can utilize high-speed Internet service and those who cannot. Examples include the ability to do the following: • create decision tools to help farmers and ranchers estimate the potential profit and economic risks associated with growing one particular crop over another • decide which fertilizer is best for current soil conditions • apply pesticides in targeted areas of the field, to control pests rather than applying pesticides over the entire field • use limited water resources more effectively • respond to findings of sensors that monitor animal health and nutrition Better choices about what, where, and when to plant, fertilize, and harvest—or breed, feed, and slaughter—can drive above-average returns by removing unrecognized inefficiencies and scaling insights. Digitization shifts supply chain management and resource allocation from generic to precise. Precision Agriculture helps make the business of farming more efficient by minimizing inputs— such as raw materials and labor—and maximizing outputs. For example, previous research has found that 40 percent of fields are over-fertilized, which not only inflates the cost of inputs but also results in 15 percent–20 percent yield loss suffered from improper fertilizer application.14 Precise application of inputs, such as fertilizer, herbicides, and pesticides, allows farmers to adjust inputs to location-based characteristics and use exact amounts needed, which saves money and increases sustainability due to more efficient resource stewardship. Improved fertilizer, soil, and water use can significantly improve water quality with less runoff and reduce climate gas emissions, which is important since agriculture accounts for 10-15 percent of worldwide emissions.15 Despite reductions in necessary inputs, Next Generation Precision Agriculture helps maintain or increase yields, leading to significant gains in efficiency14. Real-time insights also improve logistics. When growing melons, for instance, real-time data can help farmers overcome challenges in storing and shipping their products. Melons should be stored in an optimal refrigeration environment to minimize spoilage, and real-time precision sensors can reduce spoilage by alerting staff to suboptimal variations in temperature and humidity, allowing the execution of remedies before major losses occur. When refrigerated storage is full or the market price is at a peak, the “Internet of Things” can provide real-time information about where trucks are located and locating customers to market products to help make the sale. LABOR EFFICIENCY boosts productivity by automating routine processes and enabling real-time response Connected devices equip farmers with a clear picture of their operations at any moment, making it possible to prioritize tasks more effectively and triage the most pressing issues. While routine inspection and scouting has typically been a regular part of farm management and has increased farm profitability14, connected technologies can track, sense, and flag where a producer should focus their time and attention that day. Similarly, e-connectivity has allowed rural farms to access new training resources and high-skilled labor that has not been previously available. Real-time data and automation can radically improve a producer’s peace of mind and performance under time constraints, especially because of reduced physical and mental stress (no longer struggling to keep the machine on a row line between 6 and 10 hours in the field during harvest or planting). On dairy farms, for example, automated devices that milk and feed animals can also track each cow’s activity and alert producers to potential problems. Because these tasks are traditionally done by the producer and farm personnel, e-connectivity can substantially reduce the amount of time and effort necessary to run farms. This leads to dramatic increases in flexibility, enabling time and talent to be directed to more advanced tasks. Farmers can use newly found time to re-invest in more high-value tasks like long-term planning and management of the operation. This shift towards farm management opens new possibilities for the way that farms conduct business. GEOGRAPHIC ACCESS extends the reach of the supply chain and shifts marketing from standard to differentiated As explained in the previous section, as Precision Agriculture unlocks additional time and resources to explore new ways of doing business farmers are re-investing their time into identifying options to improve inputs, including better-trained labor and more effective types of inputs. New customers and markets can also be explored to increase sales volume and revenues.

#### Precision ag is key to solve ag runoff, a unique form of colonial dispossession.

Ling 17, Geoffrey Ling, a retired U.S. Army colonel, is an expert in technology development and commercial transition. He is a professor of neurology at Johns Hopkins University and the Uniformed Services University of the Health Sciences and a partner of Ling and Associates. Scientific American, June 26, 2017. “Precision Farming Increases Crop Yields” <https://www.scientificamerican.com/article/precision-farming/> brett

As the world’s population grows, farmers will need to produce more and more food. Yet arable acreage cannot keep pace, and the looming food security threat could easily devolve into regional or even global instability. To adapt, large farms are increasingly exploiting precision farming to increase yields, reduce waste, and mitigate the economic and security risks that inevitably accompany agricultural uncertainty.

Traditional farming relies on managing entire fields—making decisions related to planting, harvesting, irrigating, and applying pesticides and fertilizer—based on regional conditions and historical data. Precision farming, by contrast, combines sensors, robots, GPS, mapping tools and data-analytics software to customize the care that plants receive without increasing labor. Stationary or robot-mounted sensors and camera-equipped drones wirelessly send images and data on individual plants—say, information about stem size, leaf shape and the moisture of the soil around a plant—to a computer, which looks for signs of health and stress. Farmers receive the feedback in real time and then deliver water, pesticide or fertilizer in calibrated doses to only the areas that need it. The technology can also help farmers decide when to plant and harvest crops.

As a result, precision farming can improve time management, reduce water and chemical use, and produce healthier crops and higher yields—all of which benefit farmers’ bottom lines and conserve resources while reducing chemical runoff.

Many start-ups are developing new software, sensors, aerial-based data and other tools for precision farming, as are large companies such as Monsanto, John Deere, Bayer, Dow and DuPont. The U.S. Department of Agriculture, NASA and the National Oceanic and Atmospheric Administration all support precision farming, and many colleges now offer course work on the topic.

In a related development, seed producers are applying technology to improve plant “phenotyping.” By following individual plants over time and analyzing which ones flourish in different conditions, companies can correlate the plants’ response to their environments with their genomics. That information, in turn, allows the companies to produce seed varieties that will thrive in specific soil and weather conditions. Advanced phenotyping may also help to generate crops with enhanced nutrition.

Growers are not universally embracing precision agriculture for various reasons. The up-front equipment costs—especially the expense of scaling the technology to large row-crop production systems—pose a barrier. Lack of broadband can be an obstacle in some places, although the USDA is trying to ameliorate that problem. Seasoned producers who are less computer-literate may be wary of the technology. And large systems will also be beyond the reach of many small farming operations in developing nations. But less expensive, simpler systems could potentially be applied. Salah Sukkarieh of the University of Sydney, for instance, has demonstrated a streamlined, low-cost monitoring system in Indonesia that relies on solar power and cell phones. For others, though, cost savings down the road may offset the financial concerns. And however reticent some veteran farmers may be to adopt new technology, the next generation of tech-savvy farmers are likely to warm to the approach.

#### Gulf hypoxia is growing because of ag runoff---it’ll collapse whole oceans---extinction

Dr. Ian Hendy 17, PhD in Trophic Marine Biology, Research and Communication Officer and Senior Scientific Researcher in Marine Ecology at the University of Portsmouth, Institute of Marine Sciences Laboratories, Gulf of Mexico 'Dead Zone' Is Already A Disaster – But It Could Get Worse, Phys Org, 8-14, https://phys.org/news/2017-08-gulf-mexico-dead-zone-disaster.html

Each summer, a large part of the Gulf of Mexico "dies". This year, the Gulf's "dead zone" is the largest on record, stretching from the mouth of the Mississippi, along the coast of Louisiana to waters off Texas, hundreds of miles away. Around 8,776 square miles of ocean, an area the size of New Jersey or Wales, is almost lifeless.

John Muir, the famed naturalist and early conservation campaigner, once said that: "When we try to pick out anything by itself, we find it hitched to everything else in the Universe." His point was that everything in nature is connected, and that no part of our ecosystem exists entirely independently from any other.

It is perhaps no surprise then that ultimate cause of the Gulf of Mexico's dead zone can be found many miles inland. Fertilisers used by farmers then wash into the Mississippi River and eventually into the sea, where nutrients such as nitrogen and phosphorus stimulate an explosion in microscopic algae, creating huge "algal blooms". The algae then die and sink to the bottom, where they decompose. But the same bacteria which decompose the algae also use the sea's oxygen during the process, leaving an "anoxic" ocean.

Fish and other mobile sea creatures are able to escape the suffocating dead zone. Less lucky however are the sponges, corals, sea squirts and other animals who live their lives fixed in one place on the sea bed. Low oxygen levels place them under great stress and we have seen huge mortalities. Such losses will of course ripple up the food web, creating a negative chain reaction of increasing mortality rates in larger and larger animals.

The "dead zone" has grown this year due to increased rainfall in America's Midwest washing ever greater amounts of nutrients into the Mississippi, which ultimately end up in the Gulf. Not only is this a huge conservation issue – the Gulf contains key nursery habitats such as mangrove forests, sea grass beds and coral reefs that benefit adjacent fisheries – but it also has huge consequences for the local fishing economy, particularly the shrimp industry.

Steps are under way to slow down the ecological disaster. Some farmers in the Mississippi basin are using large grassy zones along waterways in order to soak up the agricultural fertilisers and filter out many of the nutrients before they make their way down the Mississippi to pollute the Gulf. However, it remains to be seen whether such measures are effective – and US farmers certainly need to greatly reduce the nitrogen and phosphates they use.

In the century since Muir's death, things have sped up. A larger population demands more food which means more deforestation, more farmland and more fertiliser. The increase demand placed on our land is ultimately affecting the marine environment.

These losses are unsustainable. The marine environment is integral for all life on earth, from an ecological and economic point of view. If we keep losing ecosystem services such as coastal nursery habitats and spawning grounds at this current rate, it will not just be an area the size of a state that is a dead zone, but the whole Gulf, or even whole oceans.

#### Normal means is your aff says mega-constellations of satellites are a form of appropriation.

Johnson 20 [Chris, Space Law Advisor for Secure World Foundation, 9 years of professional experience in international space law and policy. J.D. from New York Law School; 2020; “The Legal Status of MegaLEO Constellations and Concerns About Appropriation of Large Swaths of Earth Orbit,” <https://swfound.org/media/206951/johnson2020_referenceworkentry_thelegalstatusofmegaleoconstel.pdf>] brett \*Yes this author is against constellations but they only exist to prove the link.

Excludes Others

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

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

Done Without Coordination

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

Governments Are Ultimately Implicated

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

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

Long-Term Occupation Constitutes Appropriation

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

Prevents Others from Using Space

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

No Due Regard for Others

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

Harmful Contamination

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

If This Isn’t Appropriation, Then What Is?

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

Conclusion

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

## Off

#### The 1AC’s Yusoff evidence is a defense of a fractured Anthropocene politics that defines the world as a construction of White Geology. The rest of their aff opposes liberal humanist values and the affirmation of human control. We’ll impact turn this.

#### Embracing a Democratized Anthropocene centered around common human control is key to resolving warming.

Jedediah Purdy 16, Professor of Law at Duke University, 1/11/16, “Forum Final Response: The New Nature,” http://bostonreview.net/forum/new-nature/jedediah-purdy-jedediah-purdy-response-new-nature

This is a congenial group, at least in the sense that I suspect we would all wish to see the same kind of world in 500 years: greener, more egalitarian and cooperative, more peaceful at every level, from the geopolitical to the psychological to relations among species. I suspect that if we set down our polemical armor, most of us would admit that we do not really know which political and intellectual strategies are most likely to move us in that direction. Our time is brief, as Roy Scranton reminds us in his eloquent echoes of Montaigne’s skepticism and Stoicism, and our vision is dim. In this exchange, we also work under this disadvantage: we are arguing about a word, and what it might imply for attitudes toward everything from the species line to W. E. B. Du Bois’s color line, from future democracy to past and continuing imperialism. A shadow theater of the mind is almost inevitable. And of course, in summarizing arguments I develop in my book, After Nature, my essay fails to head off certain misunderstandings. So this reply has some elaboration and tidying-up to do. There are also some genuine disagreements here, and those are worth getting as clear as possible. First, the illusory disagreements. For one, the Anthropocene does not imply anthropocentrism or hubris. Several respondents—Scranton, Anna Tsing, Vandana Shiva, and Andreas Malm—see the term as a confirmation or amplification of a certain Francis-Bacon-on-speed picture of man as the king and master-engineer of the universe. Instead, the Anthropocene is marked by increased human influence and diminished human control, all at once, setting free or amplifying disruptive forces that put us in the position of destructive apprentices without a master sorcerer. In this respect, the Anthropocene is not exactly an achievement; it is more nearly a condition that has fallen clattering around our heads. And now we have to deal with it. The condition is not optional, so the question is what kind of “we” can be politically constituted and how to navigate this situation. Beginning to engage that situation constructively—rather than permitting it to drift along the lines set out by present patterns of unequal political and economic power (which is not really “drift” but the agency of some people over others)—is what I am getting at in pointing toward a democratic Anthropocene rather than a neoliberal one. It doesn’t matter to me if others don’t adopt the term “Anthropocene” for this program. I am not getting royalties on its use. But nothing in the term implies the hopped-up Bacon view of things. Furthermore, the Anthropocene does not mean naïveté about imperialism or capitalism. Of course it is true, as Jairus Grove and Tsing point out, that this world has been shaped ecologically—as it has been politically, demographically, and otherwise—by these two world-historical forces, both birthed in Europe. And of course a favorite strategy of apologists for those forces has been to identify their domination with “humanity,” or man. I am concerned with how ideas about nature have been involved in this kind of domination, sometimes as the less-than-human that man can ignore, sometimes as an alibi for technocratic governance that short-circuits democracy. But a world made by those forces—materially made by imperialism and capitalism at every point—is now the world with which people have to contend. The scale of those shaping forces is global. The Anthropocene condition has made a species, an Anthropos in itself, to borrow Marx’s term. The question of Anthropocene politics is whether, and on what terms, a species for itself, that is, politically constructed for self-conscious action through sovereign institutions, can arise on the scale of these planet-shaping forces. It is not the first time that people have had to try to make history under circumstances they did not get to choose. Lastly, I don’t think Robert Paarlberg and I disagree. A rapid and universal switch to neo-artisanal agriculture is a straw proposal; I don’t make it, and don’t know of anyone who does. My point is that, if the country’s interest in food systems is more than narrowly utilitarian, then it makes sense to ask what kinds of landscapes, work, and experiences our systems foster, as well as their input-output ratios. The food movement is one of the contexts in which such questions are being raised, as the early Sierra Club was for landscape conservation 120 years ago. I think we should look to it for intimations of where policy might go in this landscape-shaping aspect of our world-shaping economy. On work: young people with options today are lining up to get into farm labor, not out of it, suggesting that reducing workforce participation in agriculture no longer self-evidently counts as progress. On justice: surely if we are thinking of a different economy, we can hold open the possibility of greater social provision alongside an increase in the relative cost of food. Let us not be impractical, but let us also give the political and environmental imagination some room.Now, the real disagreements. First, the idea of inter-species democracy is nonsense. To be clear: I spend some time arguing in my book that ethical and imaginative engagement with the rest of the living world, especially other animals (and certainly we are animals) is important now, as it has been in shaping earlier eras of what I call environmental imagination. So I celebrate proposals such as Tsing’s as experiments in consciousness and experience. But when Shiva argues for a democracy of all beings or among species, then democracy is simply standing for a certain sentiment of relationality or moral interest. This may be, and often has been, part of the meaning of democracy—it is a word to conjure with, after all—but at its heart, democracy is a form of political community, and having politics with other species is an incoherent idea. The sense of politics that is urgent for the Anthropocene is this: the capacity to set and bind ourselves to a distinctly artificial body of principles that forms the architecture of our interdependence and shapes a common world. The medium of this achievement is language. A politics may actively seek to imagine, engage, and take account of other species, even non-animals, even a planetary being, if you like; environmental politics and its many precursors have always done this, and should continue doing so. But, as Paul Waldau suggests, that is the task and burden of those who can participate in the democracy. To speak of democracy across impassable linguistic barriers takes away its distinctive meaning. Is this the arrogance of humanism? I think it is a cause more for sadness than for pride that we cannot enter into alliances with the rest of the living world and achieve a genuine collective freedom all together. The call for inter-species democracy strikes me as a way of expressing this sadness in the form of a wish to overcome it. But there is no overcoming it. Second, the world does not tell us how to value it—or one another. From Ugo Mattei’s call for ecological law to Shiva’s Ecocene, respondents propose honoring and following nature as a way beyond the limits of anthropocentrism, rationalist hubris, the legacies of empire and racism, and so forth. Materials and systems engineers may take some cues from nature, but ethicists and democratic citizens are fooling themselves if they think they can follow suit. Let us say that, at a minimum, democratic politics, ethics, and law have something to do with liberty, equality, mutuality, and concern with suffering. They are, in various ways, efforts at pivoting collective institutions and principles around these values. Can we find these values in nature? I mean, you can pick your examples—no one has a problem with the bonobos—but the counterexamples flow fast: slaver ants that take pupae from other nests and chemically convert them to work in their own; wasps that paralyze their prey so larvae can eat them alive, with sensation fully intact; slaughters of the innocent every few years as interdependent populations of plants, herbivores, and carnivores go boom and bust, retaining a version of balance at the cost of death, so much death. When Aldo Leopold famously wrote of “thinking like a mountain,” or ecologically, he meant recognizing that the alternative to overpopulation is to let things die in vast numbers. Nature is not egalitarian, peaceful, or loving in any of the ways we care about. It is beautiful, wondrous, the site and necessary condition of everything we love, and also a monstrous charnel house. If we open our minds to it, it has too many meanings to guide us; if we let our minds be calm, we will see that it is not the sort of thing that has a meaning. The Anthropocene insight is that, with respect to the nonhuman world, we have ultimate responsibility for meaning-making, strange as that may seem. Jo Guldi and David Keith embrace that challenge and suggest ways to imagine new institutions that might emerge from the Anthropocene insight. I agree entirely with Keith that our questions are not just technocratic but visionary, that parts-per-million won’t tell us anything about what kind of world to shape. And I welcome Guldi’s looking to history—and those oldest and most concrete forms of environmental (in)justice, land ownership and reform—for inspiration going forward. Finally, I think there is a diffuse disagreement here over the meaning of the last five hundred years of human history, one not quite reducible to capitalism, imperialism, or anthropocentrism, but resonant with all of those and more. I believe the insight that social relations are made things, shaped through politics, and that we can aim toward a community of equals as the closest human thing to paradise, is a true and precious achievement. Its entanglement with many of the crimes and harms of five centuries is not evidence of inherent error but of tragedy. The idea of intentional, democratic human community remains ahead of us, not behind or to be set aside. The ecological recognition that social life and the natural world are entangled and mutually constitutive, that to shape one is always to shape the other, to value one is to imply ways of valuing the other, both complicates and enriches this project. That is the starting point, and also the beyond-the-horizon goal, of my democratic politics for the Anthropocene.

