# 1NC --- Districts R2

## OFF

### OFF

#### The scope of competition law defines it goals---The plans attempt to remove exemptions to meet current goals is an implementation question

ESE No Date. Erasmus School of Economics (as per their website, “The Erasmus Center for Economic and Financial Governance is an international multidisciplinary network of leading researchers and societal stakeholders initiated by researchers from Erasmus School of Economics and Erasmus School of Law. ECEFG conducts interdisciplinary research (law, economics and political science) and contributes to current debates in public and in academia on issues relating to European and global economic and financial governance.”). "Competition Policy". <https://www.eur.nl/en/ese/affiliated/ecefg/research/competition-policy>

Competition Policy

Research in this field consists of two broad areas. The first area – Theory and Implementation of Competition Law and Policy – refers to fundamental and applied research into topics that are traditionally seen as the core of competition policy. The second area – Scope of Competition Law and Policy – refers to all research on the effect and desirability of including new considerations in competition law and policy in order to address the challenges of our time, such as the increasing power of big tech firms, or global warming.

Theory and Implementation of Competition Policy

This covers for instance collusion, abuse of dominance, mergers, market regulation and state aid. Some examples of research topics are:

* the practices firms can use to engage in collusion and its welfare consequences;
* the practices firms can use to abuse a dominant position and its welfare consequences;
* which practices can be considered proof of such activities;
* how to regulate access to a market;
* how to properly assess the effects of a particular practice or merger;
* the practices, by which the state and public authorities distort competition such as subisidies and tax measures
* the interpretation and application of EU and national competition law by Competition Authorities and Courts and the extent to which they achieve the goals of competition policy

#### Vote negative for limits and ground---only “change goals” creates key economy and legal disads over what antitrust should consider---the affs topic races to tiny exemptions and technical changes with no core ground.

### OFF

#### The United States Federal Government should expand the scope of antitrust to include regulated industries only if the president determines it does not pose a direct threat to national defense or preparedness programs

#### It competes---the counterplan is a regulation not prohibition.

James Broaddus 50. February 6; Judge on the Kansas City Court of Appeals, Missouri; Westlaw, “City of Meadville v. Caselman,” 240 Mo. App. 1220. https://casetext.com/case/city-of-meadville-v-caselman-1

"Under power conferred on cities of the fourth class `to regulate and license' dramshops, there is no authority to wholly prohibit or suppress. Where there is mere power in a municipality to regulate in a state, with a general policy of conducting licensed saloons, authority to prohibit is excluded. The difference between regulation and prohibition is clear and well marked. The former contemplates the continuance of the subject-matter in existence or in activity. The latter implies its entire destruction or cessation.'" (Citing text writers and cases.)

#### The counterplan maintains DPA authority --- the plan eliminates it.

Michael H. Cecire and Heidi M. Peters 20. Michael H. Cecire, Analyst in Intergovernmental Relations and Economic Development Policy. Heidi M. Peters, Analyst in U.S. Defense Acquisition Policy. “The Defense Production Act of 1950: History, Authorities, and Considerations for Congress” Updated March 2, 2020. https://www.everycrsreport.com/reports/R43767.html

Authorities Under Title VII of the DPA Title VII of the DPA contains various provisions that clarify how DPA authorities should and can be used, as well as additional presidential authorities. Some significant provisions of Title VII are summarized below. Special Preference for Small Businesses Two provisions in the DPA direct the President to accord special preference to small businesses when issuing contracts under DPA authorities. Section 701 reiterates89 and expands upon a requirement in Section 108 of Title I directing the President to "accord a strong preference for small business concerns which are subcontractors or suppliers, and, to the maximum extent practicable, to such small business concerns located in areas of high unemployment or areas that have demonstrated a continuing pattern of economic decline, as identified by the Secretary of Labor."90 Definitions of Key Terms in the DPA The DPA statute historically has included a section of definitions.91 Though national defense is perhaps the most important term, there are additional definitions provided both in current law and in E.O. 13603.92 Over time, the list of definitions provided in both the law and implementing executive orders has been added to and edited, most recently in 2009, when Congress added a definition for homeland security93 to place it within the context of national defense.94 Industrial Base Assessments To appropriately use numerous authorities of the DPA, especially Title III authorities, the President may require a detailed understanding of current domestic industrial capabilities and therefore need to obtain extensive information from private industries. Under Section 705 of the DPA, the President may "by regulation, subpoena, or otherwise obtain such information from ... any person as may be necessary or appropriate, in his discretion, to the enforcement or the administration of this Act [the DPA]."95 This authority is delegated to the Secretary of Commerce in E.O. 13603.96 Though this authority has many potential implications and uses, it is most commonly associated with what the DOC's Bureau of Industry and Security calls "industrial base assessments."97 These assessments are often conducted in coordination with other federal agencies and the private sector to "monitor trends, benchmark industry performance, and raise awareness of diminishing manufacturing capabilities."98 The statute requires the President to issue regulations to insure that the authority is used only after "the scope and purpose of the investigation, inspection, or inquiry to be made have been defined by competent authority, and it is assured that no adequate and authoritative data are available from any Federal or other responsible agency."99 This regulation has been issued by DOC.100 Voluntary Agreements Normally, voluntary agreements or plans of action between competing private industry interests could be subject to legal sanction under anti-trust statutes or contract law. Title VII of the DPA authorizes the President to "consult with representatives of industry, business, financing, agriculture, labor, and other interests in order to provide for the making by such persons, with the approval of the President, of voluntary agreements and plans of action to help provide for the national defense."101 The President must determine that a "condition exists which may pose a direct threat to the national defense or its preparedness programs"102 prior to engaging in the consultation process. Following the consultation process, the President or presidential delegate may approve and implement the agreement or plan of action.103 Parties entering into such voluntary agreements are afforded a special legal defense if their actions within that agreement would otherwise violate antitrust or contract laws.104 Historically, the National Infrastructure Advisory Council noted that the voluntary agreement authority has been used to "enable companies to cooperate in weapons manufacture, solving production problems and standardizing designs, specifications and processes," among other examples.105 It could also be used, for example, to develop a plan of action with private industry for the repair and reconstruction of major critical infrastructure systems following a domestic disaster. The authority to establish a voluntary agreement has been delegated to the head of any federal department or agency otherwise delegated authority under any other part of E.O. 13603.106 Thus, the authority could be potentially used by a large group of federal departments and agencies. Use of these voluntary agreements is tracked by the Secretary of Homeland Security,107 who is tasked under E.O. 13603 with issuing regulations that are required by law on the "standards and procedures by which voluntary agreements and plans of action may be developed and carried out."108 The Federal Emergency Management Agency (FEMA), which at the time was an independent agency and tasked with these responsibilities under the DPA, issued regulations in 1981 to fulfill this requirement.109 FEMA is now a part of DHS, and those regulations remain in effect. The Maritime Administration (MARAD) of the U.S. Department of Transportation manages the only currently established voluntary agreements in the federal government, the Voluntary Intermodal Sealift Agreement (commonly referred to as "VISA") and the Voluntary Tanker Agreement. These programs are maintained in partnership with the U.S. Transportation Command of DOD, and have been established to ensure that the maritime industry can respond to the rapid mobilization, deployment, and transportation requirements of DOD. Voluntary participants from the maritime industry are solicited to join the agreements annually.110 Nucleus Executive Reserve Title VII of the DPA authorizes the President to establish a volunteer body of industry executives, the "Nucleus Executive Reserve," or more frequently called the National Defense Executive Reserve (NDER).111 The NDER would be a pool of individuals with recognized expertise from various segments of the private sector and from government (except full-time federal employees). These individuals would be brought together for training in executive positions within the federal government in the event of an emergency that requires their employment. The historic concept of the NDER has been used as a means of improving the war mobilization and productivity of industries.112 The head of any governmental department or agency may establish a unit of the NDER and train its members.113 No NDER unit is currently active, though the statute and E.O. 13603 still provide for this possibility. Units may be activated only when the Secretary of Homeland Security declares in writing that "an emergency affecting the national defense exists and that the activation of the unit is necessary to carry out the emergency program functions of the agency."114 Authorization of Appropriations, as amended by P.L. 113-72 Appropriations for the purpose of the DPA are authorized by Section 711 of Title VII.115 Prior to the P.L. 113-172, "such sums as necessary" were authorized to be appropriated. This has been replaced by a specific authorization for an appropriation of $133 million per fiscal year and each fiscal year thereafter, starting in FY2015, to carry out the provisions and purposes of the Defense Production Act.116 Table 1 shows that the annual average appropriation to the DPA Fund between FY2010 and FY2019 was $109.1 million,117 with a high of $223.5 million in FY2013 and a low of $34.3 million in FY2011. Monies in the DPA Fund are available until expended, so annual appropriations may carry over from year to year if not expended. Recently, the only regular annual appropriation for the purposes of the DPA has been made in the DOD appropriations bill, though appropriations could be made in other bills directly to the DPA Fund (or transferred from other appropriations). Committee on Foreign Investment in the United States118 The Committee on Foreign Investment in the United States (CFIUS) is an interagency committee that serves the President in overseeing the national security implications of foreign investment in the economy. It reviews foreign investment transactions to determine if (1) they threaten to impair U.S. national security; (2) the foreign investor is controlled by a foreign government; or (3) the transaction could affect homeland security or would result in control of any critical infrastructure that could impair the national security. The President has the authority to block proposed or pending foreign investment transactions that threaten to impair the national security. CFIUS initially was created and operated through a series of Executive Orders.119 In 1988, Congress passed the "Exon-Florio" amendment to the DPA, granting the President authority to review certain corporate mergers, acquisitions, and takeovers, and to investigate the potential impact on national security of such actions.120 This amendment codified the CFIUS review process due in large part to concerns over acquisitions of U.S. defense-related firms by Japanese investors. In 2007, amid growing concerns over the proposed foreign purchase of commercial operations of six U.S. ports, Congress passed the Foreign Investment and National Security Act of 2007 (P.L. 110-49) to create CFIUS in statute. On August 13, 2018, President Trump signed into law new rules governing national security reviews of foreign investment, known as the Foreign Investment Risk Review Modernization Act (FIRRMA, Title XVII, P.L. 115-235).121 FIRRMA amends several aspects of the CFIUS review process under Section 721 of the DPA.122 Notably, it expands the scope of transactions that fall under CFIUS' jurisdiction. It maintains core components of the current CFIUS process for evaluating proposed or pending investments in U.S. firms, but increases the allowable time for reviews and investigations. Upon receiving written notification of a proposed acquisition, merger, or takeover of a U.S. firm by a foreign investor, the CFIUS process can proceed potentially through three steps: (1) a 45-day national security review; (2) a 45-day maximum national security investigation (with an option for a 15-day extension for "extraordinary circumstances"); and (3) a 15-day maximum Presidential determination. The President can exercise his authority to suspend or prohibit a foreign investment, subject to a CFIUS review, if he finds that (1) "credible evidence" exists that the foreign investor might take action that threatens to impair the national security; and (2) no other laws provide adequate and appropriate authority for the President to protect national security. FIRRMA shifts the filing requirement for foreign investors from voluntary to mandatory in certain cases, and provides a two-track method for reviewing certain investment transactions. Other changes mandated by FIRRMA would provide more resources for CFIUS, add new reporting requirements, and reform export controls. Termination of the Act Title VII of the DPA also includes a "sunset" clause for the majority of the DPA authorities. All DPA authorities in Titles I, III, and VII have a termination date, with the exception of four sections.123 As explained in Section 717 of the DPA, the sections that are exempt from termination are 50 U.S.C. §4514, Section 104 of the DPA that prohibits both the imposition of wage or price controls without prior congressional authorization and the mandatory compliance of any private person to assist in the production of chemical or biological warfare capabilities; 50 U.S.C. §4557, Section 707 of the DPA that grants persons limited immunity from liability for complying with DPA-authorized regulations; 50 U.S.C. §4558, Section 708 of the DPA that provides for the establishment of voluntary agreements; and 50 U.S.C. §4565, Section 721 of the DPA, the so-called Exon-Florio Amendment, that gives the President and CFIUS review authority over certain corporate acquisition activities. P.L. 115-232 extended the termination date of Section 717 from September 30, 2019, to September 30, 2025. In addition, Section 717(c) provides that any termination of sections of the DPA "shall not affect the disbursement of funds under, or the carrying out of, any contract, guarantee, commitment or other obligation entered into pursuant to this Act" prior to its termination. This means, for instance, that prioritized contracts or Section 303 projects created with DPA authorities prior to September 30, 2025, would still be executed until completion even if the DPA is not reauthorized. Similarly, the statute specifies that the authority to investigate, subpoena, and otherwise collect information necessary to administer the provisions of the act, as provided by Section 705 of the DPA, will not expire until two years after the termination of the DPA.124 For a chronology of all laws reauthorizing the DPA since inception, see Table A-4. Defense Production Act Committee The Defense Production Act Committee (DPAC) is an interagency body originally established by the 2009 reauthorization of the DPA.125 Originally, the DPAC was created to advise the President on the effective use of the full scope of authorities of the DPA. Now, the law requires DPAC to be centrally focused on the priorities and allocations authorities of Title I of the DPA. The statute assigns membership in the DPAC to the head of each federal agency delegated DPA authorities, as well as the Chairperson of the Council of Economic Advisors. A full list of the members of the DPAC is included in E.O. 13603.126 As stipulated in law, the Chairperson of the DPAC is to be the "head of the agency to which the President has delegated primary responsibility for government-wide coordination of the authorities in this Act."127 As currently established in E.O. 13603 delegations, the Secretary of Homeland Security is the chair-designate, but the language of the law could allow the President to appoint another Secretary with revision to the E.O.128 The Chairperson of the DPAC is also required to appoint one full-time employee of the federal government to coordinate all the activities of the DPAC. Congress has exempted the DPAC from the requirements of the Federal Advisory Committee Act.129 The DPAC has annual reporting requirements relating to the Title I priority and allocation authority, and is also required to include updated copies of Title I-related rules in its report. The annual report also contains, among other items, a "description of the contingency planning ... for events that might require the use of the priorities and allocations authorities" and "recommendations for legislative actions, as appropriate, to support the effective use" of the Title I authorities.130 The DPAC report is provided to the Senate Committee on Banking, Housing, and Urban Affairs and the House Committee on Financial Services. Impact of Offsets Report Offsets are industrial compensation practices that foreign governments or companies require of U.S. firms as a condition of purchase in either government-to-government or commercial sales of defense articles and/or defense services as defined by the Arms Export Control Act (22 U.S.C. §2751, et seq.) and the International Traffic in Arms Regulations (22 C.F.R. §§120-130). In the defense trade, such industrial compensation can include mandatory co-production, licensed production, subcontractor production, technology transfer, and foreign investment. The Secretary of Commerce is required by law to prepare and to transmit to the appropriate congressional committees an annual report on the impact of offsets on defense preparedness, industrial competitiveness, employment, and trade. Specifically, the report discusses "offsets" in the government or commercial sales of defense materials.131 Considerations for Congress Enhance Oversight Expand Reporting or Notification Requirements Congress may consider whether to add more extensive notification and reporting requirements on the use of all or specific authorities in the DPA. These reporting or notification requirements could be added to the existing law, or could be included in conference or committee reports accompanying germane legislation, such as appropriations bills or the National Defense Authorization Act. Additional reporting or notification requirements could involve formal notification of Congress prior to or after the use of certain authorities under specific circumstances. For example, Congress may consider whether to require the President to notify Congress (or the oversight committees) when the priorities and allocations authority is used on a contract valued above a threshold dollar amount.132 Congress might also consider expanding the existing reporting requirements of the DPAC, to include semi-annual updates on the recent use of authorities or explanations about controversial determinations made by the President. Existing requirements could also be expanded from notifying/reporting to the committees of jurisdiction to the Congress as a whole, or to include other interested committees, such as the House and Senate Armed Services Committees. Enforce and Revise Rulemaking Requirements Congress may consider reviewing the agencies' compliance with existing rulemaking requirements. A rulemaking requirement exists for the voluntary agreement authority in Title VII that has been completed by DHS, but it has not been updated since 1981 and may be in need of an update given changes to the authority and government reorganizations since that date.133 One of the agencies responsible for issuing a rulemaking on the use of Title I authorities has yet to do so. Congress may also consider potentially expanding regulatory requirements for other authorities included in the DPA. For example, Congress may consider whether the President should promulgate rules establishing standards and procedures for the use of all or certain Title III authorities. In addition to formalizing the executive branch's policies and procedures for using DPA authorities, these regulations could also serve an important function by offering an opportunity for private citizens and industry to comment on and understand the impact of DPA authorities on their personal interests. Broaden Committee Oversight Jurisdiction Since its enactment, the House Committee on Financial Services, the Senate Committee on Banking, Housing, and Urban Affairs, and their predecessors have exercised legislative oversight of the Defense Production Act. The statutory authorities granted in the various titles have been vested in the President, who has delegated some of these authorities to various agency officials through E.O. 13603. As an example of the scope of delegations, the membership of the Defense Production Act Committee (DPAC), created in 2009 and amended in 2014, includes the Secretaries of Agriculture, Commerce, Defense, Energy, Labor, Health and Human Services, Homeland Security, the Interior, Transportation, the Treasury, and State; the Attorney General; the Administrators of the National Aeronautics and Space Administration and of General Services, the Chair of the Council of Economic Advisers; and the Directors of the Central Intelligence Agency and National Intelligence. In order to complement existing oversight, given the number of agencies that currently use or could potentially use the array of DPA authorities to support national defense missions, Congress may consider reestablishing a select committee with a purpose similar to the former Joint Committee on Defense Production.134 As an alternative to the creation of a new committee, Congress may consider formally broadening DPA oversight responsibilities to include all relevant standing committees when developing its committee oversight plan. Should DPA oversight be broadened, Congress might consider ways to enhance inter-committee communication and coordination of its related activities. This coordination could include periodic meetings to prepare for oversight hearings or ensuring that DPA-related communications from agencies are shared appropriately. Finally, because the DPA was enacted at a time when the organization and rules of both chambers were markedly different to current practice, Congress may consider the joint referral of proposed DPA-related legislation to the appropriate oversight committees. Amending the Defense Production Act of 1950 While the act in its current form may remain in force until September 30, 2025, the legislature could amend the DPA at any time to extend, expand, restrict, or otherwise clarify the powers it grants to the President. For example, Congress could eliminate certain authorities altogether. Likewise, Congress could expand the DPA to include new authorities to address novel threats to the national defense. For example, Congress may consider creating new authorities to address specific concerns relating to production and security of emerging technologies necessary for the national defense.