#### **Warming causes extinction.**

Xu and Ramanathan 17, Yangyang Xu, Assistant Professor of Atmospheric Sciences at Texas A&M University; and Veerabhadran Ramanathan, Distinguished Professor of Atmospheric and Climate Sciences at the Scripps Institution of Oceanography, University of California, San Diego, 9/26/17, “Well below 2 °C: Mitigation strategies for avoiding dangerous to catastrophic climate changes,” Proceedings of the National Academy of Sciences of the United States of America, Vol. 114, No. 39, p. 10315-10323//recut CHS PK

We are proposing the following extension to the DAI risk categorization: warming greater than 1.5 °C as “dangerous”; warming greater than 3 °C as “catastrophic?”; and warming in excess of 5 °C as “unknown??,” with the understanding that changes of this magnitude, not experienced in the last 20+ million years, pose existential threats to a majority of the population. The question mark denotes the subjective nature of our deduction and the fact that catastrophe can strike at even lower warming levels. The justifications for the proposed extension to risk categorization are given below. From the IPCC burning embers diagram and from the language of the Paris Agreement, we infer that the DAI begins at warming greater than 1.5 °C. Our criteria for extending the risk category beyond DAI include the potential risks of climate change to the physical climate system, the ecosystem, human health, and species extinction. Let us first consider the category of catastrophic (3 to 5 °C warming). The first major concern is the issue of tipping points. Several studies (48, 49) have concluded that 3 to 5 °C global warming is likely to be the threshold for tipping points such as the collapse of the western Antarctic ice sheet, shutdown of deep water circulation in the North Atlantic, dieback of Amazon rainforests as well as boreal forests, and collapse of the West African monsoon, among others. While natural scientists refer to these as abrupt and irreversible climate changes, economists refer to them as catastrophic events (49). Warming of such magnitudes also has catastrophic human health effects. Many recent studies (50, 51) have focused on the direct influence of extreme events such as heat waves on public health by evaluating exposure to heat stress and hyperthermia. It has been estimated that the likelihood of extreme events (defined as 3-sigma events), including heat waves, has increased 10-fold in the recent decades (52). Human beings are extremely sensitive to heat stress. For example, the 2013 European heat wave led to about 70,000 premature mortalities (53). The major finding of a recent study (51) is that, currently, about 13.6% of land area with a population of 30.6% is exposed to deadly heat. The authors of that study defined deadly heat as exceeding a threshold of temperature as well as humidity. The thresholds were determined from numerous heat wave events and data for mortalities attributed to heat waves. According to this study, a 2 °C warming would double the land area subject to deadly heat and expose 48% of the population. A 4 °C warming by 2100 would subject 47% of the land area and almost 74% of the world population to deadly heat, which could pose existential risks to humans and mammals alike unless massive adaptation measures are implemented, such as providing air conditioning to the entire population or a massive relocation of most of the population to safer climates. Climate risks can vary markedly depending on the socioeconomic status and culture of the population, and so we must take up the question of “dangerous to whom?” (54). Our discussion in this study is focused more on people and not on the ecosystem, and even with this limited scope, there are multitudes of categories of people. We will focus on the poorest 3 billion people living mostly in tropical rural areas, who are still relying on 18th-century technologies for meeting basic needs such as cooking and heating. Their contribution to CO2 pollution is roughly 5% compared with the 50% contribution by the wealthiest 1 billion (55). This bottom 3 billion population comprises mostly subsistent farmers, whose livelihood will be severely impacted, if not destroyed, with a one- to five-year megadrought, heat waves, or heavy floods; for those among the bottom 3 billion of the world’s population who are living in coastal areas, a 1- to 2-m rise in sea level (likely with a warming in excess of 3 °C) poses existential threat if they do not relocate or migrate. It has been estimated that several hundred million people would be subject to famine with warming in excess of 4 °C (54). However, there has essentially been no discussion on warming beyond 5 °C. Climate change-induced species extinction is one major concern with warming of such large magnitudes (>5 °C). The current rate of loss of species is ∼1,000-fold the historical rate, due largely to habitat destruction. At this rate, about 25% of species are in danger of extinction in the coming decades (56). Global warming of 6 °C or more (accompanied by increase in ocean acidity due to increased CO2) can act as a major force multiplier and expose as much as 90% of species to the dangers of extinction (57). The bodily harms combined with climate change-forced species destruction, biodiversity loss, and threats to water and food security, as summarized recently (58), motivated us to categorize warming beyond 5 °C as unknown??, implying the possibility of existential threats. Fig. 2 displays these three risk categorizations (vertical dashed lines).

#### Only mass movements are able to turn course on existential climate change.

**Lukacs 17** (Martin Lukacs is a Montreal-based investigative journalist. He is a former environmental writer for The Guardian, and has written for the Toronto Star, The Walrus, and The New York Review of Books. He is the author of The Trudeau Formula: Seduction and betrayal in an age of discontent. “Neoliberalism has conned us into fighting climate change as individuals”. July 17, 2017.)

Eco-consumerism may expiate your guilt. But **it’s only mass movements that have the power to alter the trajectory of the climate crisis.** This requires of us first a resolute mental break from the spell cast by neoliberalism: to stop thinking like individuals. The good news is that **the impulse** of humans **to come together** is **in**extinguishable – and the **collective imagination is** already **making a political come-back.** **The climate justice movement is blocking pipelines, forcing the divestment of trillions of dollars, and winning support for 100% clean energy economies** in cities and states **across the world. New ties are being drawn to B**lack **L**ives **M**atter, **immigrant and Indigenous rights, and fights for better wages.** On the heels of **such movements**, political parties seem finally ready to defy neoliberal dogma. None more so than Jeremy Corbyn, whose Labour Manifesto **spelled out a redistributive project to address climate change**: by publicly retooling the economy, and insisting that corporate oligarchs no longer run amok. The notion that the rich should pay their fair share to fund this transformation was considered laughable by the political and media class. Millions disagreed. Society, long said to be departed, is now back with a vengeance. So grow some carrots and jump on a bike: it will make you happier and healthier. But **it is time to** stop obsessing with how personally green we live – and **start collectively taking on corporate power.**

## T

#### Interp: The AFF must defend policy action in a plan text in the 1AC.

#### "Resolved:" the appropriation of outer space by private entities is "unjust" entails policy action:

#### Resolved with a colon indicates policy action.

Parcher 1 [Jeff; former debate coach at Georgetown; Feb 26, 2001; <https://web.archive.org/web/20020929065555/http://www.ndtceda.com/archives/200102/0790.html>] brett

(1) Pardon me if I turn to a source besides Bill. American Heritage Dictionary: Resolve: 1. To make a firm decision about. 2. To decide or express by formal vote. 3. To separate something into constiutent parts See Syns at \*analyze\* (emphasis in orginal) 4. Find a solution to. See Syns at \*Solve\* (emphasis in original) 5. To dispel: resolve a doubt. - n 1. Frimness of purpose; resolution. 2. A determination or decision.

(2) The very nature of the word "resolution" makes it a question. American Heritage: A course of action determined or decided on. A formal statemnt of a deciion, as by a legislature.

(3) The resolution is obviously a question. Any other conclusion is utterly inconcievable. Why? Context. The debate community empowers a topic committee to write a topic for ALTERNATE side debating. The committee is not a random group of people coming together to "reserve" themselves about some issue. There is context - they are empowered by a community to do something. In their deliberations, the topic community attempts to craft a resolution which can be ANSWERED in either direction. They focus on issues like ground and fairness because they know the resolution will serve as the basis for debate which will be resolved by determining the policy desireablility of that resolution. That's not only what they do, but it's what we REQUIRE them to do. We don't just send the topic committtee somewhere to adopt their own group resolution. It's not the end point of a resolution adopted by a body - it's the prelimanary wording of a resolution sent to others to be answered or decided upon.

(4) Further context: the word resolved is used to emphasis the fact that it's policy debate. Resolved comes from the adoption of resolutions by legislative bodies. A resolution is either adopted or it is not. It's a question before a legislative body. Should this statement be adopted or not.

#### 2---Unjust.

Black’s Law [The Law Dictionary Featuring Black's Law Dictionary Free Online Legal Dictionary 2nd Ed. No Date. <https://thelawdictionary.org/unjust/>] brett

What is UNJUST?

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

#### Violation: There’s no plan, they defend the res as a general rule.

#### Prefer:

#### 1---Ground---absent meeting precise words in the res, we lose all the pre-round prep we did around the resolution, killing neg ground.

#### 2---Vagueness---debates inevitably involve the AFF defending something, but only our interp lets them to clearly define that from the start. Their model leads to late-breaking debates that destroy ground, for example we won’t know if asteroid mining or space exploration are offense until the 1AR, which skews neg prep.

#### 3---Topic ed---specific policies teaches lets us go deep into the topic, uniquely important given the evolving character of space law. outweighs bc we only have 2 month topics, and phil ed is solved by free textbooks.

#### TVA- This aff with a global commons advocacy- allows legit the same aff, and you still center indigenous education

#### CI bc reasonability is arbitrary and invites judge intervention

#### DTD to deter future abuse

#### No RVIs: 1] illogical, you shouldn’t win for being topical,

#### 2] good theory debaters will read abusive positions to bait theory and dump on an RVI

## Case

### FW

#### The Role of the Judge is to vote for whoever does the better debating – any alternative framework must explain why we switch sides, why there has to be a winner and a loser, and why there are structural rules. Stasis in the resolution is key to all the prep we do on it

#### The standard and role of the ballot is to maximize expected well-being.

#### Extinction must outweigh – moral uncertainty demands we preserve the conditions for life, even a tiny risk outweighs, and future gains in quality of life ensure it’s a prior question

Todd 17 [Ben has a 1st from Oxford in Physics and Philosophy, has published in Climate Physics, once kick-boxed for Oxford, and speaks Chinese, badly. "The case for reducing extinction risk." <https://80000hours.org/articles/extinction-risk/>] brett