#### Key to pandemic response.

J. Mark Gidley et al. 20. J. Mark Gidley chairs the White & Case Global Antitrust/Competition practice. Martin M. Toto and Sean Sigillito. “A Novel Antitrust Defense for COVID-19 Agreements: Section 708 of the Defense Production Act” <https://www.whitecase.com/sites/default/files/2020-04/novel-antitrust-defense-covid-19-agreements-section-708-defense-production-act.pdf>

There is a dire need for the assistance of private industry in developing vaccines and treatments for the SARS-CoV-2 virus, and for the manufacture and distribution of medical and other supplies to aid in the United States’ response to the COVID-19 health emergency. The Government’s recent actions indicate a desire to allow private sector companies to work together to do so quickly.

While many of the needs arising from the ongoing emergency focus specifically on medical supplies, the President’s delegation of Section 708 authority to the DHS as well as HHS potentially opens the door to voluntary agreements within broader sectors of the US economy. Under the right circumstances, and if the business combination could garner the governmental sponsor needed for the voluntary agreement, invoking the Defense Production Act’s antitrust relief provision through the enactment of voluntary agreements could allow for a more robust response to the COVID-19 pandemic.

#### The next pandemic will be worse --- US preparation is key

Andy Plump 21. President for research and development at Takeda Pharmaceuticals and a cofounder of the Covid R&D Alliance. “Luck is not a strategy: The world needs to start preparing now for the next pandemic” 05-18-21. https://www.statnews.com/2021/05/18/luck-is-not-a-strategy-the-world-needs-to-start-preparing-now-for-the-next-pandemic/

As countries grapple with the worst global pandemic in a century, it’s hard to think about preparing for the next one. But if we don’t, it could be worse than Covid-19. Over the last 30 years, infectious disease outbreaks have emerged with alarming regularity. The World Health Organization lists an influenza pandemic and other high-threat viral diseases such as Ebola and dengue among the top 10 biggest threats to public health. The rate of animal-to-human transmission of viruses has been increasing, with the U.S. Centers for Disease Control and Prevention estimating that 75% of new infectious diseases in humans come from animals. These zoonotic infections can have profound effects on human life. The overall infection fatality rate is around 10% for severe acute respiratory syndrome (SARS), between 40% and 75% for Nipah virus, and as high as 88% for Ebola. While the infection fatality rate for Covid-19 is lower — likely less than 1% — the overall burden of death has been significantly higher since it has affected so many people, more than 160 million people as I write this. Luck is not a pandemic strategy Although the Covid-19 pandemic has been a human and health care disaster, by scientific measures the world was lucky this time. Covid-19 was far less lethal than its predecessors, less contagious than previous pandemic viruses, and we were able to quickly develop a cadre of effective vaccines. But luck is not a strategy. The same way the U.S. invests in and prepares for national defense, it must also prepare for another pandemic. Though the next viral outbreak cannot be prevented, the next pandemic can — but only with better preparation.

### OFF

#### The aff has succumb to the reality principle – The 1AC depiction of war simply provides information necessary for the pre-planned script of western warfare

Nordin and Öberg 15. Dan Oberg, professor of military science, Swedish Defense College, Stockholm, and Astrid Nordin, professor of politics, philosophy, and religion at Lancaster University Targeting the Ontology of War: From Clausewitz to Baudrillard, Millennium: Journal of International Studies 2015, Vol. 43(2) pg. 406

We have argued to this point that critical war studies, in Clausewitz’s footsteps, is emerging as a field of study that is strongly attached to a particular ontology of ‘war’. We have also argued, however, that contemporary warfare (particularly in NATO countries) can alternatively be understood, not through the type of ‘war’ their ontology implies (war-as-fighting), but rather through various operational procedures. Our point has been to suggest that there is little or no symbolism left in a warfare which processes targets as spreadsheets, target packages and tasking-orders, through a predetermined rhythm of meetings which leads it, not to a battlefield, but to an administrative model. This model finds its ontology in Baudrillard rather than in Clausewitz. Through military operations we move from war as antagonistic exchange between subjects, to war as technical realisation. The race between targeting process and battle-rhythm resolves subjectivity, the Other and symbolic exchange through the repetition of operational procedures. This is not an example of war-as-fighting, but the enactment of a pre-planned script. This characteristic is by no means exclusive to the targeting process; rather it is indicative of how military planning is conducted in most NATO countries. It is therefore crucial to think of disappearance – enabled and exacerbated by the way warfare is infinitely repeated – as an integral part of thinking about an ontology of war. However, if target-processing and associated ways of operationalising warfare is making war in the Clausewitzean sense disappear, then why is warfare made to appear as fighting? We are constantly immersed in ‘war’ through television, art, computer games, military recruiting campaigns, and arms industry projects. They call forth ‘war’ as antagonistic and generative exchange. Consider the (simulated) fighting between warriors in the stream of screenings that includes Spartacus, 300, Troy, Braveheart, Apocalypto, or The Last Samurai. Computer games centred on war and politics – Civilization, Hearts of Iron, Total War – unfold through the idea that war is a struggle between antagonistic forms of political life. Andreas Behnke argues (correctly in our view) that the Western notion of war has lost its ontological grounding. He reads this as part of a paradox since despite its loss, warfare needs to be aestheticised and legitimised ‘beyond the purely instrumental’.68 The explanation for why this is the case often lies precisely in the way representation helps to reinforce and militarise society, as it justifies a liberal world order.69 Arguably, this explanation eschews the prior question of why the study of war needs to imagine an antagonistic and generative war in the first place. What does the idea that war is antagonistic and generative obscure? Or put more crudely, who gains from reifying war as ‘war’, or war-as-fighting? As an attempt to answer this we complement the prior explanation by suggesting that recent theories of ‘war’ have underplayed the way in which operational warfare is also, in and of itself, an act of disappearance. In doing so, they overemphasise genesis at the expense of disappearance, and obscure the loss of exchange and subjectivity from the ‘war’ they claim to depict, at the same time as they feed from its reification as such. This ‘war’ allows NATO’s member countries to send out war correspondents in body armour and helmets; to give first person shooters like Battlefield enough status as reality; to give movies like Hurt-locker, television dramas like Generation Kill, and documentaries like Armadillo their necessary ontological back-drop. Moreover, it is there to allow for spending vertiginous amounts of money on recruitment, arms production, government transitions, advertising, aid, education and – last but not least – military operations and target-processing. Crucially, ‘war’ is there to allow the researcher to study war in peace. All of us who feed from this are part of an extreme reification of war – which hides not only that ‘war’ may have ceased to be a meaningful term which structures reality, but also that these renditions of war is the closest we have to ‘war’ as it is described by Clausewitz. The ontology of war debates in which we engage are therefore part of this reification of war. In this way, the distinction between an act of warfare and the attempt to understand wars’ underlying principles is lost through the notion of war-as-fighting. Every attempt to wage war or think war in its own right (or to oppose or neglect war for that matter) refers back to this loss of meaning and distinction. Understood in this way, the focus of research on the ontology of war or on better understanding ‘war’ as an object (to make it appear as meaningful), also bestows a reality to the attempts to deal with war. The question of whether the notion of war as antagonistic and generative exchange is real is therefore not the issue, as any ontology of war risks this type of reification. Rather, we should ask why it might seem so costly to leave this particular ontology behind. Could it be because the various ways of grappling with war’s ontology are active parts of how this reality remains intact? Should we (and could we) forget the reality of ‘war’? Moreover, is a world without referents like ‘war’ a world with less violence? No, says Baudrillard, it is not: ‘[t]he immanence of the death of all the great referents ... is expressed by exacerbating the forms of violence and representation that characterized them’.70 This helps us understand why, paradoxically, in an era in which war-as-fighting has disappeared, we all speak about it, analyse it, play it on our computers and experience it through books and films – and why a calling for war studies is a logical step in the disappearance of war- as-fighting. This argument could be directed against other disciplines too – ‘war’ is not a privileged object in any respect. Nonetheless, to call for a renewed discipline of ‘war studies’ – encouraging as it may be, especially to all of us who receive research funding based on the existence of such a discipline – is therefore not without problems. It is not so much a call for an understanding of war as it is a call to supplant the absence of war in International Relations with a particular categorical blindness, since strictly speaking war is never there. Rather, it provides a ‘simulation of perspective’ as Baudrillard would call it.71 The problem is that the organised violence to which we constantly refer has no other reality than that of the model.72 That is, it has no other reality than the reality provided by representations of war (which is not to say that they are one and the same). Through this simulation, war returns as an imperative to thought. It is an explanation or an understanding through a particular category (‘war’) and not of a state of things (actions, reactions, challenges, automatism, repetition, processing). ‘War’ works as an imperative: ‘You’ve got a military and you must learn how to use it well’ You’ve got a weapon-system and you must learn how to operate it’ ‘You’ve got a target and you must learn how to task it’  ‘You’ve got an ontology of war and you must learn how to think through it.’73

#### The alternative is to pull the chair out from under the 1AC

Nordin and Öberg 15. Dan Oberg, professor of military science, Swedish Defense College, Stockholm, and Astrid Nordin, professor of politics, philosophy, and religion at Lancaster University Targeting the Ontology of War: From Clausewitz to Baudrillard, Millennium: Journal of International Studies 2015, Vol. 43(2) pg. 406

A task for future research would be to contrast it to, for example, the way ‘insurgents’ or ‘civilians’ sub- jected to military violence represent warfare. Another would be to examine disappear- ance in the wider contexts of counter-insurgency and network-centric warfare. Nevertheless, there is a risk that (critical) war studies in invoking the ontology of war- as-fighting is led back to an antagonistic and generative exchange between subjects – whether this is actually taking place or not. Attempts to think of politics, ethics, security or gender risk being forced through the mould of this particular ontology of war. Following Baudrillard, an attempt to rethink and complement the ontology of war should challenge it in a way that forces its ‘truth to withdraw – just as if one were pulling the chair out from under someone about to sit down’.76 We therefore need to think war in a way that pulls the chair out from underneath the gamer, policy maker, military officer or theorist about to sit down to ‘do war’. What does this act of ‘pulling the chair’ from underneath thought leave us with? Our hope is that it opens up for the possibility of rethinking ontologies of war in a fashion that helps us better understand and challenge their relationship to various ontic realities. Taking this question seriously gives us a new vantage point on (critical) war studies for future debates.

### OFF

#### Topical affs must increase prohibitions on the entire economy:

#### “The” before a noun means whole

Webster’s 5 (Merriam Webster’s Online Dictionary, [http://www.m-w.com/cgi-bin/dictionary](about:blank))

The

4 -- used as a function word before a noun or a substantivized adjective to indicate reference to a group as a whole <the elite>

#### “Private Sector” means all

Senate Manual 11 (Senate Document No. 112-1)//babcii

The term ``private sector'' means all persons or entities in the United States, including individuals, partnerships, associations, corporations, and educational and nonprofit institutions, but shall not include State, local, or tribal governments.112 S. Doc. 1

#### Vote NEG for limits and grounds --- Subsets explodes the topic to thousands of affs, and removes core controversy

### OFF

#### Our interpretation is that the aff can’t be the courts ---

#### Courts cannot create “antitrust law” and cannot “increase prohibitions”

Kalbfleisch 61 – Kalbfleisch, District Court judge. [Paul M. Harrod Co. v. A. B. Dick Co., 194 F. Supp. 502 (N.D. Ohio 1961)]//babcii

Defendant asserts that the term ‘antitrust laws,’ as used in the above section and as defined in 15 U.S.C.A. § 12, does not include a judgment or decree entered in connection with an antitrust case filed by the Government. Plaintiff, on the other hand, asserts that ‘the violation of the earlier decree of this court in itself gives rise to an independent cause of action under Section 4 of the Clayton Act.’ 15 U.S.C.A. § 15. Plaintiff's Brief, p. 7. Plaintiff concedes that ‘as far as he has been able to ascertain, this contention raises issues which have never before been decided by any appellate court.’ Plaintiff's Brief, p. 5. In Nashville Milk Co. v. Carnation Co., 1958, 355 U.S. 373, 78 S.Ct. 352, 2 L.Ed.2d 340, the Supreme Court held that the Robinson-Patman Act, 15 U.S.C.A. §§ 13-13b, 21a, was not included among the ‘antitrust laws' defined in Section 1 of the Clayton Act (15 U.S.C.A. § 12) and that ‘the definition contained in § 1 of the Clayton Act is exclusive.’ Id., 355 U.S. at page 376, 78 S.Ct. at page 354. The definition of ‘antitrust laws' in 15 U.S.C.A. § 12, clearly embraces only the statutes described therein. Even without such a definition the term ‘antitrust laws' could not be construed as pertaining to a judgment or decree entered by a court in connection with an antitrust case filed by the Government. Such decrees do not necessarily reflect the **prohibitions** of the antitrust laws but may, by their terms, seek to dissipate the effects of the past conduct of the parties and, to this end, frequently enjoin performance of acts lawful in themselves. To permit a private party to recover damages for violation of any provision of such a decree is so obviously beyond the scope of the term ‘antitrust laws,’ as used in the statute, as to require no further discussion. Defendant's motion to dismiss that part of the complaint based on alleged violations of the 1948 consent decree in United States v. A.B. Dick Company will be sustained.

#### Violation – the plan fiats the courts

#### Vote neg for limits and grounds --- Multiplies the # of aff’s by 2, removes any core checks on small aff’s, and allows the aff to circumvent any public backlash

### OFF

#### The United States federal government should send a vast number of extraterrestrial missions to deliver the chemical capacity for life to other planetary bodies

#### The CP is Protospermia and solves life on other planets, avoids solving extinction, and creates non-human based life which avoids human-like tech developments

**Kaçar, 20** ([Betül Kaçar](https://aeon.co/users/betul-kacar) , an assistant professor at the University of Arizona and a NASA Early Career Faculty Award recipient. She is the director of the NASA Astrobiology Consortium [MUSE](http://muse.arizona.edu/), , 11-20-2020, accessed on 5-14-2021, Aeon, "If we’re alone in the Universe, should we do anything about it? – Betül Kaçar | Aeon Essays", https://aeon.co/essays/if-were-alone-in-the-universe-should-we-do-anything-about-it)//babcii

The pursuit of solving the particular problem of the origins of life on Earth can help solve the more generic problem of understanding the origins of any life, anywhere, anytime. With such knowledge, it might be possible to eventually ‘fill in the gap’ between natural processes linking geochemistry and biogenicity on many different worlds. If astrobiologists could physicochemically assess what ingredients might enable many planets to generate their own forms of life that were ‘of’ that planet, it might bring forth life where and how it wouldn’t otherwise have existed. We would deliver a starting point, but the unfolding trajectory of this chemical system won’t be directed, it will be self-directed and self-organised. What occurs next will result from the coevolution between the chemical goo and the planetary body itself – a solution that is unrelated to our biology, and specific to that planetary system. Sending the chemical capacity for life to emerge on another planetary body is what I call protospermia. This differs from terraforming, which involves altering an existing environment to make it suitable for a particular form of life. Finally, panspermia delivers one particular form of life to an existing environment such that it might or might not eventually take root on its own. These methods all involve relocating existing life forms to another planet, one way or another. Protospermia is different. It doesn’t require ploughing over whatever living or nonliving chemical systems were already present at the destination. With protospermia, whatever arises after we provide a nudge toward biogenesis would be just as much a product of that environment as our life is of Earth. Whatever arises after we provide a nudge might (or might not) look anything like Earth life. It would be unique and ‘of’ that destination body as much as its rocks on the ground and the gasses in its atmosphere.

### OFF

#### Interpretation: the plan must specify how they expand antitrust to include regulated industries and what anticompetitive business practices they increase prohibitions on – failing to do so makes the aff a moving target and kills negative ground

#### Independently causes circumvention --- the devil is in the details---Any vagueness will ensure failed enforcement

Hanley, 21 (Daniel A. Hanley, a policy analyst at the Open Markets Institute., 4-6-2021, accessed on 8-10-2021, Slate, "How Antitrust Lost Its Bite", https://slate.com/technology/2021/04/antitrust-hearings-congress-legislation-bright-line-rules.html)//Babcii

History has consistently shown that only bright-line rules will lead to an effective and vigorous enforcement environment, as they do in other areas of law, and prevent the judiciary from favoring dominant economic enterprises and distorting the antitrust laws to preference increased concentration. The Supreme Court’s original development of the rule of reason and its subsequent gutting of the enforcement of the Clayton Act in the 1930s is particularly illustrative of why bright-line rules are necessary. A critical weakness of the Sherman Act when it was passed in 1890 was that it did not incorporate bright-line rules and left the interpretation of the act almost entirely to the judiciary. Despite its broad moral intentions, the first 15 years of its enforcement were anemic against concentrated private power and even [hostile to organized labor](https://escholarship.org/uc/item/8cj0z1tq). Eventually the federal government would obtain its first significant victory [in 1904](https://en.wikipedia.org/wiki/Northern_Securities_Co._v._United_States), but the legal standard that the court would use to determine the legality of antitrust violations was not fully decided until the 1911 Standard Oil case, in which the Supreme Court codified the rule of reason. [Standard Oil v. United States](https://en.wikipedia.org/wiki/Standard_Oil_Co._of_New_Jersey_v._United_States) is widely known for breaking up the company. However, the case was actually a pyrrhic victory for antitrust enforcers. In the case, the court created the foundation for the rule of reason by declaring that only “unreasonable” trade practices (known as restraints of trade) were illegal under the Sherman Act. In other words, the judiciary in Standard Oil anointed itself with unilateral discretionary power to manage and organize the economy and neutered the Sherman Act’s application. Outrage from Congress and the public over the judiciary’s seizure of power resulted in swift action. Less than three years later, Congress would try to reassert its position to ensure a deconcentrated marketplace with the Clayton Act. When Congress enacted the Clayton Act in 1914, its primary goal was to supplement the Sherman Act by bolstering a plaintiff’s ability to arrest certain enumerated conduct in its incipiency—to nip monopolistic behavior in the bud. The Clayton Act explicitly lessened the litigation burden on plaintiffs for certain exclusionary practices, including certain forms of tying (conditioning the purchase of a product on the purchase of another product), price discrimination, and exclusive dealing (contracts or coercive behavior that prevents suppliers or distributors from engaging with a firm’s rivals). Most importantly, Congress included in the Clayton Act a highly deferential and plaintiff-friendly legal standard meant to prohibit mergers (although only limited to acquisitions of assets and not for stock) that only “may be to substantially lessen competition” or “tend to create a monopoly.” The Clayton Act made clear that Congress was trying to arrest certain antitrust violations such as mergers as a means to grow corporate operations, and to reverse the Supreme Court’s declaration in [Standard Oil](https://en.wikipedia.org/wiki/Standard_Oil_Co._of_New_Jersey_v._United_States). However, the Supreme Court would instead successfully hijack this antitrust law too, in order to favor its own prescription for managing the economy. In a 1930 case known as [International Shoe](https://supreme.justia.com/cases/federal/us/280/291/), the Supreme Court decided to interpret the Clayton Act’s directive on mergers, despite its explicit purpose and statutory language, in an equivalent way to the Sherman Act. The court said the Clayton Act also deemed the indicator of an illegal merger to be whether it “injuriously affect[ed] the public”—yet again, a gutting of Congress’ intentions for a robust antitrust law. After the court’s holding in International Shoe, [almost no merger cases](https://heinonline.org/HOL/LandingPage?handle=hein.journals/antlervi3&div=6&id=&page=) were brought either by the Federal Trade Commission or the Department of Justice between 1930 and 1950. Even though the New Deal during the 1930s invigorated antitrust enforcement for violations of the Sherman Act targeting cartels and monopolies, it still took decades of advocacy for the Clayton Act to be significantly amended in 1950 to undo the Supreme Court’s damage. Even then, however, Congress did not impose a bright-line rule for mergers. And although the 1950 amendments to the Clayton Act did lead to vigorous enforcement, it would last only for another decade until the Supreme Court would, in a series of decisions, invent two doctrines, known as [antitrust injury](https://supreme.justia.com/cases/federal/us/479/104/) and [antitrust standing](https://supreme.justia.com/cases/federal/us/429/477/). These doctrines would again erode significant aspects of antitrust enforcement of both the Sherman Act and Clayton Act to the present day. The implementation of the consumer welfare framework since the 1970s is additional evidence from more than a century of consistent judicial mismanagement and hostility toward Congress’ desire to stop corporate concentration. Simply put, the courts cannot be trusted to adequately enforce antitrust laws without bright-line rules. If Congress is going to amend the antitrust laws to ensure they are effectively administered, rules that ban big mergers and the monopolization of markets, prohibit coercive contracts against small suppliers and distributors, and protect workers from dominant corporations must be imposed. Anything less leaves the door open for the judiciary to continue subverting Congress’ economic agenda, as dictated by the voting public, and instead substitute its own. Without bright-line rules, the current reform efforts will be in vain.