In this new age, what should be our biggest priority as a civilisation? Improving technology? Helping the poor? Changing the political system? Here’s a suggestion that’s not so often discussed: our first priority should be to survive. So long as civilisation continues to exist, we’ll have the chance to solve all our other problems, and have a far better future. But if we go extinct, that’s it. Why isn’t this priority more discussed? Here’s one reason: many people don’t yet appreciate the change in situation, and so don’t think our future is at risk. Social science researcher Spencer Greenberg surveyed Americans on their estimate of the chances of human extinction within 50 years. The results found that many think the chances are extremely low, with over 30% guessing they’re under one in ten million.3 We used to think the risks were extremely low as well, but when we looked into it, we changed our minds. As we’ll see, researchers who study these issues think the risks are over one thousand times higher, and are probably increasing. These concerns have started a new movement working to safeguard civilisation, which has been joined by Stephen Hawking, Max Tegmark, and new institutes founded by researchers at Cambridge, MIT, Oxford, and elsewhere. In the rest of this article, we cover the greatest risks to civilisation, including some that might be bigger than nuclear war and climate change. We then make the case that reducing these risks could be the most important thing you do with your life, and explain exactly what you can do to help. If you would like to use your career to work on these issues, we can also give one-on-one support. Reading time: 25 minutes How likely are you to be killed by an asteroid? An overview of naturally occurring existential risks A one in ten million chance of extinction in the next 50 years — what many people think the risk is — must be an underestimate. Naturally occurring existential risks can be estimated pretty accurately from history, and are much higher. If Earth was hit by a 1km-wide asteroid, there’s a chance that civilisation would be destroyed. By looking at the historical record, and tracking the objects in the sky, astronomers can estimate the risk of an asteroid this size hitting Earth as about 1 in 5000 per century.4 That’s higher than most people’s chances of being in a plane crash (about one in five million per flight), and already about 1000-times higher than the one in ten million risk that some people estimated.5 Some argue that although a 1km-sized object would be a disaster, it wouldn’t be enough to cause extinction, so this is a high estimate of the risk. But on the other hand, there are other naturally occurring risks, such as supervolcanoes.6 All this said, natural risks are still quite small in absolute terms. An upcoming paper by Dr. Toby Ord estimated that if we sum all the natural risks together, they’re very unlikely to add up to more than a 1 in 300 chance of extinction per century.7 Unfortunately, as we’ll now show, the natural risks are dwarfed by the human-caused ones. And this is why the risk of extinction has become an especially urgent issue. A history of progress, leading to the start of the most dangerous epoch in human history If you look at history over millennia, the basic message is that for a long-time almost everyone was poor, and then in the 18th century, that changed.8 Large economic growth created the conditions in which now face anthropogenic existential risks This was caused by the industrial revolution — perhaps the most important event in history. It wasn’t just wealth that grew. The following chart shows that over the long-term, life expectancy, energy use and democracy have all grown rapidly, while the percentage living in poverty has dramatically decreased.9 Chart prepared by Luke Muehlhauser in 2017. Literacy and education levels have also dramatically increased: Image source. People also seem to become happier as they get wealthier. In The Better Angels of Our Nature, Steven Pinker argues that violence is going down.10 Individual freedom has increased, while racism, sexism and homophobia have decreased. Many people think the world is getting worse,11 and it’s true that modern civilisation does some terrible things, such as factory farming. But as you can see in the data, many important measures of progress have improved dramatically. More to the point, no matter what you think has happened in the past, if we look forward, improving technology, political organisation and freedom gives our descendants the potential to solve our current problems, and have vastly better lives.12 It is possible to end poverty, prevent climate change, alleviate suffering, and more. But also notice the purple line on the second chart: war-making capacity. It’s based on estimates of global military power by the historian Ian Morris, and it has also increased dramatically. Here’s the issue: improving technology holds the possibility of enormous gains, but also enormous risks. Each time we discover a new technology, most of the time it yields huge benefits. But there’s also a chance we discover a technology with more destructive power than we have the ability to wisely use. And so, although the present generation lives in the most prosperous period in human history, it’s plausibly also the most dangerous. The first destructive technology of this kind was nuclear weapons. Nuclear weapons: a history of near-misses Today we all have North Korea’s nuclear programme on our minds, but current events are just one chapter in a long saga of near misses. We came near to nuclear war several times during the Cuban Missile crisis alone.13 In one incident, the Americans resolved that if one of their spy planes were shot down, they would immediately invade Cuba without a further War Council meeting. The next day, a spy plane was shot down. JFK called the council anyway, and decided against invading. An invasion of Cuba might well have triggered nuclear war; it later emerged that Castro was in favour of nuclear retaliation even if “it would’ve led to the complete annihilation of Cuba”. Some of the launch commanders in Cuba also had independent authority to target American forces with tactical nuclear weapons in the event of an invasion. In another incident, a Russian nuclear submarine was trying to smuggle materials into Cuba when they were discovered by the American fleet. The fleet began to drop dummy depth charges to force the submarine to surface. The Russian captain thought they were real depth charges and that, while out of radio communication, the third world war had started. He ordered a nuclear strike on the American fleet with one of their nuclear torpedoes. Fortunately, he needed the approval of other senior officers. One, Vasili Arkhipov, disagreed, preventing war. Thanks to Vasili Arkhipov, we narrowly averted a global catastrophic risk from nuclear weapons Thank you Vasili Arkhipov. Putting all these events together, JFK later estimated that the chances of nuclear war were “between one in three and even”.14 There have been plenty of other close calls with Russia, even after the Cold War, as listed on this nice Wikipedia page. And those are just the ones we know about. Nuclear experts today are just as concerned about tensions between India and Pakistan, which both possess nuclear weapons, as North Korea.15 The key problem is that several countries maintain large nuclear arsenals that are ready to be deployed in minutes. This means that a false alarm or accident can rapidly escalate into a full-blown nuclear war, especially in times of tense foreign relations. Would a nuclear war end civilisation? It was initially thought that a nuclear blast might be so hot that it would ignite the atmosphere and make the Earth uninhabitable. Scientists estimated this was sufficiently unlikely that the weapons could be “safely” tested, and we now know this won’t happen. In the 1980s, the concern was that ash from burning buildings would plunge the Earth into a long-term winter that would make it impossible to grow crops for decades.16 Modern climate models suggest that a nuclear winter severe enough to kill everyone is very unlikely, though it’s hard to be confident due to model uncertainty.17 Even a “mild” nuclear winter, however, could still cause mass starvation.18 For this and other reasons, a nuclear war would be extremely destabilising, and it’s unclear whether civilisation could recover. How likely is a nuclear war to permanently end civilisation? It’s very hard to estimate, but it seems hard to conclude that the chance of a civilisation-ending nuclear war in the next century isn’t over 0.3%. That would mean the risks from nuclear weapons are greater than all the natural risks put together. (Read more about nuclear risks.) This is why the 1950s marked the start of a new age for humanity. For the first time in history, it became possible for a small number of decision-makers to wreak havoc on the whole world. We now pose the greatest threat to our own survival — that makes today the most dangerous point in human history. And nuclear weapons aren’t the only way we could end civilisation. How big is the risk of run-away climate change? In 2015, President Obama said in his State of the Union address that:19 “No challenge  poses a greater threat to future generations than climate change” Climate change is certainly a major risk to civilisation. The graph below shows estimates of climate sensitivity. Climate sensitivity is how much warming to expect in the long-term if CO2 concentrations double, which is roughly what’s expected within the century. Does climate change pose an existential risk? Wagner and Weitzman predict a greater than 10% chance of greater than 6 degrees celsius of warming. Image source The most likely outcome is 2-4 degrees of warming, which would be bad, but survivable. However, these estimates give a 10% chance of warming over 6 degrees, and perhaps a 1% chance of warming of 9 degrees. That would render large fractions of the Earth functionally uninhabitable, requiring at least a massive reorganisation of society. It would also probably increase conflict, and make us more vulnerable to other risks. (If you’re sceptical of climate models, then you should increase your uncertainty, which makes the situation more worrying.) So, it seems like the chance of a massive climate disaster created by CO2 is perhaps similar to the chance of a nuclear war. Researchers who study these issues think nuclear war seems more likely to result in outright extinction, due to the possibility of nuclear winter, which is why we think nuclear weapons pose an even greater risk than climate change. That said, climate change is certainly a major problem, which should raise our estimate of the risks even higher. (Read more about run-away climate change.) What new technologies might be as dangerous as nuclear weapons? The invention of nuclear weapons led to the anti-nuclear movement just a decade later in the 1960s, and the environmentalist movement soon adopted the cause of fighting climate change. What’s less appreciated is that new technologies will present further catastrophic risks. This is why we need a movement that is concerned with safeguarding civilisation in general. Predicting the future of technology is difficult, but because we only have one civilisation, we need to try our best. Here are some candidates for the next technology that’s as dangerous as nuclear weapons. In 1918-1919, over 3% of the world’s population died of the Spanish Flu.20 If such a pandemic arose today, it might be even harder to contain due to rapid global transport. What’s more concerning, though, is that it may soon be possible to genetically engineer a virus that’s as contagious as the Spanish Flu, but also deadlier, and which could spread for years undetected. That would be a weapon with the destructive power of nuclear weapons, but far harder to prevent from being used. Nuclear weapons require huge factories and rare materials to make, which makes them relatively easy to control. Designer viruses might be possible to create in a lab with a couple of biology PhDs. In fact, in 2006, The Guardian was able to receive segments of the extinct smallpox virus by mail order.21 Some terrorist groups have expressed interest in using indiscriminate weapons like these. (Read more about pandemic risks.) In fact, in 2006, The Guardian was able to receive segments of the extinct smallpox virus by mail order. Relevant experts suggest synthetic pathogens could potentially pose a global catastrophic risk. Who ordered the smallpox? Credit: The Guardian Another new technology with huge potential power is artificial intelligence. The reason that humans are in charge and not chimps is purely a matter of intelligence. Our large and powerful brains give us incredible control of the world, despite the fact that we are so much physically weaker than chimpanzees. So then what would happen if one day we created something much more intelligent than ourselves? In 2017, 350 researchers who have published peer-reviewed research into artificial intelligence at top conferences were polled about when they believe that we will develop computers with human-level intelligence: that is, a machine that is capable of carrying out all work tasks better than humans. The median estimate was that there is a 50% chance we will develop high-level machine intelligence in 45 years, and 75% by the end of the century.22 Graph of expert prediction from Grace et al: The median estimate was that there is a 50% chance we will develop high-level machine intelligence in 45 years These probabilities are hard to estimate, and the researchers gave very different figures depending on precisely how you ask the question.23 Nevertheless, it seems there is at least a reasonable chance that some kind of transformative machine intelligence is invented in the next century. Moreover, greater uncertainty means that it might come sooner than people think rather than later. What risks might this development pose? The original pioneers in computing, like Alan Turing and Marvin Minsky, raised concerns about the risks of powerful computer systems,24 and these risks are still around today. We’re not talking about computers “turning evil”. Rather, one concern is that a powerful AI system could be used by one group to gain control of the world, or otherwise be mis-used. If the USSR had developed nuclear weapons 10 years before the USA, the USSR might have become the dominant global power. Powerful computer technology might pose similar risks. Another concern is that deploying the system could have unintended consequences, since it would be difficult to predict what something smarter than us would do. A sufficiently powerful system might also be difficult to control, and so be hard to reverse once implemented. These concerns have been documented by Oxford Professor Nick Bostrom in Superintelligence and by AI pioneer Stuart Russell. Most experts think that better AI will be a hugely positive development, but they also agree there are risks. In the survey we just mentioned, AI experts estimated that the development of high-level machine intelligence has a 10% chance of a “bad outcome” and a 5% chance of an “extremely bad” outcome, such as human extinction.22 And we should probably expect this group to be positively biased, since, after all, they make their living from the technology. Putting the estimates together, if there’s a 75% chance that high-level machine intelligence is developed in the next century, then this means that the chance of a major AI disaster is 5% of 75%, which is about 4%. (Read more about risks from artificial intelligence.) People have raised concern about other new technologies, such as other forms of geo-engineering and atomic manufacturing, but they seem significantly less imminent, so are widely seen as less dangerous than the other technologies we’ve covered. You can see a longer list of existential risks here. What’s probably more concerning is the risks we haven’t thought of yet. If you had asked people in 1900 what the greatest risks to civilisation were, they probably wouldn’t have suggested nuclear weapons, genetic engineering or artificial intelligence, since none of these were yet invented. It’s possible we’re in the same situation looking forward to the next century. Future “unknown unknowns” might pose a greater risk than the risks we know today. Each time we discover a new technology, it’s a little like betting against a single number on a roulette wheel. Most of the time we win, and the technology is overall good. But each time there’s also a small chance the technology gives us more destructive power than we can handle, and we lose everything. Each new technology we develop has both unprecedented potential and perils. Image source. What’s the total risk of human extinction if we add everything together? Many experts who study these issues estimate that the total chance of human extinction in the next century is between 1 and 20%. For instance, an informal poll in 2008 at a conference on catastrophic risks found they believe it’s pretty likely we’ll face a catastrophe that kills over a billion people, and estimate a 19% chance of extinction before 2100.25 Risk At least 1 billion dead Human extinction Number killed by molecular nanotech weapons. 10% 5% Total killed by superintelligent AI. 5% 5% Total killed in all wars (including civil wars). 30% 4% Number killed in the single biggest engineered pandemic. 10% 2% Total killed in all nuclear wars. 10% 1% Number killed in the single biggest nanotech accident. 1% 0.5% Number killed in the single biggest natural pandemic. 5% 0.05% Total killed in all acts of nuclear terrorism. 1% 0.03% Overall risk of extinction prior to 2100 n/a 19% These figures are about one million times higher than what people normally think. In our podcast episode with Will MacAskill we discuss why he puts the risk of extinction this century at around 1%. In his his book The Precipice: Existential Risk and the Future of Humanity, Dr Toby Ord gives his guess at our total existential risk this century as 1 in 6 — a roll of the dice. Listen to our episode with Toby. What should we make of these estimates? Presumably, the researchers only work on these issues because they think they’re so important, so we should expect their estimates to be high (“selection bias”). But does that mean we can dismiss their concerns entirely? Given this, what’s our personal best guess? It’s very hard to say, but we find it hard to confidently ignore the risks. Overall, we guess the risk is likely over 3%. Why helping to safeguard the future could be the most important thing you can do with your life How much should we prioritise working to reduce these risks compared to other issues, like global poverty, ending cancer or political change? At 80,000 Hours, we do research to help people find careers with positive social impact. As part of this, we try to find the most urgent problems in the world to work on. We evaluate different global problems using our problem framework, which compares problems in terms of: Scale – how many are affected by the problem Neglectedness -how many people are working on it already Solvability – how easy it is to make progress If you apply this framework, we think that safeguarding the future comes out as the world’s biggest priority. And so, if you want to have a big positive impact with your career, this is the top area to focus on. In the next few sections, we’ll evaluate this issue on scale, neglectedness and solvability, drawing heavily on Existential Risk Prevention as a Global Priority by Nick Bostrom and unpublished work by Toby Ord, as well as our own research. First, let’s start with the scale of the issue. We’ve argued there’s likely over a 3% chance of extinction in the next century. How big an issue is this? One figure we can look at is how many people might die in such a catastrophe. The population of the Earth in the middle of the century will be about 10 billion, so a 3% chance of everyone dying means the expected number of deaths is about 300 million. This is probably more deaths than we can expect over the next century due to the diseases of poverty, like malaria.26 Many of the risks we’ve covered could also cause a “medium” catastrophe rather than one that ends civilisation, and this is presumably significantly more likely. The survey we covered earlier suggested over a 10% chance of a catastrophe that kills over 1 billion people in the next century, which would be at least another 100 million deaths in expectation, along with far more suffering among those who survive. So, even if we only focus on the impact on the present generation, these catastrophic risks are one of the most serious issues facing humanity. But this is a huge underestimate of the scale of the problem, because if civilisation ends, then we give up our entire future too. Most people want to leave a better world for their grandchildren, and most also think we should have some concern for future generations more broadly. There could be many more people having great lives in the future than there are people alive today, and we should have some concern for their interests. There’s a possibility that human civilization could last for millions of years, so when we consider the impact of the risks on future generations, the stakes are millions of times higher — for good or evil. As Carl Sagan wrote on the costs of nuclear war in Foreign Affairs: A nuclear war imperils all of our descendants, for as long as there will be humans. Even if the population remains static, with an average lifetime of the order of 100 years, over a typical time period for the biological evolution of a successful species (roughly ten million years), we are talking about some 500 trillion people yet to come. By this criterion, the stakes are one million times greater for extinction than for the more modest nuclear wars that kill “only” hundreds of millions of people. There are many other possible measures of the potential loss–including culture and science, the evolutionary history of the planet, and the significance of the lives of all of our ancestors who contributed to the future of their descendants. Extinction is the undoing of the human enterprise. We’re glad the Romans didn’t let humanity go extinct, since it means that all of modern civilisation has been able to exist. We think we owe a similar responsibility to the people who will come after us, assuming (as we believe) that they are likely to lead fulfilling lives. It would be reckless and unjust to endanger their existence just to make ourselves better off in the short-term. It’s not just that there might be more people in the future. As Sagan also pointed out, no matter what you think is of value, there is potentially a lot more of it in the future. Future civilisation could create a world without need or want, and make mindblowing intellectual and artistic achievements. We could build a far more just and virtuous society. And there’s no in-principle reason why civilisation couldn’t reach other planets, of which there are some 100 billion in our galaxy.27 If we let civilisation end, then none of this can ever happen. We’re unsure whether this great future will really happen, but that’s all the more reason to keep civilisation going so we have a chance to find out. Failing to pass on the torch to the next generation might be the worst thing we could ever do. So, a couple of percent risk that civilisation ends seems likely to be the biggest issue facing the world today. What’s also striking is just how neglected these risks are. Why these risks are some of the most neglected global issues Here is how much money per year goes into some important causes:28 Cause Annual targeted spending from all sources (highly approximate) Global R&D $1.5 trillion Luxury goods $1.3 trillion US social welfare $900 billion Climate change >$300 billion To the global poor >$250 billion Nuclear security $1-10 billion Extreme pandemic prevention $1 billion AI safety research $10 million As you can see, we spend a vast amount of resources on R&D to develop even more powerful technology. We also expend a lot in a (possibly misguided) attempt to improve our lives by buying luxury goods. Far less is spent mitigating catastrophic risks from climate change. Welfare spending in the US alone dwarfs global spending on climate change. But climate change still receives enormous amounts of money compared to some of these other risks we’ve covered. We roughly estimate that the prevention of extreme global pandemics receives under 300 times less, even though the size of the risk seems about the same. Research to avoid accidents from AI systems is the most neglected of all, perhaps receiving 100-times fewer resources again, at around only $10m per year. You’d find a similar picture if you looked at the number of people working on these risks rather than money spent, but it’s easier to get figures for money. If we look at scientific attention instead, we see a similar picture of neglect (though, some of the individual risks receive significant attention, such as climate change): Existential risk research receives less funding than dung beetle research. Credit: Nick Bostrom Our impression is that if you look at political attention, you’d find a similar picture to the funding figures. An overwhelming amount of political attention goes on concrete issues that help the present generation in the short-term, since that’s what gets votes. Catastrophic risks are far more neglected. Then, among the catastrophic risks, climate change gets the most attention, while issues like pandemics and AI are the most neglected. This neglect in resources, scientific study and political attention is exactly what you’d expect to happen from the underlying economics, and are why the area presents an opportunity for people who want to make the world a better place. First, these risks aren’t the responsibility of any single nation. Suppose the US invested heavily to prevent climate change. This benefits everyone in the world, but only about 5% of the world’s population lives in the US, so US citizens would only receive 5% of the benefits of this spending. This means the US will dramatically underinvest in these efforts compared to how much they’re worth to the world. And the same is true of every other country. This could be solved if we could all coordinate — if every nation agreed to contribute its fair share to reducing climate change, then all nations would benefit by avoiding its worst effects. Unfortunately, from the perspective of each individual nation, it’s better if every other country reduces their emissions, while leaving their own economy unhampered. So, there’s an incentive for each nation to defect from climate agreements, and this is why so little progress gets made (it’s a prisoner’s dilemma). And in fact, this dramatically understates the problem. The greatest beneficiaries of efforts to reduce catastrophic risks are future generations. They have no way to stand up for their interests, whether economically or politically. If future generations could vote in our elections, then they’d vote overwhelmingly in favour of safer policies. Likewise, if future generations could send money back in time, they’d be willing to pay us huge amounts of money to reduce these risks. (Technically, reducing these risks creates a trans-generational, global public good, which should make them among the most neglected ways to do good.) Our current system does a poor job of protecting future generations. We know people who have spoken to top government officials in the UK, and many want to do something about these risks, but they say the pressures of the news and election cycle make it hard to focus on them. In most countries, there is no government agency that naturally has mitigation of these risks in its remit. This is a depressing situation, but it’s also an opportunity. For people who do want to make the world a better place, this lack of attention means there are lots high-impact ways to help. What can be done about these risks? We’ve covered the scale and neglectedness of these issues, but what about the third element of our framework, solvability? It’s less certain that we can make progress on these issues than more conventional areas like global health. It’s much easier to measure our impact on health (at least in the short-run) and we have decades of evidence on what works. This means working to reduce catastrophic risks looks worse on solvability. However, there is still much we can do, and given the huge scale and neglectedness of these risks, they still seem like the most urgent issues. We’ll sketch out some ways to reduce these risks, divided into three broad categories: 1. Targeted efforts to reduce specific risks One approach is to address each risk directly. There are many concrete proposals for dealing with each, such as the following: Many experts agree that better disease surveillance would reduce the risk of pandemics. This could involve improved technology or better collection and aggregation of existing data, to help us spot new pandemics faster. And the faster you can spot a new pandemic, the easier it is to manage. There are many ways to reduce climate change, such as helping to develop better solar panels, or introducing a carbon tax. With AI, we can do research into the “control problem” within computer science, to reduce the chance of unintended damage from powerful AI systems. A recent paper, Concrete problems in AI safety, outlines some specific topics, but only about 20 people work full-time on similar research today. In nuclear security, many experts think that the deterrence benefits of nuclear weapons could be maintained with far smaller stockpiles. But, lower stockpiles would also reduce the risks of accidents, as well as the chance that a nuclear war, if it occurred, would end civilisation. We go into more depth on what you can do to tackle each risk within our problem profiles: AI safety Pandemic prevention Nuclear security Run-away climate change We don’t focus on naturally caused risks in this section, because they’re much less likely and we’re already doing a lot to deal with some of them. Improved wealth and technology makes us more resilient to natural risks, and a huge amount of effort already goes into getting more of these. 2. Broad efforts to reduce risks Rather than try to reduce each risk individually, we can try to make civilisation generally better at managing them. The “broad” efforts help to reduce all the threats at once, even those we haven’t thought of yet. For instance, there are key decision-makers, often in government, who will need to manage these risks as they arise. If we could improve the decision-making ability of these people and institutions, then it would help to make society in general more resilient, and solve many other problems. Recent research has uncovered lots of ways to improve decision-making, but most of it hasn’t yet been implemented. At the same time, few people are working on the issue. We go into more depth in our write-up of improving institutional decision-making. Another example is that we could try to make it easier for civilisation to rebound from a catastrophe. The Global Seed Vault is a frozen vault in the Arctic, which contains the seeds of many important crop varieties, reducing the chance we lose an important species. Melting water recently entered the tunnel leading to the vault due, ironically, to climate change, so could probably use more funding. There are lots of other projects like this we could do to preserve knowledge. Similarly, we could create better disaster shelters, which would reduce the chance of extinction from pandemics, nuclear winter and asteroids (though not AI), while also increasing the chance of a recovery after a disaster. Right now, these measures don’t seem as effective as reducing the risks in the first place, but they still help. A more neglected, and perhaps much cheaper option is to create alternative food sources, such as those that be produced without light, and could be quickly scaled up in a prolonged winter. Since broad efforts help even if we’re not sure about the details of the risks, they’re more attractive the more uncertain you are. As you get closer to the risks, you should gradually reallocate resources from broad to targeted efforts (read more). We expect there are many more promising broad interventions, but it’s an area where little research has been done. For instance, another approach could involve improving international coordination. Since these risks are caused by humanity, they can be prevented by humanity, but what stops us is the difficulty of coordination. For instance, Russia doesn’t want to disarm because it would put it at a disadvantage compared to the US, and vice versa, even though both countries would be better off if there were no possibility of nuclear war. However, it might be possible to improve our ability to coordinate as a civilisation, such as by improving foreign relations or developing better international institutions. We’re keen to see more research into these kinds of proposals. Mainstream efforts to do good like improving education and international development can also help to make society more resilient and wise, and so also contribute to reducing catastrophic risks. For instance, a better educated population would probably elect more enlightened leaders (cough), and richer countries are, all else equal, better able to prevent pandemics — it’s no accident that Ebola took hold in some of the poorest parts of West Africa. But, we don’t see education and health as the best areas to focus on for two reasons. First, these areas are far less neglected than the more unconventional approaches we’ve covered. In fact, improving education is perhaps the most popular cause for people who want to do good, and in the US alone, receives 800 billion dollars of government funding, and another trillion dollars of private funding. Second, these approaches have much more diffuse effects on reducing these risks — you’d have to improve education on a very large scale to have any noticeable effect. We prefer to focus on more targeted and neglected solutions.