## Case

### 1NC --- Adv 1

#### Vote neg on presumption ---

#### 1. Zeno’s paradox---market activity won’t happen because motion is impossible

SEP 19 (Stanford Encyclopedia of Philosophy, <https://plato.stanford.edu/cgi-bin/encyclopedia/archinfo.cgi?entry=paradox-zeno>,)

The first asserts the non-existence of motion on the ground that that which is in locomotion must arrive at the half-way stage before it arrives at the goal. (Aristotle Physics, 239b11) This paradox is known as the ‘dichotomy’ because it involves repeated division into two (like the second paradox of plurality). Like the other paradoxes of motion we have it from Aristotle, who sought to refute it. Suppose a very fast runner—such as mythical Atalanta—needs to run for the bus. Clearly before she reaches the bus stop she must run half-way, as Aristotle says. There’s no problem there; supposing a constant motion it will take her 1/2 the time to run half-way there and 1/2 the time to run the rest of the way. Now she must also run half-way to the half-way point—i.e., a 1/4 of the total distance—before she reaches the half-way point, but again she is left with a finite number of finite lengths to run, and plenty of time to do it. And before she reaches 1/4 of the way she must reach 1/21/2 of 1/4=1/81/4=1/8 of the way; and before that a 1/16; and so on. There is no problem at any finite point in this series, but what if the halving is carried out infinitely many times? The resulting series contains no first distance to run, for any possible first distance could be divided in half, and hence would not be first after all. However it does contain a final distance, namely 1/2 of the way; and a penultimate distance, 1/4 of the way; and a third to last distance, 1/8 of the way; and so on. Thus the series of distances that Atalanta is required to run is: …, then 1/16 of the way, then 1/8 of the way, then 1/4 of the way, and finally 1/2 of the way (for now we are not suggesting that she stops at the end of each segment and then starts running at the beginning of the next—we are thinking of her continuous run being composed of such parts). And now there is a problem, for this description of her run has her travelling an infinite number of finite distances, which, Zeno would have us conclude, must take an infinite time, which is to say it is never completed. And since the argument does not depend on the distance or who or what the mover is, it follows that no finite distance can ever be traveled, which is to say that all motion is impossible. (Note that the paradox could easily be generated in the other direction so that Atalanta must first run half way, then half the remaining way, then half of that and so on, so that she must run the following endless sequence of fractions of the total distance: 1/2, then 1/4, then 1/8, then ….) A couple of common responses are not adequate. One might—as Simplicius ((a) On Aristotle’s Physics, 1012.22) tells us Diogenes the Cynic did by silently standing and walking—point out that it is a matter of the most common experience that things in fact do move, and that we know very well that Atalanta would have no trouble reaching her bus stop. But this would not impress Zeno, who, as a paid up Parmenidean, held that many things are not as they appear: it may appear that Diogenes is walking or that Atalanta is running, but appearances can be deceptive and surely we have a logical proof that they are in fact not moving at all. Alternatively if one doesn’t accept that Zeno has given a proof that motion is illusory—as we hopefully do not—one then owes an account of what is wrong with his argument: he has given reasons why motion is impossible, and so an adequate response must show why those reasons are not sufficient. And it won’t do simply to point out that there are some ways of cutting up Atalanta’s run—into just two halves, say—in which there is no problem. For if you accept all of the steps in Zeno’s argument then you must accept his conclusion (assuming that he has reasoned in a logically deductive way): it’s not enough to show an unproblematic division, you must also show why the given division is unproblematic.

#### 2. Cause and effect are synonyms and impossible --- Impossible to know if the aff solves anything

Empiricus 200 A.D. (Sextus Empiricus was a [Pyrrhonist](https://en.wikipedia.org/wiki/Pyrrhonism) [philosopher](https://en.wikipedia.org/wiki/Philosopher) and a [physician](https://en.wikipedia.org/wiki/Physician). His philosophical works are the most complete surviving account of ancient Greek and Roman Pyrrhonism, and because of the arguments they contain against the other [Hellenistic philosophies](https://en.wikipedia.org/wiki/Hellenistic_philosophy) they are also a major source of information about those philosophies. “Outlines of Skepticism” p. 148-149)

That it is also plausible to say that nothing is a cause of anything will be evident when we have set out for the present a few of the many arguments which suggest this. Thus, it is impossible to conceive of a cause before apprehending its effect as an effect of it; for we recognize that it is a cause of its effect only when we apprehend the latter as an effect. But we cannot apprehend the effect of a cause as its effect if we have not apprehended the cause of the effect as its cause; for we think that we know that it is its effect only when we have apprehended its cause as a cause of it. Thus if, in order to conceive of a cause, we must already have recognized its effect, and in order to know its effect as I have said, we must already know the cause, the reciprocal mode of puzzlement shows that both are inconceivable: the cause cannot be conceived of as a cause nor the effect as an effect; for each of them needs to be made convincing by the other, and we shall not know from which to begin to form the concept. Hence we shall not be able to assert that anything is a cause of anything. To concede that it is possible to conceive of causes, they will be deemed to be inapprehensible because of the dispute. For some say that some things are causes of others, some say that they are not, and some have suspended judgment. Anyone therefore, who says that some things are causes of others either states that he says this simply and impelled by no reasonable cause or else will say that he came to give assent to this because of certain causes. If simply, then he will not be more convincing than someone who says simply that nothing is a cause of anything; and if he states causes because of which he deems that some things are causes of others, then he will be attempting to establish the matter under investigation by way of the matter under investigation - for we are investigating whether anything is a cause of anything, and he says, as though there were causes, that there is a cause of there being causes. Again, since we are investigating the reality of causes, he will have to provide a cause for the cause of there being causes - and another for that, and so ad infinitum. But it is impossible to provide infinitely many causes. Therefore, it is impossible to assert firmly that anything is a cause of anything.

### 1NC --- Adv 2

#### Every current experiment, the CERN’s discovery of the Higgs Boson, and measurements of quark masses confirm we are living in a False (also called metastable) Vacuum

Markkanen et al., 18 (Tommi Markkanen, Arttu Rajantie, and Stephen Stopyra, Department of Physics, Imperial College London, London, United Kingdom --- Department of Physics and Astronomy, University College London, London, United Kingdom, 12-18-2018, accessed on 4-28-2021, Frontiers, "Cosmological Aspects of Higgs Vacuum Metastability", <https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full)//Babcii>

The current central experimental values of the parameters of the Standard Model give rise to a striking conclusion: metastability of the electroweak vacuum is favored over absolute stability. A metastable vacuum for the Higgs boson implies that it is possible, and in fact inevitable, that a vacuum decay takes place with catastrophic consequences for the Universe. The metastability of the Higgs vacuum is especially significant for cosmology, because there are many mechanisms that could have triggered the decay of the electroweak vacuum in the early Universe. We present a comprehensive review of the implications from Higgs vacuum metastability for cosmology along with a pedagogical discussion of the related theoretical topics, including renormalization group improvement, quantum field theory in curved spacetime and vacuum decay in field theory.

1. Introduction

One of the most striking results of the discovery of Higgs boson ([Aad et al., 2012](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B1); [Chatrchyan et al., 2012](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B57)) has been that its mass lies in a regime that predicts the current vacuum state to be a false vacuum, that is, there is a lower energy vacuum state available to which the electroweak vacuum can decay into ([Degrassi et al., 2012](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B79); [Buttazzo et al., 2013](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B46)). That this was a possibility in the Standard Model (SM) has been known for a long time ([Hung, 1979](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B154); [Sher, 1993](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B237); [Casas et al., 1996](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B54); [Isidori et al., 2001](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B155); [Ellis et al., 2009](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B95); [Elias-Miro et al., 2012](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B89)). The precise behavior of the Higgs potential is sensitive to the experimental inputs, in particular the physical masses for the Higgs and the top quark and also physics beyond the SM. The current best estimates of the Higgs and top quark masses ([Tanabashi et al., 2018](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full#B245)),

Mh=125.18±0.16 GeV, Mt=173.1±0.9 GeV,    (1.1)Mh=125.18±0.16 GeV, Mt=173.1±0.9 GeV,    (1.1)

place the Standard Model squarely in the metastable region.

#### The newest experiments confirm the standard model --- The Higgs Boson was confirmed to decay into muons (Second-generation particles)

**CIT, 20** (California Institute of Technology, The California Institute of Technology (Caltech)[7] is a private research university in Pasadena, California. The university is known for its strength in science and engineering, and is one among a small group of institutes of technology in the United States which is primarily devoted to the instruction of pure and applied sciences., 10-11-2020, accessed on 4-28-2021, SciTechDaily, "Extremely Rare Higgs Boson Decay Process Spotted at the Large Hadron Collider", <https://scitechdaily.com/extremely-rare-higgs-boson-decay-process-spotted-at-the-large-hadron-collider/)//Babcii>

This summer, for the first time, particle physicists using data collected by the experiment known as the Compact Muon Solenoid (CMS) at the LHC, have found evidence that the Higgs boson decays into a pair of elementary particles called muons. The muon is a heavier version of the electron, and both muons and electrons belong to a class of particles known as fermions, as described in the widely accepted model of particles called the Standard Model. The Standard Model classifies all particles as either fermions or bosons. Generally, fermions are building blocks of all matter, and bosons are the force carriers.

A muon is also what is known as a second-generation particle. First-generation fermion particles such as electrons are the lightest of particles; second- and third-generation particles can decay to become first-generation particles. The new finding represents the first evidence that the Higgs boson interacts with second-generation fermions.

In addition, this result provides further evidence that the decay rate of the Higgs to fermion pairs is proportional to the square of the mass of the fermion. This is a key prediction of the Higgs theory. With more data, the LHC experiments are expected to confirm that indeed the Higgs gives the fundamental particles their mass.

“The importance of this measurement is that we are probing rare processes involving the Higgs boson, and we are in the precision Higgs physics investigation regime where any departure from the Standard Model predictions can point us to new physics,” says Maria Spiropulu, the Shang-Yi Ch’en Professor of Physics at Caltech.

Scientists analyzing data from another instrument at the LHC, known as ATLAS (A Toroidal LHC ApparatuS), also found corroborating evidence for the Higgs boson decaying into muons. The results from both experiments were presented at the 40th International Conference on High Energy Physics in August 2020.

#### The only way to cause a phase shift (vacuum decay) is new physics developments

\* This also answers, “Quantum tunneling” and “Particle collisions” thump

**Dattaro, 14** (Laura Dattaro, 2014, accessed on 4-28-2021, Popular Mechanics, "What Stephen Hawking Really Said About Destroying the Universe", https://www.popularmechanics.com/science/a11217/what-stephen-hawking-really-said-about-destroying-the-universe-17192502/)//Babcii

Once physicists began to close in on the mass of the Higgs boson, they were able to work out the Higgs potential. That value seemed to reveal that the universe exists in what's known as a meta-stable vacuum state, or false vacuum, a state that's stable for now but could slip into the "true" vacuum at any time. This is the catastrophic vacuum decay in Hawking's warning, though he is not the first to posit the idea. Is he right? "There are a couple of really good reasons to think that's not the end of the story," Mack says. There are two ways for a meta-stable state to fall off into the true vacuum—one classical way, and one quantum way. The first would occur via a huge energy boost, the 100 billion GeVs Hawking mentions. But, Mack says, the universe already experienced such high energies during the period of inflation just after the big bang. Particles in cosmic rays from space also regularly collide with these kinds of high energies, and yet the vacuum hasn't collapsed (otherwise, we wouldn't be here). "Imagine that somebody hands you a piece of paper and says, 'This piece of paper has the potential to spontaneously combust,' and so you might be worried," Mack says. "But then they tell you 20 years ago it was in a furnace." If it didn't combust in the furnace, it's not likely to combust sitting in your hand. Of course, there's always the quantum world to consider, and that's where things always get weirder. In the quantum world, where the smallest of particles interact, it's possible for a particle on one side of a barrier to suddenly appear on the other side of the barrier without actually going through it, a phenomenon known as quantum tunneling. If our universe was in fact in a meta-stable state, it could quantum tunnel through the barrier to the vacuum on the other side with no warning, destroying everything in an instant. And while that is theoretically possible, predictions show that if it were to happen, it's not likely for billions of billions of years. By then, the sun and Earth and you and I and Stephen Hawking will be a distant memory, so it's probably not worth losing sleep over it. What's more likely, Mack says, is that there is some new physics not yet understood that makes our vacuum stable. Physicists know there are parts of the model missing; mysteries like quantum gravity and dark matter that still defy explanation. When two physicists published a paper documenting the Higgs potential conundrum in March, their conclusion was that an explanation lies beyond the Standard Model, not that the universe may collapse at any time.

#### Those physics developments are inevitable absent a wipeout --- The first is sub-quatum weapons

Bekkum, 4 (Gary Bekkum, Founder of Spacetime Threat Assessment Report Research, Founder of STARstream Research, Futurist,, 5-11-2004, accessed on 4-28-2021, Pravda English, "American military is pursuing new types of exotic weapons", https://english.pravda.ru/science/5527-weapons/)//Babcii

Cook was intrigued when I pointed out the apparent connections between various private investors, defense contractors, NASA, INSCOM (American military intelligence), and the CIA. researching exotic propulsion technologies Cook had heard rumors of a new kind of weapon, a "sub-quantum atomic bomb", being whispered about in what he called the "dark halls" of defense research. Sub-quantum physics is a controversial re-interpretation of quantum theory, based on so-called pilot wave theories, where an information field controls quantum particles. The late Professor David Bohm showed that the predictions of ordinary quantum mechanics could be recast into a pilot wave information theory. Recently Anthony Valentini of the Perimeter Institute has suggested that ordinary quantum theory may be a special case of pilot wave theories, leaving open the possibility of new and exotic non-quantum technologies. Some French, Serbian and Ukrainian physicists have been working on new theories of extended electrons and solitons, so perhaps a sub-quantum bomb is not entirely out of the question. Even if the rumors of a sub-quantum bomb are pure fantasy, there is no question that mainstream physicists seriously contemplate a phase transition in the quantum vacuum as a real possibility. The quantum vacuum defies common sense, because empty space in quantum field theory is actually filled with virtual particles. These virtual particles appear and disappear far too quickly to be detected directly, but their existence has been confirmed by experiments that demonstrate their influence on ordinary matter. "Such research should be forbidden!" In the early 1970's Soviet physicists were concerned that the vacuum of our universe was only one possible state of empty space. The fundamental state of empty space is called the "true vacuum". Our universe was thought to reside in a "false vacuum", protected from the true vacuum by "the wall of our world". A change from one vacuum state to another is known as a phase transition. This is analogous to the transition between frozen and liquid water. Lev Okun, a Russian physicist and historian recalls Andrei Sakharov, the father of the Soviet hydrogen bomb, expressing his concern about research into the phase transitions of the vacuum. If the wall between vacuum states was to be breached, calculations showed that an unstoppable expanding bubble would continue to grow until it destroyed our entire universe! Sakharov declared that "Such research should be forbidden!" According to Okun, Sakharov feared that an experiment might accidentally trigger a vacuum phase transition**.**

#### The second is vacuum energy exploitation

Folger, 8 (Tim Folger, Contributing Editor at Discover Magazine, Writer for National Geographic, MA in Journalism from New York University, BA in Physics from UC Santa Cruz, 7-18-2008, accessed on 4-28-2021, Discover Magazine, "Nothingness of Space Could Illuminate the Theory of Everything", https://www.discovermagazine.com/the-sciences/nothingness-of-space-could-illuminate-the-theory-of-everything)//Babcii

When the next revolution rocks physics, chances are it will be about nothing—the vacuum, that endless infinite void. In a discipline where the stretching of time and the warping of space are routine working assumptions, the vacuum remains a sort of cosmic koan. And as in the rest of physics, its nature has turned out to be mind-bendingly weird: Empty space is not really empty because nothing contains something, seething with energy and particles that flit into and out of existence. Physicists have known that much for decades, ever since the birth of quantum mechanics. But only in the last 10 years has the vacuum taken center stage as a font of confounding mysteries like the nature of dark energy and matter; only recently has the void turned into a tantalizing beacon for cranks. As one blond celebrity heiress and embodiment of emptiness might say, nothing is hot. To investigate the mysteries of the void, some physicists are using the biggest scientific instrument ever built—the just-completed Large Hadron Collider, a huge particle accelerator straddling the French-Swiss border. Others are designing tabletop experiments to see if they can plumb the vacuum for ways to power strange new nanotech devices. “The vacuum is one of the places where our knowledge fizzles out and we’re left with all sorts of crazy-sounding ideas,” says John Baez, a mathematical physicist at the University of California at Riverside. Whether in the visionary search for the engine of cosmic expansion or the near-fruitless quest for perpetual free energy, the vacuum is where it’s happening. By mining the vacuum’s riches, a true theory of everything may yet emerge. Empty space wasn’t always so mystifying. Until the 1920s physicists viewed the vacuum much as the rest of us still do: as a featureless nothingness, a true void. That all changed with the birth of quantum mechanics. According to that theory, the space around a particle is filled with countless “virtual” particles rapidly bursting into and out of existence like an invisible fireworks display. Those virtual quantum particles are more than a theoretical abstraction. Sixty years ago a Dutch physicist named Hendrik Casimir suggested a simple experiment to show that virtual particles can move objects in the real world. What would happen, he asked, to two metal plates placed very close together in a complete vacuum? In the days before quantum mechanics, physicists would have said that the plates would just sit there. But Casimir realized that the net pressure of all the virtual particles—the stuff of empty space—outside the plates should exert a minuscule force, a nudge from nothing that would push the plates together. Physicists tried for decades to measure the Casimir force with great precision, but it wasn’t until 1997 that technology caught up with theory. In that year, physicist Steve Lamoreaux, now at Yale, managed to detect the feeble Casimir force on two small surfaces separated by a few thousandths of a millimeter. Its strength was about equal to the force that would be exerted against the palm of one’s hand by the weight of a single red blood cell. At first most physicists regarded the Casimir force as a quantum oddity, something of no practical value. Now that has changed: Forward thinkers see it as an important energizer for the tiniest of machines, devices on the nano scale, and a few labs are working on ways to use the force to defy the conventional limitations of mechanical design. Federico Capasso, a physicist at Harvard, leads a small team that is trying to create a repulsive Casimir force by tinkering with the shapes of plates or with the coatings used to cover them. His entire set of experiments fits on a desktop, and the objects he works with are so small that most of them cannot be seen without a microscope. “Once you have a repulsive force between two plates, you should be able to eliminate static friction,” Capasso says. That could lead to a host of useful applications, including tiny frictionless bearings or nanogears that spin without touching. “But the experiments are enormously difficult, so I cannot tell you when and how.” For all its strangeness, the Casimir force may be the one property of empty space that does not baffle today’s physicists. It is garden-variety quantum mechanics, weird but not unexpected. The same can’t be said about dark energy, a truly astonishing discovery made by astronomers a decade ago while observing distant exploding stars. The explosions revealed a universe expanding at an ever-faster rate, a finding at odds with previous expectations that the expansion of the cosmos should be slowing down, braked by the collective gravitational pull of all the matter out there. Some unknown form of energy—physicists call it dark energy simply for lack of a more descriptive term—appears to be built into the very fabric of space, countering the gravitational pull of matter and pushing everything in the universe apart. Some theorists speculate that dark energy might cause a runaway expansion of the universe, resulting in a so-called Big Rip some 50 billion years from now that would tear the cosmos to pieces, shredding even atoms. The observations have allowed physicists to estimate the quantity of dark energy by deducing the force needed to produce the accelerating effect. The result is a minuscule amount of energy for every cubic meter of vacuum. Since most of the cosmos consists of empty space, though, that little bit adds up, and the total amount of dark energy completely dominates the dynamics of the universe. With the discovery of dark energy came difficult questions: What is this energy, and where does it come from? Physicists simply do not know. According to quantum mechanics, the energy of empty space comes from the virtual particles that dwell there. But when physicists use the equations of quantum theory to calculate the amount of that virtual energy, they get a ridiculously huge number—about 120 orders of magnitude too large. That much energy would literally blow the universe apart: Objects a few inches from us would be carried away to astronomical distances; the universe would literally double in size every 10-43 second, and it would keep doubling at that rate until all the vacuum energy was gone. This may be the most colossal gap between observation and theory in the history of science. And it means that physicists are missing something fundamental about the way the universe works. “We’ve made a prediction on the basis of our best theories, and it is wrong, wildly wrong,” says Sean Carroll, a theoretical physicist at the California Institute of Technology. “That means we don’t just tweak a parameter here and there; we really have to think deeply about what our theories are.” Even if no one knows where the energy of empty space comes from or why it has the value it does, there is now no doubt that it exists. And if there is energy to be had, there is inevitably somebody out there thinking of how to exploit it. The notion of limitless energy from empty space has inspired legions of wannabe physicists who dream of developing the ultimate perpetual-motion device, a machine that would solve the world’s energy problems forever. A quick Internet search for the words free energy and vacuum turns up pages and pages of schemes for tapping the vacuum’s energy. I ask John Baez if such efforts are as hopeless as previous perpetual-motion machines. Are they equally crazy and doomed to failure? “Perhaps not as doomed as trying to prove the world is flat,” Baez says. “One thing I can say is that I sure hope it doesn’t work, because if you could extract energy from the vacuum, it would mean that the vacuum is not stable. For normal physicists,” he adds with a laugh, “the definition of the vacuum is that it’s the lowest-energy situation possible—it has less energy than anything else.” In short, Baez says, while we may be able to get energy from the vacuum, success “would mean the universe is far more unstable than we ever dreamed.” The reasoning goes like this: If the vacuum is not at the lowest energy state possible, then at some point in the future, the vacuum could fall to a lower state, pulsing out energy that would threaten the very structure of the cosmos. If some clever engineer were ever to extract energy from the vacuum, it could set off a chain reaction that would spread at the speed of light and destroy the universe. Free energy, yes, but not what the inventors had in mind.

#### The third is quantum observation of the universe

Brooks 15 (Michael Brooks, who holds a PhD in quantum physics, is an author, journalist and broadcaster. He is a consultant at New Scientist, a magazine with over three quarters of a million readers worldwide,and writes a weekly column for the New Statesman. He is the author of At The Edge of Uncertainty, The Secret Anarchy of Science and the bestselling non-fiction title 13 Things That Don't Make Sense. His writing has also appeared in the Guardian, the Independent, the Observer, the Times Higher Education, the Philadelphia Inquirer and many other newspapers and magazines. He has lectured at various places, including New York University, The American Museum of Natural History and Cambridge University. “Human Universe,” New Scientist, 02624079, 5/2/2015, Vol. 226, Issue 3019)

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

#### The fourth is hydron colliders and the fifth is black swans

Bostrom, 01 (Nick Bostrom, The homie, Professor, Faculty of Philosophy, Oxford University, 2001, accessed on 4-29-2021, Nickbostrom, "Existential Risks: Analyzing Human Extinction Scenarios", https://nickbostrom.com/existential/risks.html)//Babcii

4.7 Something unforeseen We need a catch-all category. It would be foolish to be confident that we have already imagined and anticipated all significant risks. Future technological or scientific developments may very well reveal novel ways of destroying the world. Some foreseen hazards (hence not members of the current category) which have been excluded from the list of bangs on grounds that they seem too unlikely to cause a global terminal disaster are: solar flares, supernovae, black hole explosions or mergers, gamma-ray bursts, galactic center outbursts, supervolcanos, loss of biodiversity, buildup of air pollution, gradual loss of human fertility, and various religious doomsday scenarios. The hypothesis that we will one day become “illuminated” and commit collective suicide or stop reproducing, as supporters of VHEMT (The Voluntary Human Extinction Movement) hope [43], appears unlikely. If it really were better not to exist (as Silenus told king Midas in the Greek myth, and as Arthur Schopenhauer argued [44] although for reasons specific to his philosophical system he didn’t advocate suicide), then we should not count this scenario as an existential disaster. The assumption that it is not worse to be alive should be regarded as an implicit assumption in the definition of Bangs. Erroneous collective suicide is an existential risk albeit one whose probability seems extremely slight. (For more on the ethics of human extinction, see chapter 4 of [9].) 4.8 Physics disastersThe Manhattan Project bomb-builders’ concern about an A-bomb-derived atmospheric conflagration has contemporary analogues. There have been speculations that future high-energy particle accelerator experiments may cause a breakdown of a metastable vacuum state that our part of the cosmos might be in, converting it into a “true” vacuum of lower energy density [45]. This would result in an expanding bubble of total destruction that would sweep through the galaxy and beyond at the speed of light, tearing all matter apart as it proceeds. Another conceivability is that accelerator experiments might produce negatively charged stable “strangelets” (a hypothetical form of nuclear matter) or create a mini black hole that would sink to the center of the Earth and start accreting the rest of the planet [46]. These outcomes seem to be impossible given our best current physical theories. But the reason we do the experiments is precisely that we don’t really know what will happen. A more reassuring argument is that the energy densities attained in present day accelerators are far lower than those that occur naturally in collisions between cosmic rays [46,47]. It’s possible, however, that factors other than energy density are relevant for these hypothetical processes, and that those factors will be brought together in novel ways in future experiments. The main reason for concern in the “physics disasters” category is the meta-level observation that discoveries of all sorts of weird physical phenomena are made all the time, so even if right now all the particular physics disasters we have conceived of were absurdly improbable or impossible, there could be other more realistic failure-modes waiting to be uncovered. The ones listed here are merely illustrations of the general case.