#### Anticipating extinction breeds empathy and entangled care. Distancing ourselves from considering extinction reifies detached elitism.

Offord, 17—Faculty of Humanities, School of Humanities Research and Graduate Studies, Bentley Campus (Baden, “BEYOND OUR NUCLEAR ENTANGLEMENT,” Angelaki, 22:3, 17-25, dml) [ableist language modifications denoted by brackets]

You are steered towards overwhelming and inexplicable pain when you consider the nuclear entanglement that the species Homo sapiens finds itself in. This is because the fact of living in the nuclear age presents an existential, aesthetic, ethical and psychological challenge that defines human consciousness. Although an immanent threat and ever-present danger to the very existence of the human species, living with the possibility of nuclear war has infiltrated the matrix of modernity so profoundly as to paralyse [shut down] our mind-set to respond adequately. We have chosen to ignore the facts at the heart of the nuclear program with its dangerous algorithm; we have chosen to live with the capacity and possibility of a collective, pervasive and even planetary-scale suicide; and the techno-industrial-national powers that claim there is “no immediate danger” ad infinitum.8

This has led to one of the key logics of modernity's insanity. As Harari writes: “Nuclear weapons have turned war between superpowers into a mad act of collective suicide, and therefore forced the most powerful nations on earth to find alternative and peaceful ways to resolve conflicts.”9 This is the nuclear algorithm at work, a methodology of madness. In revisiting Jacques Derrida in “No Apocalypse, Not Now (Full Speed Ahead, Seven Missiles, Seven Missives),”10 who described nuclear war as a “non-event,” it is clear that the pathology of the “non-event” remains as active as ever even in the time of Donald Trump and Kim Jong-un with their stichomythic nuclear posturing.

The question of our times is whether we have an equal or more compelling capacity and willingness to end this impoverished but ever-present logic of pain and uncertainty. How not simply to bring about disarmament, but to go beyond this politically charged, as well as mythological and psychological nuclear algorithm? How to find love amidst the nuclear entanglement; the antidote to this entanglement? Is it possible to end the pathology of power that exists with nuclear capacity? Sadly, the last lines of Nitin Sawhney's “Broken Skin” underscore this entanglement:

Just 5 miles from India's nuclear test site

Children play in the shade of the village water tank

Here in the Rajasthan desert people say

They're proud their country showed their nuclear capability.11

As an activist scholar working in the fields of human rights and cultural studies, responding to the nuclear algorithm is an imperative. Your politics, ethics and scholarship are indivisible in this cause. An acute sense of care for the world, informed by pacifist and non-violent, de-colonialist approaches to knowledge and practice, pervades your concern. You are aware that there are other ways of knowing than those you are familiar and credentialed with. You are aware that you are complicit in the prisons that you choose to live inside,12 and that there is no such thing as an innocent bystander. You use your scholarship to shake up the world from its paralysis, abjection and amnesia; to unsettle the epistemic and structural violence that is ubiquitous to neoliberalism and its machinery; to create dialogic and learning spaces for the work of critical human rights and critical justice to take place. All this, and to enable an ethics of intervention through understanding what is at the very heart of the critical human rights impulse, creating a “dialogue for being, because I am not without the other.”13

Furthermore, as a critical human rights advocate living in a nuclear armed world, your challenge is to reconceptualise the human community as Ashis Nandy has argued, to see how we can learn to co-exist with others in conviviality and also learn to co-survive with the non-human, even to flourish. A dialogue for being requires a leap into a human rights frame that includes a deep ecological dimension, where the planet itself is inherently involved as a participant in its future. This requires scholarship that “thinks like a mountain.”14 A critical human rights approach understands that it cannot be simply human-centric. It requires a nuanced and arresting clarity to present perspectives on co-existence and co-survival that are from human and non-human viewpoints.15

Ultimately, you realise that your struggle is not confined to declarations, treaties, legislation, and law, though they have their role. It must go further to produce “creative intellectual exchange that might release new ethical energies for mutually assured survival.”16 Taking an anti-nuclear stance and enabling a post-nuclear activism demands a revolution within the field of human rights work. Recognising the entanglement of nuclearism with the Anthropocene, for one thing, requires a profound shift in focus from the human-centric to a more-than-human co-survival. It also requires a fundamental shift in understanding our human culture, in which the very epistemic and rational acts of sundering from co-survival with the planet and environment takes place. In the end, you realise, as Raimon Panikkar has articulated, “it is not realistic to toil for peace if we do not proceed to a disarmament of the bellicose culture in which we live.”17 Or, as Geshe Lhakdor suggests, there must be “inner disarmament for external disarmament.”18 In this sense, it is within the cultural arena, our human society, where the entanglement of subjective meaning making, nature and politics occurs, that we need to disarm.

It is 1982, and you are reading Jonathan Schell's The Fate of the Earth on a Sydney bus. Sleeping has not been easy over the past few nights as you reluctantly but compulsively read about the consequences of nuclear war. For some critics, Schell's account is high polemic, but for you it is more like Rabindranath Tagore: it expresses the suffering we make for ourselves. What you find noteworthy is that although Schell's scenario of widespread destruction of the planet through nuclear weaponry, of immeasurable harm to the bio-sphere through radiation, is powerfully laid out, the horror and scale of nuclear obliteration also seems surreal and far away as the bus makes its way through the suburban streets.

A few years later, you read a statement from an interview with Paul Tibbets, the pilot of “Enola Gay,” the plane that bombed Hiroshima. He says, “The morality of dropping that bomb was not my business.”19 This abstraction from moral responsibility – the denial of the implications on human life and the consequences of engagement through the machinery of war – together with the sweeping amnesia that came afterwards from thinking about the bombing of Hiroshima, are what make you become an environmental and human rights activist. You realise that what makes the nuclear algorithm work involves a politically engineered and deeply embedded insecurity-based recipe to elide the nuclear threat from everyday life. The spectre of nuclear obliteration, like the idea of human rights, can appear abstract and distant, not our everyday business. You realise that within this recipe is the creation of a moral tyranny of distance, an abnegation of myself with the other. One of modernity's greatest and earliest achievements was the mediation of the self with the world. How this became a project assisted and shaped through the military-industrial-technological-capitalist complex is fraught and hard to untangle. But as a critical human rights scholar you have come to see through that complex, and you put energies into challenging that tyranny of distance, to activate a politics, ethics and scholarship that recognises the other as integral to yourself. Ultimately, even, to see that the other is also within.20

#### Only constructive policy debates nurture information literacy necessary for every model of politics – the process of sifting through evidence and subjecting positions to researched scrutiny is essential to managing emerging crises

Leek 16 [Danielle R. Leek, professor of communications at Grand Valley State University, “Policy debate pedagogy: a complementary strategy for civic and political engagement through service-learning,” Communication Education, 65:4, 399-405]

Through policy debate, students can develop information literacy and learn how to make critical arguments of fact. This experience is politically empowering for students who will also build confidence for political engagement. Information literacy While there are many definitions of information literacy, the term generally is understood to mean that a student is “able to recognize when information is needed , and have the ability to locate, evaluate, and use effectively the information needed” for problem- solving and decision-making (Spitzer, Eisenberg, & Lowe, 1998, p. 19). Information exists in a variety of forms, in visual data, computer graphics, sound-recordings, film, and photographs. Information is also constructed and disseminated through a wide range of sources and mediums. Therefore, “information literacy” functions as a blanket term which covers a wide range of more specific literacies. Critiques of service-learning’s knowl- edge-building power, such as those articulated by Eby (1998) and Colby (2008), are chal- lenging both the emphasis the pedagogy places on information gained through experience and the limited scope of political information students are exposed to in the process. Policy debate can augment a student’s civic and political learning by fostering extended information literacies. Snider and Schnurer (2002) identify policy debate as an especially research intensive form of oral discussion which requires extensive time and commitment to learn the dimensions of a topic. Understanding policy issues calls for contemplating a range of materials, from traditional news media publications to court proceedings, research data, and institutional propaganda. Moreover, the nature of policy debate, which involves public presentation of arguments on two competing sides of a question, motivates students to go beyond basic information to achieve a more advanced level of expertise and credibility on a topic (Dybvig & Iverson, n.d.). This type of work differs from traditional research projects where students gather only the materials needed to support their argument while neglecting contrary evidence. Instead, the “debate research process encourages a kind of holistic approach, where students need to pay attention to the critics of their argument because they will have to respond to those attacks” (Snider & Schnurer, 2002, p. 32). In today’s attention economy, cultivating a sensibility for well- rounded information gathering can also aid students in recognizing when and how the knowledge produced in their social environments can be effectively translated to specific contexts. The “cultural shift in the production of data” which has followed the emergence of Web 2.0 technologies means that all students are likely “prosumers”—that is, they consume, produce, and coproduce information online all at the same time (Scoble, 2011). Coupling service- learning with policy debate calls on students to apply information across registers of public engagement, including their own service efforts and their own public argumentation, in and outside of their debates. Information is used in the service experience, which in turn, informs the use of information in debates, where students then produce new information through their argumentation. The process is what Bruce (2008) refers to “informed learning,” or “using information in order to learn.” When individuals move from learning how to gather materials for a task to a cognitive awareness and understanding of how the information-seeking process shapes their learning, they are engaged in informed learning. Through this process, students can come to recognize that information management and credibility is deeply disciplinary and historically con- textual (Bruce & Hughes, 2010). This understanding, combined with practical experience in locating information, is a critical missing element in contemporary political engage- ment. Over 20 years ago, Graber (1994) argued that one of the biggest obstacles to political engagement was not apathy, but a gap between the way news media presents information during elections, and the type of information voters need and will listen to during electoral campaigns. The challenge extends beyond elections into policy-making, especially as younger generations continue to revise their notions of citizenship away from institutional politics towards more social forms of activism (Bennett, Wells, & Freelon, 2011). For stu- dents to effectively practice more expressive forms of citizenship they need experience managing the breadth of information available about issues they care about. As past research indicates a strong correlation between service-learning experience and the motiv- ation and desire for post-graduation service, it seems likely that students who debate about policy issues related to service areas will continue their informed learning practices after they have left the classroom (Soria & Thomas-Card, 2014). Arguing facts In addition to building information literacies, students who combine policy debate with service-learning can practice “politically relevant skills,” which will help them have confidence for political engagement in the future. As Colby (2008) explains, this confidence should be tempered by tolerance for difference and differing opinions. On the surface, debating about institutional politics might seem counterintuitive to this goal. Politicians and the press have a credibility problem among college-aged students, and this leaves younger generations less inclined to feel obligated to the state or to look to traditional modes of policy- making for social change (Bennett et al., 2011; Manning & Edwards, 2014). This lack of faith in government and media outlets also makes political argument more difficult (Klumpp, 2006). Whereas these institutions once served as authoritative and trustworthy sources of information, the credibility of legislators and journalists has decreased over the last 40 years or so. Today, politicians and pundits are viewed as political actors interested in spectacle, power, and profit rather than truth-seeking or the common good. While some political controversies are rooted in competing values, Klumpp (2006) explains that arguments about policy are more often based in fact. Indeed, when engaged in public arguments over questions of policy, people tend to “invoke the authority of facts to support their positions.” Likewise, “the governmental sphere has developed elaborate legal and deliberative processes in recognition of the power of facts as the basis for a decision.” Yet, while shared values are often quickly agreed upon, differences over fact are more difficult to resolve. Without credible institutions of authority that can disseminate facts, public deliberation requires more time, information-gathering, evaluation, and reasoning. The Bush administration’s decision to take military action in Iraq, for example, was presumably based on the “fact” that Saddam Hussein had acquired weapons of mass destruction. This has now become a classic example of poor policy-making grounded in faulty factual evidence. This shortcoming is precisely why policy debate is a valuable complement to service- learning activities. Not only can students use their developing literacies to better understand social problems, they can also learn to access a broader range of knowledge sources, thereby mitigating the absence of fact-finding from traditional institutions. Fur- thermore, policy advocacy gives students experience testing the reasoning underlying claims of fact. Issues of source credibility, analogic comparisons, and data analysis are three examples of the type of critical thinking skills that students may need to apply in order to engage a question of policy (Allen, Berkowitz, Hunt, & Louden, 1999). While the effect may be to undermine government action in some instances, in others students will gain a better understanding of when and where institutional activities can work to make change. As students gain knowledge about the relationship between institutional structures and the communities they serve, they grow confidence in their ability to engage in future conversations about policy issues. Zwarensteyn’s (2012) research high- lights these sorts of effects in high school students who engage in competitive policy debate. Zwarensteyn theorizes that even minimal increases in technical knowledge about politics can translate to significant increases in a student’s sense of self-efficacy. Many students start off feeling very insecure when it comes to their mastery of insti- tutional politics; policy debate helps overcome that insecurity. Moreover, because training in policy debate encourages students to address issues as arguments rather than partisan positions, it encourages them to engage policy-making without the hostility and incivility that often characterizes today’s political scene. Indeed, it is precisely that perceived hostility and incivility that prompts many young people to avoid politics in the first place. I do not mean to imply that students who debate about their service-learning experi- ences will draw homogenous conclusions about policies. Quite the contrary. Students who engage in service-learning still bring their personal visions and history to bear on their debates. As a result, students will often have very different opinions after engaging in a shared debate experience. More importantly, the practice of debating should operate to particularize students’ knowledge of community partners and clients, working against the destructive generalizations and power dynamics that can result when students feel privileged to serve less fortunate “others.” For civic and political engagement through service-learning to be meaningful and productive, it must do more to challenge students’ concepts of the homogenous “we” who helps “them.” Seligman (2013) argues that this civic spirit can be cultivated through the core pedagogical principle of a “shared practice,” which emphasizes the application of knowledge to purpose (p. 60). Policy debate achieves this outcome by calling on students to consider and reconsider their understanding of themselves, institutions, community, and policy every time the question “should” may arise. As Seligman writes: ... the orientation of thought to purpose (having an explanation rest at a place, a purpose) is of extreme importance. We must recognize that the orientation of thought to purpose is to recognize moving from providing a knowledge of, to providing a knowledge for. This means that in the context of encountering difference it is not sufficient to learn about (have an idea of) the other, rather it means to have ideas for certain joint purposes—for a set of “to-does.” A purpose becomes the goal towards which our explanations should be oriented. (p. 61) Put another way, policy debate challenges students “to maintain a sense of doubt and to carry on a systematic and protracted inquiry” in the process of service-learning itself (Seligman, 2013, p. 60). This is precisely the type of complex, ongoing, reflective inquiry that John Dewey had in mind. Political engagement through policy debate This essay began with a discussion of the growing attention to civic engagement programs in higher education. The national trend is to accomplish higher levels of student civic responsibility during and after their time in college through service-learning experiences tied to curricular learning objectives. A challenge for service-learning scholars and teachers is to recognize a distinction between civic activities that are accomplished by helping others and political activities that require engagement with the collective institutional structures and processes that govern social life. Both are necessary for democracy to thrive. Policy debate pedagogy can help service-learning educators accomplish these dual objectives. To call policy debate a pedagogy rather than just a style of debate is purposeful. A pedagogy is a praxis for cultivating learning in others. The pedagogy of service-learning helps students to know and engage social conditions through physical engagement with their environments and communities. Policy debate pedagogy leads students to know and engage these same social conditions while also challenging them to apply their knowledge for the purpose of political advocacy. These pedagogies are natural compliments for cul- tivating student learning. Therefore, future studies should explore how well service-learn- ing combined with policy debate can resolve concerns that policy debate alone does not go far enough to invest students with political agency (Mitchell, 1998). The present analysis suggests the potential for such an outcome is likely. Moreover, research is clear that the civic effects of service-learning as an instructional method are improved simply by increasing the amount of time spent on in-class discus- sion about the service work students do (Levesque-Bristol, Knapp, & Fisher, 2010). Policy debates related to students’ service can accomplish this goal and more. Policy debates can also facilitate the political learning students need to build their political efficacy and capacity for political engagement. Through informed learning about the political process—especially in the context of service practice—students develop literacies that will extend beyond the classroom. Using this knowledge in reasoned public argument about policy challenges invites students to move beyond cynical disengagement towards a productive recognition of their own potential voice in the political world. Policy debate pedagogy brings unique elements to the process of political learning. By emphasizing the conditional and dynamic nature of political arguments and processes, debates can work to relieve students of the misconception that there is a single “right answer” for questions about policy-making and politics, especially during election time. The communication perspective on policy debates also highlights students’ collective involvement in the ever-changing field of political terms, symbols, and meanings that constitute interpretations of our social world. In fact, the historical roots of the term “communication” seem to demand that speech and debate educators call for such emphasis on political learning. “To make common,” the Latin interpretation of communicare, situ- ates our discipline as the heart of public political affairs (Peters, 1999). Connecting policy debate to service-learning helps highlight the common purpose of these approaches in efforts to promote civic engagement in higher education.