#### A phase transition threatens *all* life which necessitates a form of util that extends to the cosmos --- Anything else is arbitrary and violent

\*This is specifically applying util to our impact

Joe Packer 7, then MA in Communication from Wake Forest University, now PhD in Communication from the University of Pittsburgh and Professor of Communication at Central Michigan University, Alien Life in Search of Acknowledgment, p. 62-63

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

#### Even a small chance of universe extinction outweighs certain human extinction --- Earth is cosmically insignificant.

Dr. Nick Hughes 18, Postdoctoral Research Fellow at University College Dublin, PhD in Philosophy from University of St Andrews & University of Olso, and Dr. Guy Kahane, Professor of Philosophy at the University of Oxford, D. Phil. in Philosophy from Oxford University, “Our Cosmic Insignificance”, 7-6, <http://www.unariunwisdom.com/our-cosmic-insignificance/>

Humanity occupies a very small place in an unfathomably vast Universe. Travelling at the speed of light – 671 million miles per hour – it would take us 100,000 years to cross the Milky Way. But we still wouldn’t have gone very far. Our modest Milky Way galaxy contains 100–400 billion stars. This isn’t very much: according to the latest calculations, the observable universe contains around 300 sextillion stars. By recent estimates, our Milky Way galaxy is just one of 2 trillion galaxies in the observable Universe, and the region of space that they occupy spans at least 90 billion light-years. If you imagine Earth shrunk down to the size of a single grain of sand, and you imagine the size of that grain of sand relative to the entirety of the Sahara Desert, you are still nowhere near to comprehending how infinitesimally small a position we occupy in space. The American astronomer Carl Sagan put the point vividly in 1994 when discussing the famous ‘Pale Blue Dot’ photograph taken by Voyager 1. Our planet, he said, is nothing more than ‘a mote of dust suspended in a sunbeam’. Stephen Hawking delivers the news more bluntly. We are, he says, “just a chemical scum on a moderate-sized planet, orbiting round a very average star in the outer suburb of one among a hundred billion galaxies.” And that’s just the spatial dimension. The observable Universe has existed for around 13.8 billion years. If we shrink that span of time down to a single year, with the Big Bang occurring at midnight on 1 January, the first Homo sapiens made an appearance at 22:24 on 31 December. It’s now 23:59:59, as it has been for the past 438 years, and at the rate we’re going it’s entirely possible that we’ll be gone before midnight strikes again. The Universe, on the other hand, might well continue existing forever, for all we know. Sagan could have added, then, that our time on this mote of dust will amount to nothing more than a blip. In the grand scheme of things we are very, very small. For Sagan, the Pale Blue Dot underscores our responsibility to treat one another with kindness and compassion. But reflection on the vastness of the Universe and our physical and temporal smallness within it often takes on an altogether darker hue. If the Universe is so large, and we are so small and so fleeting, doesn’t it follow that we are utterly insignificant and inconsequential? This thought can be a spur to nihilism. If we are so insignificant, if our existence is so trivial, how could anything we do or are – our successes and failures, our anxiety and sadness and joy, all our busy ambition and toil and endeavour, all that makes up the material of our lives – how could any of that possibly matter? To think of one’s place in the cosmos, as the American philosopher Susan Wolf puts it in ‘The Meanings of Lives’ (2007), is ‘to recognise the possibility of a perspective … from which one’s life is merely gratuitous’. The sense that we are somehow insignificant seems to be widely felt. The American author John Updike expressed it in 1985 when he wrote of modern science that: We shrink from what it has to tell us of our perilous and insignificant place in the cosmos … our century’s revelations of unthinkable largeness and unimaginable smallness, of abysmal stretches of geological time when we were nothing, of supernumerary galaxies … of a kind of mad mathematical violence at the heart of the matter have scorched us deeper than we know. In a similar vein, the French philosopher Blaise Pascal wrote in *Pensées* (1669): When I consider the short duration of my life, swallowed up in an eternity before and after, the little space I fill engulfed in the infinite immensity of spaces whereof I know nothing, and which know nothing of me, I am terrified. The eternal silence of these infinite spaces frightens me. Commenting on this passage in *Between Man and Man* (1947), the Austrian-Israeli philosopher Martin Buber said that Pascal had experienced the ‘uncanniness of the heavens’, and thereby came to know ‘man’s limitation, his inadequacy, the casualness of his existence’. In the film *Monty Python’s* *The Meaning of Life* (1983), John Cleese and Eric Idle conspire to persuade a character, played by Terry Gilliam, to give up her liver for donation. Understandably reluctant, she is eventually won over by a song that sharply details just how comically inconsequential she is in the cosmic frame. Even the relatively upbeat Sagan wasn’t, in fact, immune to the pessimistic point of view. As well as viewing it as a lesson in the need for collective goodwill, he also argued that the Pale Blue Dot challenges ‘our posturings, our imagined self-importance, and the delusion that we have some privileged position in the Universe’. When we reflect on the vastness of the universe, our humdrum cosmic location, and the inevitable future demise of humanity, our lives can seem utterly insignificant. As we complacently go about our little Earthly affairs, we barely notice the black backdrop of the night sky. Even when we do, we usually see the starry skies as no more than a pleasant twinkling decoration. This sense of cosmic insignificance is not uncommon; one of Joseph Conrad’s characters describes one of those dewy, clear, starry nights, oppressing our spirit, crushing our pride, by the brilliant evidence of the awful loneliness, of the hopeless obscure insignificance of our globe lost in the splendid revelation of a glittering, soulless universe. I hate such skies. The young Bertrand Russell, a close friend of Conrad, bitterly referred to the Earth as “the petty planet on which our bodies impotently craw.” Russell wrote that: Brief and powerless is Man’s life; on him and all his race the slow, sure doom falls pitiless and dark. Blind to good and evil, reckless of destruction, omnipotent matter rolls on its relentless way…This is why Russell thought that, in the absence of God, we must build our lives on “a foundation of unyielding despair.” When we consider ourselves as a mere dot in a vast universe, when we consider ourselves in light of everything there is, nothing human seems to matter. Even the worst human tragedy may seem to deserve no cosmic concern. After all, we are fighting for attention with an incredibly vast totality. How could this tiny speck of dust deserve even a fraction of attention, from that universal point of view? This is the image that is evoked when, for example, Simon Blackburn writes that “to a witness with the whole of space and time in its view, nothing on the human scale will have meaning”. Such quotations could be easily multiplied—we find similar remarks, for example, in John Donne, Voltaire, Schopenhauer, Byron, Tolstoy, Chesterton, Camus, and, in recent philosophy, in Thomas Nagel, Harry Frankfurt, and Ronald Dworkin. The bigger the picture we survey, the smaller the part of any point within it, and the less attention it can get… When we try to imagine a viewpoint encompassing the entire universe, humanity and its concerns seem to get completely swallowed up in the void. Over the centuries, many have thought it absurd to think that we are the only ones. For example, Anaxagoras, Epicurus, Lucretius, and, later, Giordano Bruno, Huygens and Kepler were all confident that the universe is teeming with life. Kant was willing to bet everything he had on the existence of intelligent life on other planets. And we now know that there is a vast multitude of Earth-like planets even in our own little galaxy.

#### Using only current life and extremely pessimistic calculations --- We only need to win a 1 in *420* billionth (.00000000000238) risk of a link to outweigh

Lichfield, 16 (Gideon Lichfield, Editor-in-Chief of MIT Technology Review, Senior Editor at Quartz, Fellow at the Data and Society Research Institute, MSc in the Philosophy of Science from the London School of Economics and Political Science, BSc in Physics and Philosophy from the University of Bristol, Former Adjunct Professor in the Global Journalism Program at New York University, “There Have Probably Been Trillions Of Alien Civilizations, And Yet We May Still Never See One”, Quartz, 6-11, <https://qz.com/704687/there-have-probably-been-trillions-of-alien-civilizations-and-yet-we-may-still-never-see-one/>)//Babcii

Sorry, everybody. We’re just not that special. In more than five decades of scanning the heavens, the search for extraterrestrial intelligence (SETI) has found no sign of alien life. Yet now two American astronomers, in the scientific equivalent of a back-of-the-envelope calculation, are estimating that over the course of its history the universe has seen at least half a trillion technologically advanced species. The [paper in Astrobiology](http://online.liebertpub.com/doi/pdfplus/10.1089/ast.2015.1418) by Adam Frank and Woodruff Sullivan notes that, in just the last few years, we’ve gained a much clearer sense of how hospitable the universe is to life. NASA’s Kepler space telescope has identified [thousands of planets](http://techcrunch.com/2016/05/12/astronomers-announce-largest-batch-of-new-planets-ever-discovered/) in our neighborhood of the galaxy, along with their sizes and distances from their stars. From there it’s fairly easy to guess how many may hold liquid water, which is probably essential for complex life. In our Milky Way galaxy alone there are, by this estimate, some 60 billion such “habitable” planets, write Frank and Sullivan. The big remaining unknown is how many of these planets give rise to the kinds of lifeforms that build advanced technology (if nuclear weapons and Oculus Rifts can be called “advanced”). Since Earth is the only one we know of, the guesses vary wildly, but one such civilization per 10 billion habitable planets is generally considered “highly pessimistic,” wrote Frank in the New York Times [yesterday](http://www.nytimes.com/2016/06/12/opinion/sunday/yes-there-have-been-aliens.html). In astronomy-speak, this means the figure could be 10, 100 or even 1,000 times too low. Using that “pessimistic” proportion, and other numbers from Frank and Sullivan’s paper, I calculated how many alien civilizations should have emerged within various subregions of the universe during its history: Remember, 420 billion intelligent civilizations is the “pessimistic” estimate. But sadly—or happily, depending on your view of aliens—it doesn’t make us any less alone.

#### Consensus of scientists agree --- life is standard on billions of planets

Lowth 17 – Marcus Lowth, Science and Astronomy Writer for Listverse, Owner of Me Time 4 The Mind, “10 Reasons Alien Life Really Is Probably Out There Somewhere”, Listverse, 12-14, http://listverse.com/2017/12/14/10-reasons-alien-life-really-is-probably-out-there-somewhere/

Although most people are skeptical, alien life, whether advanced or merely microbial, most likely exists somewhere in the universe. Most scientists agree that this is almost certainly the case. That doesn’t mean that gray aliens with large heads and big eyes are out there abducting people, but it is almost a statistical certainty that some kind of cosmic microbe or “space insect” is going about its business somewhere in the universe. With that in mind, here are 10 reasons why alien life probably does exist. 10 Simple Law Of Averages Although actual numbers change all the time due to new discoveries or even the downgrading of a planet to a dwarf planet or moon, it is largely agreed that there are billions of planets, solar systems, and galaxies in the vast reaches of the cosmos.[1]When you consider that space is “never-ending,” so then must the possibilities of other planets be never-ending. In turn, this increases the chance of life existing somewhere in the depths of space. Even if we believe that only 1 percent of these planets harbor life, it is still a huge number of cosmic bodies with life. As is the case here on Earth, each planet is likely to have life in many forms. That is a lot of aliens out there. Of course, until firm proof is offered, even the probability of alien life will be downplayed and dismissed by some. 9 Water Is Everywhere (Relatively Speaking) If water is the key to a cosmic body being able to host life as we understand it, then that’s good news for those who feel they will be vindicated in their beliefs one day. Relatively speaking, water is everywhere in the universe, although often in the form of ice. Not every time, however. There are many moons—within our own solar system, to boot—that have almost definite signs of liquid water.[2]Aside from differing views on whether liquid water is present on Mars, several moons of the gas giants Jupiter and Saturn show signs of possible liquid water. Perhaps most notably, one of Saturn’s moons, Enceladus, appears to shoot huge jet streams of water vapor and ice particles into outer space from cracks in the icy surface. This also suggests significant geological activity that could provide the right conditions for life. 8 Life Could Be Based On Other Elements For the most part, mainstream science concentrates on locating life that requires the same conditions and building blocks as Earth’s life-forms. However, it is possible that life could exist on another planet that requires a completely different set of conditions and would truly be “alien” to us. Again, the possibilities are endless, but perhaps there is a being that resides in liquid or gas form? Or, if a given planet has an atmosphere comprised of hydrogen or nitrogen, for example, might its life-forms primarily be based upon these elements? Or perhaps one of these elements is abundant in liquid form, and so it takes the place in alien life-forms of the water in our bodies.This theory is supported in part by the increasing number of living organisms (known as extremophiles) that thrive in otherwise hostile conditions on Earth. It is not that much of a stretch of the imagination to believe that a similar organism might exist in the freezing conditions of Mars or even the hellish inferno that is Venus.In short, we may not have found alien life yet because we may not know what we are looking for.[3] Just to take it a thought further: Alien life could even exist in a form that is undetectable to us in terms of what our eyes and ears can see and hear. It really could be a case of we don’t know that we don’t know, but we don’t know! Yet! 7 The Rapid Rise Of Life Here On Earth Again in relative terms, life on Earth—particularly human life—has sprung out of nowhere quite recently. According to some researchers, this shows that such an event is not simply bizarre luck under specific one-time-only conditions. Instead, it will likely be replicated throughout space. In short, our existence is nothing special, just a standard reaction to a planet’s development.[4]Again, many have suggested that perhaps life did exist on Mars long ago when it was believed to have had an atmosphere and liquid water like Earth does. Similar assertions have been made about Venus given that its terrain and size are similar to that of Earth. Perhaps life did exist on Venus until some event created a “greenhouse effect,” raising the temperatures and turning it into a lifeless cosmic body.

#### Err neg --- Even if we are wrong about aliens only our impact can remove the possibility of *future* life

\*Specific to vacuum decay

Mack, 15 (Katie Mack, Katie Mack is an astrophysicist at North Carolina State University, 9-13-2015, accessed on 4-27-2021, Cosmos Magazine, "Vacuum decay: the ultimate catastrophe - Cosmos Magazine", https://cosmosmagazine.com/physics/vacuum-decay-ultimate-catastrophe/)//Babcii

So we don’t need to worry. But what would happen if the vacuum did decay?

The walls of the true vacuum bubble would expand in all directions at the speed of light. You wouldn’t see it coming. The walls can contain a huge amount of energy, so you might be incinerated as the bubble wall ploughed through you. Different vacuum states have different constants of nature, so the basic structure of matter might also be disastrously altered. But it could be even worse: in 1980, theoretical physicists Sidney Coleman and Frank De Luccia calculated for the first time that any bubble of true vacuum would immediately suffer total gravitational collapse.

They say: “This is disheartening. The possibility that we are living in a false vacuum has never been a cheering one to contemplate. Vacuum decay is the ultimate ecological catastrophe; in a new vacuum there are new constants of nature; after vacuum decay, not only is life as we know it impossible, so is chemistry as we know it.

“However, one could always draw stoic comfort from the possibility that perhaps in the course of time the new vacuum would sustain, if not life as we know it, at least some creatures capable of knowing joy. This possibility has now been eliminated.”

#### Correct against your bias --- Scope neglect and collapse of compassion means you under appreciate our impact

McKelvie, 17 (Leah McKelvie, Co-Founder of Animal Ethics, 5-20-2017, accessed on 4-29-2021, Animal-ethics, "Scope insensitivity: failing to appreciate the numbers of those who need our help", https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/)//Babcii

Consider one billion animals. Now consider one trillion animals. The second number is vastly higher. However, it is difficult for many people to have a clear idea of what the magnitude of that difference is. As a result of this, we often fail to assess properly what we should do when large numbers of individuals are affected.

This is due to a cognitive bias called scope insensitivity. It is also known as scope neglect. It means we don’t realize the real scope of a certain quantity. So when we compare two different quantities we fail to notice the difference between them. This usually happens when those quantities are very large.

Scope insensitivity causes people not to adjust their valuation of an issue in proportion to the size or scale of it.[1](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote1sym) Scope insensitivity especially impairs our judgments about helping animals because of the massive amount of animal suffering and death.

Scope insensitivity probably occurs due to our inability to visualize, or otherwise imagine, such large numbers. When we are not able to visualize a situation where a large number of individuals need our help, we must instead understand it at a more abstract quantitative level. This rarely triggers a strong emotional reaction in us, such as we get when we help a particular number of individuals we can visualize. Importantly from an ethical standpoint, it has been argued that too little emotional involvement can lead to a failure to react.[2](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote2sym) Because of that, scope insensitivity may contribute to non-optimal decision outcomes in situations where the goal is to improve the situation of as many individuals as possible.[3](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote3sym) In fact, sometimes those decisions are very poor ones.

An example: how much would you be willing to pay to save a certain number of animals?

In the original study that assessed this phenomenon, different groups of people were asked how much they would pay to save either a group of 2,000 birds, another of 20,000 birds, or a group of 200,000 birds from drowning in ponds polluted with oil. Assuming people’s intention was truly to help as many birds as possible, they should value each of their lives equally. If they were looking clearly at the issue, we would expect them to be willing to pay 10 times as much for the second group as for the first group, and 100 times as much for the third group as for the first group. In fact, the results showed that willingness to pay did not increase in proportion with the number of birds saved.[4](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote4sym) Participants were willing to pay $80 to save 2,000 birds. They were willing to pay $78 to save 20,000. That is, 2$ less to save 18,000 more individuals. Finally, they were willing to pay $88 to save 200,000. Thus, only 8$ extra to help 180,000 more birds. That suggests that participants valued each individual bird less the more of them there were to save (4, 0.39, and 0.044 cents, respectively).

This is a clear case of scope insensitivity. The fact that participants were only willing to pay $80 to save a group of 2,000 birds is very problematic in its own right. Yet, the scope insensitivity they showed is also worrisome, given how it impairs our moral judgment when confronted when very large numbers of individuals in need of our help.

A psychological explanation of the scope insensitivity bias

One explanation of how scope insensitivity occurs has to do with how we often represent things in order to understand them, which is called representativeness heuristic (heuristics, often referred to as “mental shortcuts,” are ways to easily solve problems, especially when we have to make a decision). The representativeness heuristic describes people’s tendency to imagine a simple, normal example of the type of problem being presented to them, rather than picturing all the specific details of the case in question, which may be very complex. Like all heuristics, this is can be a useful mental shortcut, since it reduces problems to a more manageable size, thereby simplifying our information processing and decision-making efforts.

However, as the example above shows, this mechanism can be inappropriate to use in many situations. In the example, people tended to imagine or visualize roughly the same thing, so their natural empathy was stimulated to roughly the same degree by all of them, despite the significant differences in the three numbers.[5](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote5sym)

If a person’s aim is to feel good, or to avoid feeling bad, through some altruistic behavior (like a charitable donation), they do not have an incentive to check whether they are actually doing some good or just seeming to do so – because it feels the same in each case and that is their bottom line.[6](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote6sym) In addition, being confronted with too much suffering can lead to what is often called the collapse of compassion, a defense mechanism that reduces or eliminates our sensitivity to the harms others suffer when we are faced with massive amounts of suffering.[7](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote7sym) As a result, people will tend not to do the cognitive work of adjusting for scope neglect.

That being said, part of the problem may consist in people simply failing to notice their bias, meaning that they would adjust their decisions if only they were informed about its existence.[8](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote8sym)

In addition, due to the key role of emotions in moral intuitions and in decision-making processes,[9](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote9sym) it has been shown that raising emotional concern for individual victims of large-scale suffering increases overall concern. It has also been shown that personal stories and visual images motivate helping responses more than using abstract numerical figures and statistics. These vivid descriptions of single individuals in need can be useful to keep emotions aroused when large numbers of individuals are concerned.[10](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote10sym) This is a way of trying to adjust advocacy to the existence of cognitive biases. It is problematic, however, as we are not always going to be able to do this. For instance, we may not be able to provide such stories when we consider possible new forms of suffering in the future.

Scope insensitivity and our failure to help animals in the wild in need of aid

Scope insensitivity is especially problematic when it biases us away from helping animals in the wild. There is an astronomical amount of suffering constantly going on in the natural world. For example, the leading estimate as to the number of insects in the wild is 1018.[11](https://www.animal-ethics.org/cognitive-biases-and-animals/scope-insensitivity-failing-to-appreciate-the-numbers-of-those-who-need-our-help/" \l "sdfootnote11sym) A majority of these animals die a painful death in their first days of life. This amount of suffering simply dwarfs any that we are used to dealing with or thinking about.

In order to react properly to these magnitudes, we should be prepared to adjust our initial emotional reaction based on our more abstract understanding of the quantity. For example, we can try to imagine the largest number of insects that we can and then try to remember how much bigger of an issue it is than we can possibly imagine.

Giving everyone equal consideration

The equivalent suffering of each individual should be given the same consideration. Unfortunately, however, the valuations of individual lives and suffering are often guided by moral intuitions which are highly influenced by non-rational mechanisms and emotions that can lead to partial judgments. As we have seen here, one of these mechanisms is scope insensitivity.

Hence, we cannot rely solely on our more immediate decision-making processes when making moral judgments involving large numbers of individuals. We must bear this in mind and try to adjust for the errors our decision-making process will run into because of this bias.

#### The risk is massive --- Humans are a kid with a gun when it comes to new tech

Piper, 18 (Kelsey Piper, a Staff Writer for Vox. Bachelors in Symbolic Systems from Stanford, 11-19-2018, accessed on 5-2-2021, Vox, "How technological progress is making it likelier than ever that humans will destroy ourselves", https://www.vox.com/future-perfect/2018/11/19/18097663/nick-bostrom-vulnerable-world-global-catastrophic-risks)//Babcii

What we haven’t extracted, so far, is a black ball—a technology that invariably or by default destroys the civilization that invents it. The reason is not that we have been particularly careful or wise in our technology policy. We have just been lucky. That terrifying final claim is the focus of the rest of the paper. A hard look at the history of nuclear weapon development One might think it unfair to say “we have just been lucky” that no technology we’ve invented has had destructive consequences we didn’t anticipate. After all, we’ve also been careful, and tried to calculate the potential risks of things like nuclear tests before we conducted them. Bostrom, looking at the history of nuclear weapons development, concludes we weren’t careful enough. In 1942, it occurred to Edward Teller, one of the Manhattan scientists, that a nuclear explosion would create a temperature unprecedented in Earth’s history, producing conditions similar to those in the center of the sun, and that this could conceivably trigger a self-sustaining thermonuclear reaction in the surrounding air or water. The importance of Teller’s concern was immediately recognized by Robert Oppenheimer, the head of the Los Alamos lab. Oppenheimer notified his superior and ordered further calculations to investigate the possibility. These calculations indicated that atmospheric ignition would not occur. This prediction was confirmed in 1945 by the Trinity test, which involved the detonation of the world’s first nuclear explosive. That might sound like a reassuring story — we considered the possibility, did a calculation, concluded we didn’t need to worry, and went ahead. The report that Robert Oppenheimer commissioned, though, sounds fairly shaky, for something that was used as reason to proceed with a dangerous new experiment. It ends: “One may conclude that the arguments of this paper make it unreasonable to expect that the N + N reaction could propagate. An unlimited propagation is even less likely. However, the complexity of the argument and the absence of satisfactory experimental foundation makes further work on the subject highly desirable.” That was our state of understanding of the risk of atmospheric ignition when we proceeded with the first nuclear test. A few years later, we badly miscalculated in a different risk assessment about nuclear weapons. Bostrom writes: In 1954, the U.S. carried out another nuclear test, the Castle Bravo test, which was planned as a secret experiment with an early lithium-based thermonuclear bomb design. Lithium, like uranium, has two important isotopes: lithium-6 and lithium-7. Ahead of the test, the nuclear scientists calculated the yield to be 6 megatons (with an uncertainty range of 4-8 megatons). They assumed that only the lithium-6 would contribute to the reaction, but they were wrong. The lithium-7 contributed more energy than the lithium-6, and the bomb detonated with a yield of 15 megaton—more than double of what they had calculated (and equivalent to about 1,000 Hiroshimas). The unexpectedly powerful blast destroyed much of the test equipment. Radioactive fallout poisoned the inhabitants of downwind islands and the crew of a Japanese fishing boat, causing an international incident. Bostrom concludes that “we may regard it as lucky that it was the Castle Bravo calculation that was incorrect, and not the calculation of whether the Trinity test would ignite the atmosphere.” Nuclear reactions happen not to ignite the atmosphere. But Bostrom believes that we weren’t sufficiently careful, in advance of the first tests, to be totally certain of this. There were big holes in our understanding of how nuclear weapons worked when we rushed to first test them. It could be that the next time we deploy a new, powerful technology, with big holes in our understanding of how it works, we won’t be so lucky.