#### Frame the 1AC through solvency, not impacts – any attempt to filter offense through the RotB or the speech act of the aff is an arbitrary goalpost that only serves to insulate it from criticism and nuanced testing – forcing us to negate the efficacy of personal strategies is at best impossible and at worst violent– no warrant for how the aff spills up to impact structures of politics writ large or out of debate means you vote neg on presumption.

### Mining turn

#### Private companies are key to a growing space mining sector – investors, profitability, and market demand.

Krishnan 20 [C A Krishnan, 8-6-2020, "Space mining: Just around the corner?," Week, <https://www.theweek.in/news/sci-tech/2020/08/06/Space-mining-Just-around-the-corner.html> [accessed 12-6-21] lydia

A Mars mission carrying 100 metric tons cargo in 2022 followed by a manned mission by 2024 are the immediate milestones of Elon Musk’s SpaceX plan which aims to create a self sustaining Mars city by 2050. Just a few decades back this would have sounded as fantasy, but today it looks as if this time frame may actually be bettered. Space missions are set to undergo revolutionary changes and Elon Musk’s vision and timelines are indicators of this. Space is increasingly being seen as a treasure trove of precious minerals and also a place for future human habitation beyond the earth. Global private space industry investors believe that space mining has the potential to shape and define the 21st Century. NASA estimates that the 'Asteroid belt’ holds minerals worth quintillion of dollars. American astrophysicist Neil Degrasse Tyson believes, “The first trillioners will be those who mine asteroids”. The “Main Asteroid Belt” is located between the orbits of Mars and Jupiter, about 450 to 650 million Kilometers from earth, with million asteroids in it. Over the decades, apart from Moon and Mars, governments and private agencies have been carrying out extensive research and studying asteroids for their composition, possibility of mining them and their mining value —Asteriod ‘Bennu’ has been assessed at $670 million and asteroid ‘2011 UW158’ at $ 5.7 trillion. Transportation of the mined resources for utilisation, however, poses major hurdles. A ‘BBC Future’ report by Sarah Cruddas puts the cost of shipping a ton of water into space at about $ 50 million. As per Chris Lewicki, president of Planetary Resources, an asteroid mining company, it takes more energy to escape the first 300 kilometers from the Earth than the next 300 million kilometers. Similarly, bringing back anything more than a few kilograms of samples from space to the Earth would be even more complex in terms of logistics. To start with, therefore, global space industry investors are focusing on keeping mined space resources in space itself for ‘in situ resource utilisation’. Availability of water on the Moon, Mars and asteroids offer very attractive prospects; apart from being crucial for supporting life and growing food, it also opens the possibility of using its constituents, hydrogen and oxygen, for making rocket fuel. Today, the possibility of manufacturing tools and even building habitats on Moon or Mars with the help of 3D printers using iron, nickel, cobalt, gold, platinum, and iridium etc which are available on the Moon, Mars and asteroids seem within reach. Researchers are working on using regolith, the weathered rock particles found on lunar surface for making moon bricks using 3D printers. These bricks will form the basic construction material for the first moon station and even the first moon hotel. Space industry players believe that an investment of $ 4 billion in water mining in space can generate annual revenue worth about $2.4 billion. Similarly, there is a new community of customers who are already looking for buying propellant in space. American space launch provider, United Launch Alliance (ULA), a Lockheed Martin and Boeing joint venture that provides launch rockets, has made it known that, ULA is willing to pay about $ 3000 a Kg for propellant in low earth orbit. Fast paced developments are taking place in the field of space mining technology with private players in the lead. Optical mining using concentrated sunlight, robotics, automated mining applications, advanced drilling machines etc are just a few examples. Participation of private players has reduced the investment burden and greatly enhanced the width and pace of innovation. It is believed that launch of the first asteroid mining vehicle as well as setting up of the first fuelling stations on the Moon and in low earth orbit could become a reality within a decade. Japanese mission ‘Hayabusa’ was the first to bring samples from an asteroid to earth in 2010. ‘Hayabusa - 2’ made its rendezvous with the near earth asteroid ‘162173 RYUGU’ in June 2018, left the asteroid after collecting samples in November 2019 and will be back on earth on December 6, 2020. Similarly the NASA mission OSIRIS-REx, costing about $ 1 billion, launched in 2016 is due to return to earth with samples of asteroid ‘101955 Bennu’ on September 24, 2023. The latest US space mission, ‘Perseverance’ launched on July 30, 2020 will land on Mars on February 18, 2021. It will be using a helicopter on Mars, set to be the first use of a helicopter outside the earth. Apart from collecting samples from Mars and search for signs of habitable conditions on Mars, it will also test the possibility of manufacturing molecular oxygen from the carbon dioxide-rich Mars atmosphere. Beyond the technological capability, there are, however, complex legal issues. While making fuel and water in space and its ‘in situ resource utilisation’ may pass the scrutiny, commercial exploitation of space through minerals mining, tourism, real estate etc may prove hugely contentious in terms of international legal framework for space. The current legal frameworks were adopted when space activities were entirely within the domain of national governments and were confined to research alone. But with the nature of space activities moving from purely research activities to military applications to commercial activities and with the entry of private players and a new community of consumers in space, the vintage outer space treaty has been rendered grossly inadequate; vagueness of the treaty does not cater for the ‘new types of uses’ or the ‘new users’ of space. Louis de Gouyon Matignon, in a thesis on the subject observed that “some states have already taken the absence of express prohibition as a sign that the utilisation of space resources is permissible, and both the USA and Luxembourg recently adopted national legislations expressly allowing it”. This has, however, triggered a response from the international community denouncing such unilateral initiatives and recommending a collective approach on the lines of the laws for high seas and deep sea bed. Whether a widely acceptable new space treaty comes through or not, Space mining is a reality and the early entrants are likely to retain monopoly and huge economic advantages for a very long time.

#### Space mining is key to sustain global resources -- otherwise, we mine terrestrially on native land.

MacWhorter 16 [Kevin; J.D. Candidate, William & Mary Law School, "Sustainable Mining: Incentivizing Asteroid Mining in the Name of Environmentalism", William & Mary Environmental Law and Policy Review, Vol 40, Issue 2, Article 11, <https://scholarship.law.wm.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1653&context=wmelpr>] brett

A. Rare Element Mining on Earth

In the next sixty years, scientists predict that certain elements crucial to modern industry such as platinum, zinc, copper, phosphorous, lead, gold, and indium could be exhausted on Earth. 12 Many of these have no synthetic alternative, unlike chemical elements such as oil or diamonds.13 Liquid-crystal display (LCD) televisions, cellphones, and laptops are among the various consumer technologies that use precious metals.14Further, green technologies including wind turbines, solar panels, and catalytic converters require these rare elements. 15 As demand rises for both types of technologies, and as reserves of rare metals fall, prices skyrocket.16 Demand for nonrenewable resources creates conflict, and consumerism in rich countries results in harsh labor treatment for poorer countries.17

In general, the mining industry is extremely destructive to Earth’s environment.18 In fact, depending on the method employed, mining can destroy entire ecosystems by polluting water sources and contributing to deforestation.19 It is by its nature an unsustainable practice, because it involves the extraction of a finite and non-renewable resource.20 Moreover, by extracting tiny amounts of metals from relatively large quantities of ore, the mining industry contributes the largest portion of solid wastes in the world.21 The Environmental Protection Agency (EPA) describes the industry as the source of more toxic and hazardous waste than any other industrial sector [in the United States], costing billions of dollars to address the public health and environmental threats to communities. 22 Poor regulations and oxymoronic corporate definitions of sustainability, however, make it unclear as to just how much waste the industry actually produces.23

Platinum provides an excellent case study of the issue, because it is an extremely rare and expensive metal—an ore expected to exist in vast quantities in asteroids.24 Further, production of platinum has increased sharply in the past sixty years in order to keep up with growing demand for use in new technologies.25 In fact, despite their high costs, platinum group metals are so useful that [one] of [four] industrial goods on Earth require them in production. 26 Scholars do not expect demand to slow any time soon.27 Among other technologies, industries use platinum in products such as catalytic converters, jewelry production, various catalysts for chemical processing, and hydrogen fuel cells.28 While there is no consensus on how far the Earth’s reserves of platinum will take humanity, many scientists agree that platinum ore reserves will deplete in a relatively short amount of time.29

With the rate of mining at an all-time high,30 it is increasingly clear that historical patterns of mineral resources and development cannot simply be assumed to continue unaltered into the future. 31 The platinum mining industry, however, has a strong incentive to increase its rate of extraction as profits grow with the rate of demand. Without any alternative, this destructive practice will continue into the future.32

So-called platinum-group metal (PGM) ores are mined through underground or open cut techniques.33 Due to these practices, all but a very small fraction of the mined platinum ore is disposed of as solid waste.34 The environmental consequences of platinum production are thus quite significant, but like the mining industry in general, the amount of waste is typically under-reported.35

While this is due to high production levels at the moment, those levels will only increase given the estimated future demand of platinum.36 In spite of the negative consequences, mining continues unabated because it is economically important to many areas.37 The future environmental costs provide a major challenge in creating a sustainable system. Relegating at least some mining companies to near-Earth asteroids would reduce the negative effects of future mining levels on Earth. The economic benefits of mining need not be sacrificed for the sake of the environment.38

#### Terrestrial resource scarcity goes nuclear---we outweigh on timeframe, just the prospect of shortages triggers escalation.

Klare 13 [Michael T., The Nation’s defense correspondent, is professor emeritus of peace and world-security studies at Hampshire College and senior visiting fellow at the Arms Control Association in Washington, D.C. His newest book, All Hell Breaking Loose: The Pentagon’s Perspective on Climate Change, will be published this fall. 2013. “How Resource Scarcity and Climate Change Could Produce a Global Explosion,” <https://www.thenation.com/article/archive/how-resource-scarcity-and-climate-change-could-produce-global-explosion/>] brett

Brace yourself. You may not be able to tell yet, but according to global experts and the US intelligence community, the earth is already shifting under you. Whether you know it or not, you’re on a new planet, a resource-shock world of a sort humanity has never before experienced.

Two nightmare scenarios—a global scarcity of vital resources and the onset of extreme climate change—are already beginning to converge and in the coming decades are likely to produce a tidal wave of unrest, rebellion, competition and conflict. Just what this tsunami of disaster will look like may, as yet, be hard to discern, but experts warn of “water wars” over contested river systems, global food riots sparked by soaring prices for life’s basics, mass migrations of climate refugees (with resulting anti-migrant violence) and the breakdown of social order or the collapse of states. At first, such mayhem is likely to arise largely in Africa, Central Asia and other areas of the underdeveloped South, but in time, all regions of the planet will be affected.

To appreciate the power of this encroaching catastrophe, it’s necessary to examine each of the forces that are combining to produce this future cataclysm.

Resource Shortages and Resource Wars

Start with one simple given: the prospect of future scarcities of vital natural resources, including energy, water, land, food and critical minerals. This in itself would guarantee social unrest, geopolitical friction and war.

It is important to note that absolute scarcity doesn’t have to be on the horizon in any given resource category for this scenario to kick in. A lack of adequate supplies to meet the needs of a growing, ever more urbanized and industrialized global population is enough. Given the wave of extinctions that scientists are recording, some resources—particular species of fish, animals and trees, for example—will become less abundant in the decades to come, and may even disappear altogether. But key materials for modern civilization like oil, uranium and copper will simply prove harder and more costly to acquire, leading to supply bottlenecks and periodic shortages.

Oil—the single most important commodity in the international economy—provides an apt example. Although global oil supplies may actually grow in the coming decades, many experts doubt that they can be expanded sufficiently to meet the needs of a rising global middle class that is, for instance, expected to buy millions of new cars in the near future. In its 2011 World Energy Outlook, the International Energy Agency claimed that an anticipated global oil demand of 104 million barrels per day in 2035 will be satisfied. This, the report suggested, would be thanks in large part to additional supplies of “unconventional oil” (Canadian tar sands, shale oil and so on), as well as 55 million barrels of new oil from fields “yet to be found” and “yet to be developed.”

However, many analysts scoff at this optimistic assessment, arguing that rising production costs (for energy that will be ever more difficult and costly to extract), environmental opposition, warfare, corruption and other impediments will make it extremely difficult to achieve increases of this magnitude. In other words, even if production manages for a time to top the 2010 level of 87 million barrels per day, the goal of 104 million barrels will never be reached and the world’s major consumers will face virtual, if not absolute, scarcity.

Water provides another potent example. On an annual basis, the supply of drinking water provided by natural precipitation remains more or less constant: about 40,000 cubic kilometers. But much of this precipitation lands on Greenland, Antarctica, Siberia and inner Amazonia where there are very few people, so the supply available to major concentrations of humanity is often surprisingly limited. In many regions with high population levels, water supplies are already relatively sparse. This is especially true of North Africa, Central Asia and the Middle East, where the demand for water continues to grow as a result of rising populations, urbanization and the emergence of new water-intensive industries. The result, even when the supply remains constant, is an environment of increasing scarcity.

Wherever you look, the picture is roughly the same: supplies of critical resources may be rising or falling, but rarely do they appear to be outpacing demand, producing a sense of widespread and systemic scarcity. However generated, a perception of scarcity—or imminent scarcity—regularly leads to anxiety, resentment, hostility and contentiousness. This pattern is very well understood, and has been evident throughout human history.

In his book Constant Battles, for example, Steven LeBlanc, director of collections for Harvard’s Peabody Museum of Archaeology and Ethnology, notes that many ancient civilizations experienced higher levels of warfare when faced with resource shortages brought about by population growth, crop failures or persistent drought. Jared Diamond, author of the bestseller Collapse, has detected a similar pattern in Mayan civilization and the Anasazi culture of New Mexico’s Chaco Canyon. More recently, concern over adequate food for the home population was a significant factor in Japan’s invasion of Manchuria in 1931 and Germany’s invasions of Poland in 1939 and the Soviet Union in 1941, according to Lizzie Collingham, author of The Taste of War.

Although the global supply of most basic commodities has grown enormously since the end of World War II, analysts see the persistence of resource-related conflict in areas where materials remain scarce or there is anxiety about the future reliability of supplies. Many experts believe, for example, that the fighting in Darfur and other war-ravaged areas of North Africa has been driven, at least in part, by competition among desert tribes for access to scarce water supplies, exacerbated in some cases by rising population levels.

“In Darfur,” says a 2009 report from the UN Environment Programme on the role of natural resources in the conflict, “recurrent drought, increasing demographic pressures, and political marginalization are among the forces that have pushed the region into a spiral of lawlessness and violence that has led to 300,000 deaths and the displacement of more than two million people since 2003.”

Anxiety over future supplies is often also a factor in conflicts that break out over access to oil or control of contested undersea reserves of oil and natural gas. In 1979, for instance, when the Islamic revolution in Iran overthrew the Shah and the Soviets invaded Afghanistan, Washington began to fear that someday it might be denied access to Persian Gulf oil. At that point, President Jimmy Carter promptly announced what came to be called the Carter Doctrine. In his 1980 State of the Union Address, Carter affirmed that any move to impede the flow of oil from the Gulf would be viewed as a threat to America’s “vital interests” and would be repelled by “any means necessary, including military force.”

In 1990, this principle was invoked by President George H.W. Bush to justify intervention in the first Persian Gulf War, just as his son would use it, in part, to justify the 2003 invasion of Iraq. Today, it remains the basis for US plans to employ force to stop the Iranians from closing the Strait of Hormuz, the strategic waterway connecting the Persian Gulf to the Indian Ocean through which about 35 percent of the world’s seaborne oil commerce passes.

Recently, a set of resource conflicts have been rising toward the boiling point between China and its neighbors in Southeast Asia when it comes to control of offshore oil and gas reserves in the South China Sea. Although the resulting naval clashes have yet to result in a loss of life, a strong possibility of military escalation exists. A similar situation has also arisen in the East China Sea, where China and Japan are jousting for control over similarly valuable undersea reserves. Meanwhile, in the South Atlantic Ocean, Argentina and Britain are once again squabbling over the Falkland Islands (called Las Malvinas by the Argentinians) because oil has been discovered in surrounding waters.

By all accounts, resource-driven potential conflicts like these will only multiply in the years ahead as demand rises, supplies dwindle and more of what remains will be found in disputed areas. In a 2012 study titled Resources Futures, the respected British think-tank Chatham House expressed particular concern about possible resource wars over water, especially in areas like the Nile and Jordan River basins where several groups or countries must share the same river for the majority of their water supplies and few possess the wherewithal to develop alternatives. “Against this backdrop of tight supplies and competition, issues related to water rights, prices, and pollution are becoming contentious,” the report noted. “In areas with limited capacity to govern shared resources, balance competing demands, and mobilize new investments, tensions over water may erupt into more open confrontations.”

### AT: Ontology

#### Ontologizing indigeneity totalizes and disempowers resistance.

Rosenow, 19—Senior Lecturer in International Relations at Oxford Brookes University (Doerthe, “Decolonising the Decolonisers? Of Ontological Encounters in the GMO Controversy and Beyond,” Global Society, 33:1, 82-99, dml)

Despite the force and importance of this argument, I have felt slightly uneasy when reading those conclusions. Focusing on radical ontological difference can easily lead to a romanticised reification of other peoples’ difference that is in danger of ignoring actual political struggles and demands on the ground. As Cusicanqui argues, those struggles might very well emerge out of an “indigenous modernity”, rather than an insistence on the right to one’s difference. By this she means that some Indigenous people aim to formulate a hegemonic vision for how to structure a society that is valid for everyone (Indigenous AND non-Indigenous): they work for a society that is in their “image and likeness”, and to use modern notions such as “citizenship” for this purpose, rather than rejecting the latter as irreconcilable with one’s own world.39 By contrast, some North American Indigenous intellectuals call for an Indigenous “resurgence” that, rather than seeking hegemony, altogether turns away from seeking recognition by wider (colonial) “society”. As Leanne Betasamosake Simpson points out, in such “resurgent mobilization … there is virtually no room for white people”. 40

But my unease was also emerging from something else, which is what I want to focus on in this article: the problem that encounters and conflicts are yet again made sense of within overarching structures of knowledge production rather than cultivation (despite the intention to do otherwise). As de la Cadena herself makes clear in the quotation above, what is encountered as “different” is inevitably described “in forms that I could understand” (my emphasis)—even whilst simultaneously recognising that one’s description does not capture what the encountered practices actually do. Sense-making, for de la Cadena, takes place at what could be called two levels: At a first level, there is the inevitable process of making sense of an alienating affective experience on the spot, from within one’s own framework of understanding the world. At a second level, then, de la Cadena attempts to make legible her grappling and not-understanding in the context of a book for an academically literate and interested audience—in other words, in the writing-up of her ethnographic research.

In Rojas’ and Blaney and Tickner’s case, given that their articles do not aim to make an empirical contribution, sense-making takes place at what could be called a third level: what is drawn upon is the understanding that emerged out of the ethnographic work of others, which is brought into conversation with various bodies of theoretical work in order to make a conceptual contribution. This takes place via the coining of central concepts and the outlining of all-encompassing frameworks that are meant to help us understand the analytical, normative and political consequences of their argument for scholarly work more broadly. The ontological encounters of others are used to delineate the merits of ontological encounters in general, in IR and beyond. This objective leads to a particular way of developing and structuring a generic argument that makes it difficult to move beyond sense-making frameworks that are necessarily geared towards settling all those unsettling and disconcerting experiences that were the focus of the articles in the first place.

This is also the problem of some central decolonial work. Drawing on Edouard Glissant, Mignolo, for example, critiques the “requirement of transparency” that forms the basis for understanding in Western social science scholarship. He argues for the “right to opacity” of those located on the other side of the colonial difference.41 But this claim sits at odds with his simultaneous desire to write a new, all-encompassing history of “the modern/colonial world system”. 42 And like in Rojas’ and Blaney and Tickner’s articles, terms such as “pluriversality”43 or “diversality”44 are coined in order to have a (one!) concept for a similarly all-encompassing solution to domination. While de la Cadena is critical of her own “anxiety to understand coherently (with which I meant clearly and without contradiction”), and while she points out how this “was often out of place”, 45 Mignolo as well as Rojas and Blaney and Tickner seek to place such anxiety in yet another coherent framework that holds everything together.

The question arises whether this can be any different in scholarly work that is not directly based on ethnographic research itself, and which can therefore not lay claim to a direct experience of ontological controversies. This has become an important question for my own (likewise third-level) work on anti-GMO activism. My work to date has primarily aimed at making a conceptual contribution, and has relied on a conversation between the ethnographic research of others and various bodies of conceptual work, including decolonial and “ontological turn” literature.46

But as I have already indicated in relation to de la Cadena’s work, when writing up their research for academic purposes, even those who have directly experienced ontological encounters find it hard to resist the tendency to conclude their work with stringent, overarching, coherent conclusions that the Westerneducated reader can grasp and “take home”. In the next section, I will draw on two anthropological ethnographic texts that are significant for research on the GMO controversy to show how this works. The two texts that will be analysed in the next section engage with the GMO controversy in Paraguay and Mexico respectively, and they have stood out for me in the way they manage to convey a sense of unease and grappling with ontological encounters and conflicts. However, as the next section will show, they as well end up providing a framework and conclusions that can accommodate and make sense of the encountered ontological difference.

3. Ontological Encounters in the GMO Controversy

According to Susana Carro-Ripalda and Marta Astier, much of the research that is carried out in relation to the question of what smallholder producers in the Global South truly think of (and say about) agricultural biotechnology is unable to grasp the “ontological incompatibility” that exists between the experienced human/nonhuman relations in small-scale agriculture on the one hand, and the logic that underlies genetic engineering (GE) on the other.47 This is precisely because most social research is itself grounded in the crucial modern/colonial nature-culture divide: the former can only be known through scientific means, while the latter can be known through the study of social/cultural/political practices. Knowledge about nature is about establishing “facts”, which are either true or false (i.e. nature as “one” is either correctly or incorrectly represented), while knowledge about culture is about studying meaning, which is necessarily (due to the existence of different cultures) multiple.

The question of whether GMOs do or do not pose a “factual” danger consequently lies outside of the remit of the social sciences, which therefore focus on the social dimension of statements that are made about nature. But as Kregg Hetherington’s reflections on his own anthropological research journey in Paraguay make clear, this tacit signing-up to modern ontology can lead to difficulties in understanding the reality of the people one is interested in.48 Coming from a position in which he took for granted the scientific distinction between (proven) “fact” and “error”, Hetherington explains how he “translate[d]” the claims of the leader of a local peasant movement49 (Antonio) about the truth of (GM) soy “killer beans” into something else:

Until this point, I had approached ethnography as an extended discussion with and about humans, and I was less interested in beans than I was with what Antonio said about them … To be blunt, Antonio kept pointing at the beans, and I kept looking at him … I was comfortable saying that this was a figure of speech, a kind of political rhetoric, or even to claim that this is what Antonio believed, all of which explicitly framed ‘la soja mata’ (soy kills) as data for social analysis, rather than analysis itself worthy of response.50

However, Hetherington points out that not believing in the truth of the killer bean did not prevent him from “participating in Antonio’s knowledge practices”. 51 Becoming involved in the anti-soy bean activism of the peasants, Hetherington became “part of the situation” that made the killer bean turn into a crucial agent in a court case that was brought against two soy farmers for the murder of two activist peasants. As a result, killer beans became transformed into a matter of national concern. Crucially for Hetherington, participation involved more than joining the situation in spite of his lack of belief: it led to him becoming immersed in a relation with both peasants and beans that started to have a physical impact on him—in de la Cadena’s words, he indeed became “partially connected”: 52

Beans didn’t scare me at first. Indeed, as a foreigner to the situation that gives rise to killer beans (a Canadian no less), giant fields of soy were a familiar, even a comforting sight. But it took only a few months with Antonio for me to start feeling the menace from those fields. Soon, the sweetish smell of glyphosate, recently applied, and especially the corpselike smell of 2, 4-D mixed with Tordon, could ruin my appetite and make me expect to see people emerge from their homes to show me pustules on their legs and stomachs.53

Similar observations are also found in Carro-Ripalda and Astier’s contribution to the 2014 Agriculture and Human Values symposium on the challenges of making smallholder producer voices being heard in relation to agricultural biotechnology.54 While most of the contributions to the symposium concentrate on how to tease out smallholders’ “real” voices in the most effective way, Carro-Ripalda and Astier critically reflect on their own perceived failure to become knowledgeable about smallholders’ voices in their research on GM maize cultivation in Mexico.

It was through ethnographic fieldwork in rural areas in Central Mexico, in-depth structured interviews, focus groups, participant observation and, finally, a National Workshop in Mexico City with over 50 stakeholders (including smallholder producers) that Carro-Ripalda and Astier attempted to get a better sense of what the actual voices of peasants in the GM controversy were trying to convey.55 However, particularly the final workshop, which aimed to create conditions under which Mexican smallholder producers could speak on their own terms about GM maize cultivation, “unwittingly reproduced the conditions of exclusive, techno-scientific and regulatory spaces”. 56 The public discourse that centres on questions of safety, science, possibilities of regulation and problems of potential contamination, and which is upheld by both GM maize proponents and antiGMO activists, dominated the workshop debate. Even when present smallholders raised different concerns, the discussion always returned to the previous, main ones, as if those who had spoken differently “had not spoken at all”. The way that smallholders could articulate “their perceptions, ideas, and desires” was thereby “severely limited”. 57

Carro-Ripalda and Astier are focused on the dominance of one particular (techno-scientific, regulatory) discourse that, they maintain, disabled smallholder voices engaged in different discourses from speaking up or, when speaking, from being heard. In other words, smallholders were unable to adequately represent their own understanding of what is at stake in the GM maize controversy in Mexico. Considering what I have pointed out in the previous section, based on Rojas, difference is thereby transformed into an epistemological, rather than an ontological one: Carro-Ripalda and Astier’s argument is implicitly based on the assumption that, under the right conditions, difference can be translated into something that can be communicated to, and discussed with, other stakeholders. But the term “ontological incompatibility” that the authors themselves use indicates there is something else at play, which cannot easily be translated: the nature of the relation of smallholder producers to their “Land, seed, crop, climate … as told and understood by themselves”; the “central place” that Maize continues to occupy in Mesoamerican pre-Hispanic cosmology, and “the social and cultural significance” that goes along with that.58

Carro-Ripalda and Astier’s emphasis on the problem of the dominant discourse, and the overarching Mexican structures of domination this discourse is related to (such as the “neoliberal vision of the Mexican agricultural future”59), makes it occasionally difficult to understand what the problem of “ontological incompatibility” really is about. At the end of the article, the place of the smallholder producers whom they have engaged seems once again clearly delineated and knowable: at stake for smallholders are, Carro-Ripalda and Astier argue, “their lives as maize cultivators, their pride in their craft and knowledge, and their ceremonially demanded right to information, choice and access to their ‘own resources’”. It is not just about “retaining ‘traditional’ ways of agriculture”, as the anti-GMO movement maintains, but also about claiming “political, economic and socio-cultural rights.”60 Though this certainly adds a significant dimension to the debate, it indeed simply seems to add to, rather than radically challenge, the frameworks that are conventionally used in the anti-GMO debate, as well as the frameworks that focus on how to bring out and represent other people’s “voices” in a better way. Is this simply unavoidable when it comes to the production of academic knowledge through/in academic writing? As already indicated in the previous section, academic writing pursues by definition the objective of enhancing knowledge and providing improved insight into a certain situation. In its very structure, an academic piece of work aims to resolve and settle, rather than to dislocate, to destabilise, or to provide discomfort.

Carro-Ripalda and Astier’s article is meant to render legible their own encounter of ontological difference for an academic audience. Is it possible for the reader to dig below these representational strategies, and to relate more directly to their encounter of what they themselves call ontological incompatibility? And which has led them to brand their final workshop, in a quite un-academic way, as a “failure”? There are a few places in the article in which their inability to put into words and arguments all of “the complexity of experiences, relations and reasons that bind people to maize”61 is more obvious. Becoming attuned to this complexity is linked to the authors having to become at least “partially connected”—to yet again use de la Cadena’s phrase—to the relations they attempt to trace. It is interesting, for example, that Carro-Ripalda and Astier talk about “voices” as going beyond the semantic level, as conveying something acoustically, and as requiring a form of listening that shies away from asking pre-given questions. It is also interesting that some of that took place when they literally walked together with their interlocutors; precisely as it is emphasised by Blaney and Tickner:62

Despite the shortcomings of the workshop … we felt that that, through our research on the ground, we had engaged with male and female farmers, heard about their perspectives on GM and their visions of a rural future, and accompanied them to work in milpas and markets. So, what do smallholder farmers’ voices sound like? What meanings did they convey to us? We will provide here but a few of those sounds and meanings … 63

Despite returning to the idea of voices as conveying “meaning” in this quote, meaning is related to sounds, to walking together, to particular places with their own sounds, smells, and colours. The sample of actual “voices” Carro-Ripalda and Astier then choose to present yet again invoke an intricate sense of the relationality of farmers and nonhumans:

It is a joy to plant, getting hold of the maize, of a beautiful cob which is pleasant, to go to the harvest, to look at pretty cobs, all regular. Because this is what sustains me.

You can see the difference in the seeds straight away … You need to look at the cob and as soon as I grab it I see the difference.

It is the person who knows the seed the one who chooses it [for replanting the following year].64

By contrast, GM maize is associated by the smallholders whom Carro-Ripalda and Astier cite with feelings of “artificiality, estrangement and distrust towards the created object (the GMO) in itself, not only because of deep ontological considerations … but because of the political and economic motives which are ‘assembled’ into it.”65 Although the authors make a distinction between ontology and politics/ economics here, their invoking of the “assemblage” precisely shows how the latter becomes part of ontology itself, and then (as in the case of Hetherington) impacts on the sensual, bodily connection with the maize. Understanding the relation between “things” in this way allows for an analysis of power and domination that has at least the potential of moving beyond pre-given frameworks; strategically suspending them in order to “sharpen [the] analysis of exactly how power operates, how relations are made and undermined, and with what consequences”. 66 Genetically modified maize is a problem because it is part of particular Mexican neoliberal visions and strategies, but in the context outlined by Carro-Ripalda and Astier, that vision is not only (and not even primarily) made sense of through given frames of knowledge, such as Marxist theories of the exploitation of labour, but sensually, through the way it disrupts the (physical) pleasure and joy that has sustained the farmer-maize-assemblage so far.67 GM technology externalises the maize from farmers and estrange them from their ways of life; and it is only through this externalisation that GM maize becomes perceivable as a potential source of “contamination”, as a danger against which farmers need to “defend” their seeds.68

Now, some might counter that the previous paragraph in practice only provides a fancy repackaging of the two well-rehearsed arguments brought forward by many anti-GMO activists: (a) that the problem of GMOs is an intrinsic property that makes it “unsafe” (which activists try to scientifically prove), and/or (b) that the fundamental problem of agricultural biotechnology is that it estranges farmers from their traditional, ancestral way of life, that it allows for their exploitation, and that it provides a further foothold for neoliberal visions of how the world should be ordered. Both arguments are grounded in modern ontology: the first goes down the route of science (contesting “facts” about the “nature” of GMOs on the basis of science itself), while the second goes down the “social” route by either making a case for the need to respect cultural multiplicity, or for the need to prevent economic exploitation. Some activists make use of all of these routes and arguments. Famous environmental activist and intellectual Vandana Shiva, for example, determines the alienating character of the GMO to be an intrinsic property, while at the same time depicting smallholder producers as intrinsic “‘reservoirs’ of local or indigenous knowledge or as ‘natural’ conservators of biodiversity through their traditional practices”. 69 According to Carro-Ripalda and Astier, this “unwittingly reinforce[es] images of smallholder producers as passive, timeless and voiceless.”70 This leads to precisely the sort of romanticised reification of “difference” that I have critiqued in the previous section of this article—paradoxically, in this case, on the basis of an ontology that is deeply modern, as it regards both “things” and “people” as ontologically stable and classifiable.

By contrast, the authors of the two texts I have analysed in this section trace ontological encounters that cannot be contained by the nature/culture dichotomy. There is no pre-given (social) theory of neoliberalism and global power relations that dictates how the “voice” of the farmer needs to be made sense of. There is also no pregiven understanding of the “factual” (scientific) nature of GMOs. The notion of radical difference that comes up in these two texts emerged from precisely the “misunderstandings” that the encounter of ethnographers with “other people” and their relations brought to the fore; but importantly, it did not make any clearer to the ethnographer what the “stuff” that grounded the misunderstandings is actually composed of.71 Yet, somewhat paradoxically, despite all this emphasis on misunderstandings, incompatibility, grappling, failure, and critical self-reflection of one’s own assumptions—at the end of the day what is left for the readers (at least if they do not explicitly focus on the “ethnographic excess” found in the writings) is the impression that they know more about “stuff” than they did before: that they understand the situation better, that new knowledge has been produced, that the object of analysis is more transparent than it has been before. How can this subjugation of the encountered ontologically difference to academic strategies of comprehensive sense-making avoided (if at all)?

This article itself is now coming up to what would normally be a conclusion—i.e. the treacherous waters of nailing its contribution to knowledge. Given that this article is yet again another “third-level” engagement with questions of ontology and decoloniality, the question is whether there is any way to avoid this pull of hegemonic modes of academic knowledge production. Rather than providing a conclusion and reiterate the core argument that the article has made, I will attempt to finish this piece by raising even more questions, and by providing some further reflections.

4. Turtles all the Way Down: (Further) Reflections on What Questions to Ask

The pull of hegemonic systems of academic knowledge production is difficult to avoid. This is the case even in writings that are directly based on ontological encounters and controversies, and that reflect on the displacement that encountering different ontologies has entailed. But as I have indicated, this problem is even more pronounced in writings—like my own—that provide what I have previously called “third-level” sense-making of ontological encounters.

The contribution of third-level analysis is usually a conceptual one, which makes it by definition veer towards the general and abstract rather than the concrete. In relation to the literature on decolonial thought and the ontological turn, this becomes manifest in three different (yet interrelated) ways: first, in the desire to provide an understanding of ontology that enables a conceptualisation of the former as multiple. Drawing on the work of Mario Blaser and Eduardo Viveiros de Castro respectively, Rojas and Blaney and Tickner argue that ontology can be thought of as multiple if reality is understood as always being “enacted” or “performed”. 72 This is what Blaser calls an understanding of ontology as “materialsemiotic”: one that defines reality as “always in the making through the dynamic relations of hybrid assemblages”. 73 Pinpointing it like this is inevitably geared towards answering the question of what reality as such, in general is about. Secondly, there is an ambition to coin the general normative-political project that arises out of this understanding with a singular concept, such as the pluriverse. Thirdly, arguments about ontological multiplicity and the emancipatory-decolonial political projects that arise out of its recognition are written for an audience of a particular discipline, such as IR: the aim is to provide a wholesale, general rethinking, or, indeed, “reconstruction” of the latter.74

What sort of questions drive conceptual work into that direction, and what desire “to know” underlies the questions? According to Cherokee philosopher Brian Yazzie Burkhart, for Native Americans “the questions we choose to ask are more important than any truths we might hope to discover in asking such questions”. 75 By contrast, Western knowledge is always (at least in the mainstream) propositional knowledge: “knowledge of the form ‘that something is so’”. Here, knowledge cannot be verified by referring to direct experiences: “there must be something underlying them and justifying them”. 76 Burkhart gives the example of the “routine response” given by “Western people” to Indigenous accounts of creation: “In [one] account, the earth rests on the back of a turtle. The Western response to this account is simply the question, ‘What holds the turtle?’” This question makes no sense to the Native storyteller, because the truth of the story lies in the paths to rightful action that it outlines, rather than what it has to say about the “reality” of the world. But when the Westerner insists on the question, the answer finally is: “‘Well, then there must be turtles all the way down’.”77

Equating Rojas’ and Blaney and Tickner’s work with European mainstream (hence analytic) philosophy seems, at first glance, incredibly unfair. After all, those authors precisely advocate the cultivating of knowledge by direct awareness or acquaintance in exactly the way that Burkhart identifies as typical for Native Americans. But on the other hand, the framework that circumscribes their emphasis on the need for “concreteness” is still an abstract one that wants to answer the question of how things really are and should be: enacted, performed, pluriversal, … The point is not whether this argument about reality and politics is right or wrong. The point is to recognise that it is driven by particular questions that might make no sense in the context of other intelligence systems, but that need to be addressed in an academic article in order to make a conceptual argument compelling, convincing and original for an audience that primarily sits (whether it likes it or not) within a Western, colonial, hegemonic system of knowledge production.78 And even when the contribution to knowledge production is not primarily conceptual, as in the “second-level” work that I have analysed in the previous section in relation to the GMO controversy, the final argument that is made (e.g. about peasants’ economic and cultural rights) is yet again lucid and comprehensible to an audience that seeks to comprehend “stuff” within modern parameters.

Where to go from here (particularly as a white, European scholar)? As suggested by Tucker, one way might be to engage in much more direct, ethnographic research, which would enable more direct experience of ontological encounters. Despite previously-mentioned problems of even that research not going far enough, there is without doubt more space for providing a sense of grappling and dislocation if the originality of a piece of work is not purely grounded in the conceptual contribution it aims to make. However, not every scholar is able— body-, context- or funding-wise—to spend extensive periods of time in different places, and the ethical and political pitfalls of researching “radical difference” through fieldwork with—but often rather on—others have been pointed out by Indigenous scholars numerous times.79

But even for those unable or unwilling to do more primary, empirical research, there is space to push the boundaries of what can and should be written about (and how). For decades there have been attempts to provide “innovative” platforms, for example at conferences, to talk about “stuff” in different ways (e.g. through storytelling or artistic practices; not at least by e.g. Indigenous peoples themselves80). However, these “innovations” are still at the margins, and they will most likely never be able to compete with acknowledged knowledge production outlets such as journal articles and scholarly books. But even within the latter, there is always at least some space to push for more open-endedness, more reflection on the author’s embodied positionality, more auto-critique, more uncertainty and grappling (even if this is based on reading about the ontological encounters of others).

Although this sort of embodied self-reflection on a writer’s “situatedness” (which in my own case means being “on the colonising side of a divide”81) has obviously been advanced by many critical scholars for decades (including feminists and post- as well as decolonial scholars), this article has hopefully shown that there is still (always) a need to go further, in order to more fundamentally challenge hegemonic, modern/colonial modes of knowledge production. The sense of unease that I have outlined in section two was particularly strong when reading conclusions that were geared towards making recommendations for the discipline of IR, or for “international politics”, as such. Aiming to make generic conclusions for entire disciplines, political fields, or global “issues” pushes the generality and abstraction of a contribution even further away from an advocacy of the concrete. Why, and to whom, does it matter whether IR, as a discipline, or international politics, as object of study, becomes more pluriversal or not? What are the actual benefits of the concept of the pluriverse in the first place? Or to pick up the theme of this special issue: why does it matter whether IR is, or should move into, a mode of affirmation rather than critique?82 Why is this a good question to ask—and for whom? This is not just a theoretical problem, but it has real-life consequences for actually-existing decolonial struggles. The desire for making a generic argument about relational ontologies and a pluriversal politics harbours the danger of making a huge variety of demands and struggles that often exist in tension and contradiction with each other commensurable. Indigenous demands for the repatriation of “their” Land might be at odds with the social justice demands for redistribution and “the commons”. 83 For Blaney and Tickner, decolonial thought is commensurable with not just the ontological turn literature, but also feminist and other critical interventions.84 Mignolo and Arturo Escobar advocate a transnational fight for global justice and are enthusiastic about the potential of global movements to achieve that aim together.85 Like Mignolo, Rojas explicitly draws on the World Social Forum slogan “Another world is possible” as well as the Zapatistas slogan of “a world where many words fit” to make her case about the need for a pluriversal understanding of emancipatory-decolonial politics.86 While it can be argued that this problem of seeing all these struggles and demands as commensurable goes back to a lack of actual engagement with particular decolonial practices and battles, what I have argued in this article is that it is also related to the problem of how and what sort of knowledge is produced and valued in the Western academy: knowledge that is abstract, generic, and applicable beyond a specific context. Knowledge that is driven by the desire to know what is. Knowledge that desires to know what holds the turtle—all the way down.

#### Legal reform is possible -- eschewing contingent harm reduction reinforces the violence they critique.

Hanna, 18—teaches courses in Aboriginal law and Indigenous laws methodology at the University of Victoria (Alan, “SPACES FOR SHARING: SEARCHING FOR INDIGENOUS LAW ON THE CANADIAN LEGAL LANDSCAPE,” University of British Columbia Law Review. 51.1 (Jan. 2018): p105, dml)

Substantive meaning in Indigenous laws will come from substantive change. According to Canadian legal scholar, Robert Samek, meaningful and effective legal reform requires serious commitment to effect proper social change:

Changing the letter of the law does not of itself cure one social ill. It merely changes the scenery on the stage; the play still goes on. [T]he greatest illusion of all is to think of the present as fixed, as a piece of machinery which can be kept going forever by replacing a few parts here and there, and patching up the test. Any social fabric can only take so much patchwork. Beneath every reforming patch yawns a tear. (173)

Significant change comes from legal reform, rather than tweaking an already archaic, inflexible, dilapidated system that has too many patches. The question is whether people are capable of change that will align contemporary society with the values and beliefs Canadians hold of ourselves. In the Tsilhqot'in BCSC trial decision, Vickers J contemplated what the consequence might be if the Crown suddenly admitted the Tsilhqot'in had existed on their territory for 200 years: "the real question to be answered . . . concerned the consequences that would follow such an admission." (174) Would the result be consequential? If so, for whom? Does doing nothing not continue the consequence of colonization on First Nations and their citizens, as Vickers J held: "[a]s a consequence of colonization and government policy, Tsilhqot'in people can no longer live on the land as their forefathers did"? (175)

So what of change ? What does it mean to reform Canada's legal system so Indigenous laws can participate in a meaningful way ? This is the topic of another paper. However, acknowledging the squatter state's unlawful presence and authority on the land would be a signal toward seeking meaningful reconciliation. Rejecting the suffocating and untenable test for title in BC is a starting point (a test Canada would fail). (176) Accept that BC is unceded Indigenous territoty, meaning Aboriginal title is everywhere and unextinguished--de facto title. This would require giving meaning to shared or joint jurisdiction in a manner that First Nations propose, according to their legal processes. Begin meaningful consultations with First Nations to develop legislation that sets out how to proceed when wanting to enter First Nations' territories through a process that includes respect, reciprocity, relationality, consent, and sharing. This would be a place to start.

The prospect of Nisga'a being granted limited governing powers was considered by some to potentially cause "a profound constitutional upheaval," which we now know simply was not true. (177) Initiating significant change that serves to decolonize the state and its practices will be significant, but the world will not end, the economy will not collapse, people will not be run off the lands, although the humility in accepting these possibilities is a part of what seeking true reconciliation requires. Much harm has been done for a very long time. Change will not be simple or easy, but the results will provide its own reward (e.g. strengthened values and beliefs, strengthened economy, enriched and more sustainable environmental practices, respectful relationships).

#### Sweeping theories of indigeneity totalize and disempower resistance.

Rosenow, 19—Senior Lecturer in International Relations at Oxford Brookes University (Doerthe, “Decolonising the Decolonisers? Of Ontological Encounters in the GMO Controversy and Beyond,” Global Society, 33:1, 82-99, dml)

Despite the force and importance of this argument, I have felt slightly uneasy when reading those conclusions. Focusing on radical ontological difference can easily lead to a romanticised reification of other peoples’ difference that is in danger of ignoring actual political struggles and demands on the ground. As Cusicanqui argues, those struggles might very well emerge out of an “indigenous modernity”, rather than an insistence on the right to one’s difference. By this she means that some Indigenous people aim to formulate a hegemonic vision for how to structure a society that is valid for everyone (Indigenous AND non-Indigenous): they work for a society that is in their “image and likeness”, and to use modern notions such as “citizenship” for this purpose, rather than rejecting the latter as irreconcilable with one’s own world.39 By contrast, some North American Indigenous intellectuals call for an Indigenous “resurgence” that, rather than seeking hegemony, altogether turns away from seeking recognition by wider (colonial) “society”. As Leanne Betasamosake Simpson points out, in such “resurgent mobilization … there is virtually no room for white people”. 40

But my unease was also emerging from something else, which is what I want to focus on in this article: the problem that encounters and conflicts are yet again made sense of within overarching structures of knowledge production rather than cultivation (despite the intention to do otherwise). As de la Cadena herself makes clear in the quotation above, what is encountered as “different” is inevitably described “in forms that I could understand” (my emphasis)—even whilst simultaneously recognising that one’s description does not capture what the encountered practices actually do. Sense-making, for de la Cadena, takes place at what could be called two levels: At a first level, there is the inevitable process of making sense of an alienating affective experience on the spot, from within one’s own framework of understanding the world. At a second level, then, de la Cadena attempts to make legible her grappling and not-understanding in the context of a book for an academically literate and interested audience—in other words, in the writing-up of her ethnographic research.

In Rojas’ and Blaney and Tickner’s case, given that their articles do not aim to make an empirical contribution, sense-making takes place at what could be called a third level: what is drawn upon is the understanding that emerged out of the ethnographic work of others, which is brought into conversation with various bodies of theoretical work in order to make a conceptual contribution. This takes place via the coining of central concepts and the outlining of all-encompassing frameworks that are meant to help us understand the analytical, normative and political consequences of their argument for scholarly work more broadly. The ontological encounters of others are used to delineate the merits of ontological encounters in general, in IR and beyond. This objective leads to a particular way of developing and structuring a generic argument that makes it difficult to move beyond sense-making frameworks that are necessarily geared towards settling all those unsettling and disconcerting experiences that were the focus of the articles in the first place.

This is also the problem of some central decolonial work. Drawing on Edouard Glissant, Mignolo, for example, critiques the “requirement of transparency” that forms the basis for understanding in Western social science scholarship. He argues for the “right to opacity” of those located on the other side of the colonial difference.41 But this claim sits at odds with his simultaneous desire to write a new, all-encompassing history of “the modern/colonial world system”. 42 And like in Rojas’ and Blaney and Tickner’s articles, terms such as “pluriversality”43 or “diversality”44 are coined in order to have a (one!) concept for a similarly all-encompassing solution to domination. While de la Cadena is critical of her own “anxiety to understand coherently (with which I meant clearly and without contradiction”), and while she points out how this “was often out of place”, 45 Mignolo as well as Rojas and Blaney and Tickner seek to place such anxiety in yet another coherent framework that holds everything together.

The question arises whether this can be any different in scholarly work that is not directly based on ethnographic research itself, and which can therefore not lay claim to a direct experience of ontological controversies. This has become an important question for my own (likewise third-level) work on anti-GMO activism. My work to date has primarily aimed at making a conceptual contribution, and has relied on a conversation between the ethnographic research of others and various bodies of conceptual work, including decolonial and “ontological turn” literature.46

But as I have already indicated in relation to de la Cadena’s work, when writing up their research for academic purposes, even those who have directly experienced ontological encounters find it hard to resist the tendency to conclude their work with stringent, overarching, coherent conclusions that the Westerneducated reader can grasp and “take home”. In the next section, I will draw on two anthropological ethnographic texts that are significant for research on the GMO controversy to show how this works. The two texts that will be analysed in the next section engage with the GMO controversy in Paraguay and Mexico respectively, and they have stood out for me in the way they manage to convey a sense of unease and grappling with ontological encounters and conflicts. However, as the next section will show, they as well end up providing a framework and conclusions that can accommodate and make sense of the encountered ontological difference.

3. Ontological Encounters in the GMO Controversy

According to Susana Carro-Ripalda and Marta Astier, much of the research that is carried out in relation to the question of what smallholder producers in the Global South truly think of (and say about) agricultural biotechnology is unable to grasp the “ontological incompatibility” that exists between the experienced human/nonhuman relations in small-scale agriculture on the one hand, and the logic that underlies genetic engineering (GE) on the other.47 This is precisely because most social research is itself grounded in the crucial modern/colonial nature-culture divide: the former can only be known through scientific means, while the latter can be known through the study of social/cultural/political practices. Knowledge about nature is about establishing “facts”, which are either true or false (i.e. nature as “one” is either correctly or incorrectly represented), while knowledge about culture is about studying meaning, which is necessarily (due to the existence of different cultures) multiple.

The question of whether GMOs do or do not pose a “factual” danger consequently lies outside of the remit of the social sciences, which therefore focus on the social dimension of statements that are made about nature. But as Kregg Hetherington’s reflections on his own anthropological research journey in Paraguay make clear, this tacit signing-up to modern ontology can lead to difficulties in understanding the reality of the people one is interested in.48 Coming from a position in which he took for granted the scientific distinction between (proven) “fact” and “error”, Hetherington explains how he “translate[d]” the claims of the leader of a local peasant movement49 (Antonio) about the truth of (GM) soy “killer beans” into something else:

Until this point, I had approached ethnography as an extended discussion with and about humans, and I was less interested in beans than I was with what Antonio said about them … To be blunt, Antonio kept pointing at the beans, and I kept looking at him … I was comfortable saying that this was a figure of speech, a kind of political rhetoric, or even to claim that this is what Antonio believed, all of which explicitly framed ‘la soja mata’ (soy kills) as data for social analysis, rather than analysis itself worthy of response.50

However, Hetherington points out that not believing in the truth of the killer bean did not prevent him from “participating in Antonio’s knowledge practices”. 51 Becoming involved in the anti-soy bean activism of the peasants, Hetherington became “part of the situation” that made the killer bean turn into a crucial agent in a court case that was brought against two soy farmers for the murder of two activist peasants. As a result, killer beans became transformed into a matter of national concern. Crucially for Hetherington, participation involved more than joining the situation in spite of his lack of belief: it led to him becoming immersed in a relation with both peasants and beans that started to have a physical impact on him—in de la Cadena’s words, he indeed became “partially connected”: 52

Beans didn’t scare me at first. Indeed, as a foreigner to the situation that gives rise to killer beans (a Canadian no less), giant fields of soy were a familiar, even a comforting sight. But it took only a few months with Antonio for me to start feeling the menace from those fields. Soon, the sweetish smell of glyphosate, recently applied, and especially the corpselike smell of 2, 4-D mixed with Tordon, could ruin my appetite and make me expect to see people emerge from their homes to show me pustules on their legs and stomachs.53

Similar observations are also found in Carro-Ripalda and Astier’s contribution to the 2014 Agriculture and Human Values symposium on the challenges of making smallholder producer voices being heard in relation to agricultural biotechnology.54 While most of the contributions to the symposium concentrate on how to tease out smallholders’ “real” voices in the most effective way, Carro-Ripalda and Astier critically reflect on their own perceived failure to become knowledgeable about smallholders’ voices in their research on GM maize cultivation in Mexico.

It was through ethnographic fieldwork in rural areas in Central Mexico, in-depth structured interviews, focus groups, participant observation and, finally, a National Workshop in Mexico City with over 50 stakeholders (including smallholder producers) that Carro-Ripalda and Astier attempted to get a better sense of what the actual voices of peasants in the GM controversy were trying to convey.55 However, particularly the final workshop, which aimed to create conditions under which Mexican smallholder producers could speak on their own terms about GM maize cultivation, “unwittingly reproduced the conditions of exclusive, techno-scientific and regulatory spaces”. 56 The public discourse that centres on questions of safety, science, possibilities of regulation and problems of potential contamination, and which is upheld by both GM maize proponents and antiGMO activists, dominated the workshop debate. Even when present smallholders raised different concerns, the discussion always returned to the previous, main ones, as if those who had spoken differently “had not spoken at all”. The way that smallholders could articulate “their perceptions, ideas, and desires” was thereby “severely limited”. 57

Carro-Ripalda and Astier are focused on the dominance of one particular (techno-scientific, regulatory) discourse that, they maintain, disabled smallholder voices engaged in different discourses from speaking up or, when speaking, from being heard. In other words, smallholders were unable to adequately represent their own understanding of what is at stake in the GM maize controversy in Mexico. Considering what I have pointed out in the previous section, based on Rojas, difference is thereby transformed into an epistemological, rather than an ontological one: Carro-Ripalda and Astier’s argument is implicitly based on the assumption that, under the right conditions, difference can be translated into something that can be communicated to, and discussed with, other stakeholders. But the term “ontological incompatibility” that the authors themselves use indicates there is something else at play, which cannot easily be translated: the nature of the relation of smallholder producers to their “land, seed, crop, climate … as told and understood by themselves”; the “central place” that Maize continues to occupy in Mesoamerican pre-Hispanic cosmology, and “the social and cultural significance” that goes along with that.58

Carro-Ripalda and Astier’s emphasis on the problem of the dominant discourse, and the overarching Mexican structures of domination this discourse is related to (such as the “neoliberal vision of the Mexican agricultural future”59), makes it occasionally difficult to understand what the problem of “ontological incompatibility” really is about. At the end of the article, the place of the smallholder producers whom they have engaged seems once again clearly delineated and knowable: at stake for smallholders are, Carro-Ripalda and Astier argue, “their lives as maize cultivators, their pride in their craft and knowledge, and their ceremonially demanded right to information, choice and access to their ‘own resources’”. It is not just about “retaining ‘traditional’ ways of agriculture”, as the anti-GMO movement maintains, but also about claiming “political, economic and socio-cultural rights.”60 Though this certainly adds a significant dimension to the debate, it indeed simply seems to add to, rather than radically challenge, the frameworks that are conventionally used in the anti-GMO debate, as well as the frameworks that focus on how to bring out and represent other people’s “voices” in a better way. Is this simply unavoidable when it comes to the production of academic knowledge through/in academic writing? As already indicated in the previous section, academic writing pursues by definition the objective of enhancing knowledge and providing improved insight into a certain situation. In its very structure, an academic piece of work aims to resolve and settle, rather than to dislocate, to destabilise, or to provide discomfort.

Carro-Ripalda and Astier’s article is meant to render legible their own encounter of ontological difference for an academic audience. Is it possible for the reader to dig below these representational strategies, and to relate more directly to their encounter of what they themselves call ontological incompatibility? And which has led them to brand their final workshop, in a quite un-academic way, as a “failure”? There are a few places in the article in which their inability to put into words and arguments all of “the complexity of experiences, relations and reasons that bind people to maize”61 is more obvious. Becoming attuned to this complexity is linked to the authors having to become at least “partially connected”—to yet again use de la Cadena’s phrase—to the relations they attempt to trace. It is interesting, for example, that Carro-Ripalda and Astier talk about “voices” as going beyond the semantic level, as conveying something acoustically, and as requiring a form of listening that shies away from asking pre-given questions. It is also interesting that some of that took place when they literally walked together with their interlocutors; precisely as it is emphasised by Blaney and Tickner:62

Despite the shortcomings of the workshop … we felt that that, through our research on the ground, we had engaged with male and female farmers, heard about their perspectives on GM and their visions of a rural future, and accompanied them to work in milpas and markets. So, what do smallholder farmers’ voices sound like? What meanings did they convey to us? We will provide here but a few of those sounds and meanings … 63

Despite returning to the idea of voices as conveying “meaning” in this quote, meaning is related to sounds, to walking together, to particular places with their own sounds, smells, and colours. The sample of actual “voices” Carro-Ripalda and Astier then choose to present yet again invoke an intricate sense of the relationality of farmers and nonhumans:

It is a joy to plant, getting hold of the maize, of a beautiful cob which is pleasant, to go to the harvest, to look at pretty cobs, all regular. Because this is what sustains me.

You can see the difference in the seeds straight away … You need to look at the cob and as soon as I grab it I see the difference.

It is the person who knows the seed the one who chooses it [for replanting the following year].64

By contrast, GM maize is associated by the smallholders whom Carro-Ripalda and Astier cite with feelings of “artificiality, estrangement and distrust towards the created object (the GMO) in itself, not only because of deep ontological considerations … but because of the political and economic motives which are ‘assembled’ into it.”65 Although the authors make a distinction between ontology and politics/ economics here, their invoking of the “assemblage” precisely shows how the latter becomes part of ontology itself, and then (as in the case of Hetherington) impacts on the sensual, bodily connection with the maize. Understanding the relation between “things” in this way allows for an analysis of power and domination that has at least the potential of moving beyond pre-given frameworks; strategically suspending them in order to “sharpen [the] analysis of exactly how power operates, how relations are made and undermined, and with what consequences”. 66 Genetically modified maize is a problem because it is part of particular Mexican neoliberal visions and strategies, but in the context outlined by Carro-Ripalda and Astier, that vision is not only (and not even primarily) made sense of through given frames of knowledge, such as Marxist theories of the exploitation of labour, but sensually, through the way it disrupts the (physical) pleasure and joy that has sustained the farmer-maize-assemblage so far.67 GM technology externalises the maize from farmers and estrange them from their ways of life; and it is only through this externalisation that GM maize becomes perceivable as a potential source of “contamination”, as a danger against which farmers need to “defend” their seeds.68

Now, some might counter that the previous paragraph in practice only provides a fancy repackaging of the two well-rehearsed arguments brought forward by many anti-GMO activists: (a) that the problem of GMOs is an intrinsic property that makes it “unsafe” (which activists try to scientifically prove), and/or (b) that the fundamental problem of agricultural biotechnology is that it estranges farmers from their traditional, ancestral way of life, that it allows for their exploitation, and that it provides a further foothold for neoliberal visions of how the world should be ordered. Both arguments are grounded in modern ontology: the first goes down the route of science (contesting “facts” about the “nature” of GMOs on the basis of science itself), while the second goes down the “social” route by either making a case for the need to respect cultural multiplicity, or for the need to prevent economic exploitation. Some activists make use of all of these routes and arguments. Famous environmental activist and intellectual Vandana Shiva, for example, determines the alienating character of the GMO to be an intrinsic property, while at the same time depicting smallholder producers as intrinsic “‘reservoirs’ of local or indigenous knowledge or as ‘natural’ conservators of biodiversity through their traditional practices”. 69 According to Carro-Ripalda and Astier, this “unwittingly reinforce[es] images of smallholder producers as passive, timeless and voiceless.”70 This leads to precisely the sort of romanticised reification of “difference” that I have critiqued in the previous section of this article—paradoxically, in this case, on the basis of an ontology that is deeply modern, as it regards both “things” and “people” as ontologically stable and classifiable.

By contrast, the authors of the two texts I have analysed in this section trace ontological encounters that cannot be contained by the nature/culture dichotomy. There is no pre-given (social) theory of neoliberalism and global power relations that dictates how the “voice” of the farmer needs to be made sense of. There is also no pregiven understanding of the “factual” (scientific) nature of GMOs. The notion of radical difference that comes up in these two texts emerged from precisely the “misunderstandings” that the encounter of ethnographers with “other people” and their relations brought to the fore; but importantly, it did not make any clearer to the ethnographer what the “stuff” that grounded the misunderstandings is actually composed of.71 Yet, somewhat paradoxically, despite all this emphasis on misunderstandings, incompatibility, grappling, failure, and critical self-reflection of one’s own assumptions—at the end of the day what is left for the readers (at least if they do not explicitly focus on the “ethnographic excess” found in the writings) is the impression that they know more about “stuff” than they did before: that they understand the situation better, that new knowledge has been produced, that the object of analysis is more transparent than it has been before. How can this subjugation of the encountered ontologically difference to academic strategies of comprehensive sense-making avoided (if at all)?

This article itself is now coming up to what would normally be a conclusion—i.e. the treacherous waters of nailing its contribution to knowledge. Given that this article is yet again another “third-level” engagement with questions of ontology and decoloniality, the question is whether there is any way to avoid this pull of hegemonic modes of academic knowledge production. Rather than providing a conclusion and reiterate the core argument that the article has made, I will attempt to finish this piece by raising even more questions, and by providing some further reflections.

4. Turtles all the Way Down: (Further) Reflections on What Questions to Ask

The pull of hegemonic systems of academic knowledge production is difficult to avoid. This is the case even in writings that are directly based on ontological encounters and controversies, and that reflect on the displacement that encountering different ontologies has entailed. But as I have indicated, this problem is even more pronounced in writings—like my own—that provide what I have previously called “third-level” sense-making of ontological encounters.

The contribution of third-level analysis is usually a conceptual one, which makes it by definition veer towards the general and abstract rather than the concrete. In relation to the literature on decolonial thought and the ontological turn, this becomes manifest in three different (yet interrelated) ways: first, in the desire to provide an understanding of ontology that enables a conceptualisation of the former as multiple. Drawing on the work of Mario Blaser and Eduardo Viveiros de Castro respectively, Rojas and Blaney and Tickner argue that ontology can be thought of as multiple if reality is understood as always being “enacted” or “performed”. 72 This is what Blaser calls an understanding of ontology as “materialsemiotic”: one that defines reality as “always in the making through the dynamic relations of hybrid assemblages”. 73 Pinpointing it like this is inevitably geared towards answering the question of what reality as such, in general is about. Secondly, there is an ambition to coin the general normative-political project that arises out of this understanding with a singular concept, such as the pluriverse. Thirdly, arguments about ontological multiplicity and the emancipatory-decolonial political projects that arise out of its recognition are written for an audience of a particular discipline, such as IR: the aim is to provide a wholesale, general rethinking, or, indeed, “reconstruction” of the latter.74

What sort of questions drive conceptual work into that direction, and what desire “to know” underlies the questions? According to Cherokee philosopher Brian Yazzie Burkhart, for Native Americans “the questions we choose to ask are more important than any truths we might hope to discover in asking such questions”. 75 By contrast, Western knowledge is always (at least in the mainstream) propositional knowledge: “knowledge of the form ‘that something is so’”. Here, knowledge cannot be verified by referring to direct experiences: “there must be something underlying them and justifying them”. 76 Burkhart gives the example of the “routine response” given by “Western people” to Indigenous accounts of creation: “In [one] account, the earth rests on the back of a turtle. The Western response to this account is simply the question, ‘What holds the turtle?’” This question makes no sense to the Native storyteller, because the truth of the story lies in the paths to rightful action that it outlines, rather than what it has to say about the “reality” of the world. But when the Westerner insists on the question, the answer finally is: “‘Well, then there must be turtles all the way down’.”77

Equating Rojas’ and Blaney and Tickner’s work with European mainstream (hence analytic) philosophy seems, at first glance, incredibly unfair. After all, those authors precisely advocate the cultivating of knowledge by direct awareness or acquaintance in exactly the way that Burkhart identifies as typical for Native Americans. But on the other hand, the framework that circumscribes their emphasis on the need for “concreteness” is still an abstract one that wants to answer the question of how things really are and should be: enacted, performed, pluriversal, … The point is not whether this argument about reality and politics is right or wrong. The point is to recognise that it is driven by particular questions that might make no sense in the context of other intelligence systems, but that need to be addressed in an academic article in order to make a conceptual argument compelling, convincing and original for an audience that primarily sits (whether it likes it or not) within a Western, colonial, hegemonic system of knowledge production.78 And even when the contribution to knowledge production is not primarily conceptual, as in the “second-level” work that I have analysed in the previous section in relation to the GMO controversy, the final argument that is made (e.g. about peasants’ economic and cultural rights) is yet again lucid and comprehensible to an audience that seeks to comprehend “stuff” within modern parameters.

Where to go from here (particularly as a white, European scholar)? As suggested by Tucker, one way might be to engage in much more direct, ethnographic research, which would enable more direct experience of ontological encounters. Despite previously-mentioned problems of even that research not going far enough, there is without doubt more space for providing a sense of grappling and dislocation if the originality of a piece of work is not purely grounded in the conceptual contribution it aims to make. However, not every scholar is able— body-, context- or funding-wise—to spend extensive periods of time in different places, and the ethical and political pitfalls of researching “radical difference” through fieldwork with—but often rather on—others have been pointed out by Indigenous scholars numerous times.79

But even for those unable or unwilling to do more primary, empirical research, there is space to push the boundaries of what can and should be written about (and how). For decades there have been attempts to provide “innovative” platforms, for example at conferences, to talk about “stuff” in different ways (e.g. through storytelling or artistic practices; not at least by e.g. Indigenous peoples themselves80). However, these “innovations” are still at the margins, and they will most likely never be able to compete with acknowledged knowledge production outlets such as journal articles and scholarly books. But even within the latter, there is always at least some space to push for more open-endedness, more reflection on the author’s embodied positionality, more auto-critique, more uncertainty and grappling (even if this is based on reading about the ontological encounters of others).

Although this sort of embodied self-reflection on a writer’s “situatedness” (which in my own case means being “on the colonising side of a divide”81) has obviously been advanced by many critical scholars for decades (including feminists and post- as well as decolonial scholars), this article has hopefully shown that there is still (always) a need to go further, in order to more fundamentally challenge hegemonic, modern/colonial modes of knowledge production. The sense of unease that I have outlined in section two was particularly strong when reading conclusions that were geared towards making recommendations for the discipline of IR, or for “international politics”, as such. Aiming to make generic conclusions for entire disciplines, political fields, or global “issues” pushes the generality and abstraction of a contribution even further away from an advocacy of the concrete. Why, and to whom, does it matter whether IR, as a discipline, or international politics, as object of study, becomes more pluriversal or not? What are the actual benefits of the concept of the pluriverse in the first place? Or to pick up the theme of this special issue: why does it matter whether IR is, or should move into, a mode of affirmation rather than critique?82 Why is this a good question to ask—and for whom? This is not just a theoretical problem, but it has real-life consequences for actually-existing decolonial struggles. The desire for making a generic argument about relational ontologies and a pluriversal politics harbours the danger of making a huge variety of demands and struggles that often exist in tension and contradiction with each other commensurable. Indigenous demands for the repatriation of “their” land might be at odds with the social justice demands for redistribution and “the commons”. 83 For Blaney and Tickner, decolonial thought is commensurable with not just the ontological turn literature, but also feminist and other critical interventions.84 Mignolo and Arturo Escobar advocate a transnational fight for global justice and are enthusiastic about the potential of global movements to achieve that aim together.85 Like Mignolo, Rojas explicitly draws on the World Social Forum slogan “Another world is possible” as well as the Zapatistas slogan of “a world where many words fit” to make her case about the need for a pluriversal understanding of emancipatory-decolonial politics.86 While it can be argued that this problem of seeing all these struggles and demands as commensurable goes back to a lack of actual engagement with particular decolonial practices and battles, what I have argued in this article is that it is also related to the problem of how and what sort of knowledge is produced and valued in the Western academy: knowledge that is abstract, generic, and applicable beyond a specific context. Knowledge that is driven by the desire to know what is. Knowledge that desires to know what holds the turtle—all the way down.