# 2NC

## 2NC --- Protospermia

## 2NC --- !/T

### 2NC --- !/OV

#### China will weaponize it with lasers --- That breaks the vacuum

Cartlidge 18 – Edwin Cartlidge, MSc in Science Communication from Imperial College London, MPhy in Physics from Manchester University, News Editor of Physics World and Freelance Science Writer, “Physicists Are Planning To Build Lasers So Powerful They Could Rip Apart Empty Space”, Science Magazine, 1-24, https://www.sciencemag.org/news/2018/01/physicists-are-planning-build-lasers-so-powerful-they-could-rip-apart-empty-space

Inside a cramped laboratory in Shanghai, China, physicist Ruxin Li and colleagues are breaking records with the most powerful pulses of light the world has ever seen. At the heart of their laser, called the Shanghai Superintense Ultrafast Laser Facility (SULF), is a single cylinder of titanium-doped sapphire about the width of a Frisbee. After kindling light in the crystal and shunting it through a system of lenses and mirrors, the SULF distills it into pulses of mind-boggling power. In 2016, it achieved an unprecedented 5.3 million billion watts, or petawatts (PW). The lights in Shanghai do not dim each time the laser fires, however. Although the pulses are extraordinarily powerful, they are also infinitesimally brief, lasting less than a trillionth of a second. The researchers are now upgrading their laser and hope to beat their own record by the end of this year with a 10-PW shot, which would pack more than 1000 times the power of all the world's electrical grids combined. The group's ambitions don't end there. This year, Li and colleagues intend to start building a 100-PW laser known as the Station of Extreme Light (SEL). By 2023, it could be flinging pulses into a chamber 20 meters underground, subjecting targets to extremes of temperature and pressure not normally found on Earth, a boon to astrophysicists and materials scientists alike. The laser could also power demonstrations of a new way to accelerate particles for use in medicine and high-energy physics. But most alluring, Li says, would be showing that light could tear electrons and their antimatter counterparts, positrons, from empty space—a phenomenon known as "breaking the vacuum." It would be a striking illustration that matter and energy are interchangeable, as Albert Einstein's famous E=mc2 equation states. Although nuclear weapons attest to the conversion of matter into immense amounts of heat and light, doing the reverse is not so easy. But Li says the SEL is up to the task. "That would be very exciting," he says. "It would mean you could generate something from nothing." The Chinese group is "definitely leading the way" to 100 PW, says Philip Bucksbaum, an atomic physicist at Stanford University in Palo Alto, California. But there is plenty of competition. In the next few years, 10-PW devices should switch on in Romania and the Czech Republic as part of Europe's Extreme Light Infrastructure, although the project recently put off its goal of building a 100-PW-scale device. Physicists in Russia have drawn up a design for a 180-PW laser known as the Exawatt Center for Extreme Light Studies (XCELS), while Japanese researchers have put forward proposals for a 30-PW device. Largely missing from the fray are U.S. scientists, who have fallen behind in the race to high powers, according to a study published last month by a National Academies of Sciences, Engineering, and Medicine group that was chaired by Bucksbaum. The study calls on the Department of Energy to plan for at least one high-power laser facility, and that gives hope to researchers at the University of Rochester in New York, who are developing plans for a 75-PW laser, the Optical Parametric Amplifier Line (OPAL). It would take advantage of beamlines at OMEGA-EP, one of the country's most powerful lasers. "The [Academies] report is encouraging," says Jonathan Zuegel, who heads the OPAL. Invented in 1960, lasers use an external "pump," such as a flash lamp, to excite electrons within the atoms of a lasing material—usually a gas, crystal, or semiconductor. When one of these excited electrons falls back to its original state it emits a photon, which in turn stimulates another electron to emit a photon, and so on. Unlike the spreading beams of a flashlight, the photons in a laser emerge in a tightly packed stream at specific wavelengths. Because power equals energy divided by time, there are basically two ways to maximize it: Either boost the energy of your laser, or shorten the duration of its pulses. In the 1970s, researchers at Lawrence Livermore National Laboratory (LLNL) in California focused on the former, boosting laser energy by routing beams through additional lasing crystals made of glass doped with neodymium. Beams above a certain intensity, however, can damage the amplifiers. To avoid this, LLNL had to make the amplifiers ever larger, many tens of centimeters in diameter. But in 1983, Gerard Mourou, now at the École Polytechnique near Paris, and his colleagues made a breakthrough. He realized that a short laser pulse could be stretched in time—thereby making it less intense—by a diffraction grating that spreads the pulse into its component colors. After being safely amplified to higher energies, the light could be recompressed with a second grating. The end result: a more powerful pulse and an intact amplifier. This "chirped-pulse amplification" has become a staple of high-power lasers. In 1996, it enabled LLNL researchers to generate the world's first petawatt pulse with the Nova laser. Since then, LLNL has pushed to higher energies in pursuit of laser-driven fusion. The lab's National Ignition Facility (NIF) creates pulses with a mammoth 1.8 megajoules of energy in an effort to heat tiny capsules of hydrogen to fusion temperatures. However, those pulses are comparatively long and they still generate only about 1 PW of power. To get to higher powers, scientists have turned to the time domain: packing the energy of a pulse into ever-shorter durations. One approach is to amplify the light in titanium-doped sapphire crystals, which produce light with a large spread of frequencies. In a mirrored laser chamber, those pulses bounce back and forth, and the individual frequency components can be made to cancel each other out over most of their pulse length, while reinforcing each other in a fleeting pulse just a few tens of femtoseconds long. Pump those pulses with a few hundred joules of energy and you get 10 PW of peak power. That's how the SULF and other sapphire-based lasers can break power records with equipment that fits in a large room and costs just tens of millions of dollars, whereas NIF costs $3.5 billion and needs a building 10 stories high that covers the area of three U.S. football fields. Raising pulse power by another order of magnitude, from 10 PW to 100 PW, will require more wizardry. One approach is to boost the energy of the pulse from hundreds to thousands of joules. But titanium-sapphire lasers struggle to achieve those energies because the big crystals needed for damage-free amplification tend to lase at right angles to the beam—thereby sapping energy from the pulses. So scientists at the SEL, XCELS, and OPAL are pinning their hopes on what are known as optical parametric amplifiers. These take a pulse stretched out by an optical grating and send it into an artificial "nonlinear" crystal, in which the energy of a second, "pump" beam can be channeled into the pulse. Recompressing the resulting high-energy pulse raises its power. To approach 100 PW, one option is to combine several such pulses—four 30-PW pulses in the case of the SEL and a dozen 15-PW pulses at the XCELS. But precisely overlapping pulses just tens of femtoseconds long will be "very, very difficult," says LLNL laser physicist Constantin Haefner. They could be thrown off course by even the smallest vibration or change in temperature, he argues. The OPAL, in contrast, will attempt to generate 75 PW using a single beam. Mourou envisions a different route to 100 PW: adding a second round of pulse compression. He proposes using thin plastic films to broaden the spectrum of 10-PW laser pulses, then squeezing the pulses to as little as a couple of femtoseconds to boost their power to about 100 PW. Once the laser builders summon the power, another challenge will loom: bringing the beams to a singularly tight focus. Many scientists care more about intensity—the power per unit area—than the total number of petawatts. Achieve a sharper focus, and the intensity goes up. If a 100-PW pulse can be focused to a spot measuring just 3 micrometers across, as Li is planning for the SEL, the intensity in that tiny area will be an astonishing 1024 watts per square centimeter (W/cm2)—some 25 orders of magnitude, or 10 trillion trillion times, more intense than the sunlight striking Earth. Those intensities will open the possibility of breaking the vacuum. According to the theory of quantum electrodynamics (QED), which describes how electromagnetic fields interact with matter, the vacuum is not as empty as classical physics would have us believe. Over extremely short time scales, pairs of electrons and positrons, their antimatter counterparts, flicker into existence, born of quantum mechanical uncertainty. Because of their mutual attraction, they annihilate each another almost as soon as they form. But a very intense laser could, in principle, separate the particles before they collide. Like any electromagnetic wave, a laser beam contains an electric field that whips back and forth. As the beam's intensity rises, so, too, does the strength of its electric field. At intensities around 1024 W/cm2, the field would be strong enough to start to break the mutual attraction between some of the electron-positron pairs, says Alexander Sergeev, former director of the Russian Academy of Sciences's (RAS's) Institute of Applied Physics (IAP) in Nizhny Novgorod and now president of RAS. The laser field would then shake the particles, causing them to emit electromagnetic waves—in this case, gamma rays. The gamma rays would, in turn, generate new electron-positron pairs, and so on, resulting in an avalanche of particles and radiation that could be detected. "This will be completely new physics," Sergeev says. He adds that the gamma ray photons would be energetic enough to push atomic nuclei into excited states, ushering in a new branch of physics known as "nuclear photonics"—the use of intense light to control nuclear processes.

#### The tech will be ready soon --- It ends the universe

Keulemans 7 – Maarten Keulemans, Science Editor at de Volkskrant (Netherlands), Former Deputy Editor NWT Nature Science & Technology at Veen Magazines, Master’s Degree in History and Cultural Anthropology from Leiden University, Science Journalist and Columnist, Exit Mundi, http://www.exitmundi.nl/quantum.htm

There's a fuel supply that is costless, unlimited and that gives off no pollution at all when you use it. There's just one minor problem. When you try to use it, you may accidentally blow up part of the Universe. It will be over before anyone can say `sorry'. In a laboratory somewhere, someone tries to get hold of a weird and completely new, exotic type of energy. But boy, the experiment goes out of hand. Suddenly, there's a BIG explosion. And then there's nothing -- our planet, the sun, all planets in our solar system and even some stars surrounding our solar system have been blown to smithereens. And explaining what went wrong isn't even simple. We're talking quantum physics here: the physics of the vanishingly small building blocks that make up all matter in the Universe. In quantum physics, everything is totally different from daily life. Quantum particles can be in two places at the same time, and can behave both like waves and particles. In fact, when you hear a quantum physicist say `particles', don't think of little, round balls. Quantum `particles' are better compared with tones of music: they're definitely there, but you can't see them or catch them. One of the most mind-boggling properties of quantum particles is that they come into existence out of nowhere. Suck every molecule of air out of a bottle, making it completely vacuum -- and quantum particles will still be there. They pop up in pairs out of nowhere. And within a tiny fraction of a second, they merge together and -- zzzip! -- they're gone. It is precisely this odd `quantum vacuum' that may one day open the door to a very new source of energy. Suppose you're able to snatch some of those out-of-nowhere particles away. Admittedly, you'll have to be REALLY fast. But if you do succeed, you'll have harvested particles out of nowhere. And since matter and energy are basically the same stuff (according to Einstein's E=mc2), you'll have energy out of nowhere! The advantages would be unimaginable. Here's an energy source that never runs out, is everywhere around, is extremely cheap, and causes no pollution whatsoever. But then again, there is a small, but alarming risk. There may be simply energy too much. Mining the quantum vacuum might bring about an unstoppable chain reaction, releasing an ever increasing amount of energy. In fact, no-one knows how much energy will be released: calculations done by physicists give answers anywhere between zero and infinity. Obviously, too much energy would mean trouble. The explosion could be huge enough to blow apart our entire solar system and everything around it. And of course, infinite energy would bring about infinite destruction, bombing not just a handful of stars, but everything in the entire Universe. Gladly, no present-day scientist is capable of mining the quantum vacuum. On the other hand: one day, there will be. And that day may arrive sooner than you think: some estimate around 2020 science will be ready. Let's hope physicists finally have their calculations straightened out by then.

#### 5. Black swans --- An avalanche of quantum developments are coming quickly

Bertone 18 [Dr. Gianfranco Bertone, Professor in the GRAPPA Institute and Institute of Physics at the University of Amsterdam, PhD in Astrophysics from the University of Oxford, and Dr. Tim M.P. Tait, Professor in the Department of Physics and Astronomy at the University of California, Irvine, PhD in Physics from Michigan State University, BSc in Physics from UC San Diego, Former Research Associate at the Fermi National Accelerator Laboratory and Argonne National Laboratory, "A New Era in the Quest for Dark Matter", Nature, 10/4/18, <https://arxiv.org/pdf/1810.01668.pdf>

In the quest for dark matter, naturalness has been the guiding principle since the dark matter problem was established in the early 1980s. Although the absence of evidence for new physics at the LHC does not rule out completely natural theories, we have argued that a new era in the search for dark matter has begun, the new guiding principle being “no stone left unturned”: from fuzzy dark matter (10−22 eV) to primordial black holes (10 M ), we should look for dark matter wherever we can. It is important to exploit to their fullest extent existing experimental facilities, most notably the LHC, whose data might still contain some surprises. And it is important to complete the search for WIMPs with direct detection experiments, until their sensitivity reaches the so-called neutrino floor94 . At the same time we believe it is essential to diversify the experimental effort, and to test the properties of dark matter with gravitational waves interferometers and upcoming astronomical surveys, as they can provide complementary information about the nature of dark matter. New opportunities in extracting such information from data arise from the booming field of machine learning, which is currently transforming many aspects of science and society. Machine learning methods have been already applied to a variety of dark matter-related problems, ranging from the identification of WIMPs from particle and astroparticle data95, 96 to the detection of gravitational lenses97, and from radiation patterns inside jets of quarks and gluons at the LHC98 to real-time gravitational waves detection99. In view of this shift of the field of dark matter searches towards a more data-driven approach, we believe it is urgent to fully embrace, and whenever possible to further develop, big data tools that allow to organize in a coherent and systematic way the avalanche of data that will become available in particle physics and astronomy in the next decade.

#### The risk is massive --- Humans are a kid with a gun when it comes to new tech

Piper, 18 (Kelsey Piper, a Staff Writer for Vox. Bachelors in Symbolic Systems from Stanford, 11-19-2018, accessed on 5-2-2021, Vox, "How technological progress is making it likelier than ever that humans will destroy ourselves", https://www.vox.com/future-perfect/2018/11/19/18097663/nick-bostrom-vulnerable-world-global-catastrophic-risks)//Babcii

What we haven’t extracted, so far, is a black ball—a technology that invariably or by default destroys the civilization that invents it. The reason is not that we have been particularly careful or wise in our technology policy. We have just been lucky. That terrifying final claim is the focus of the rest of the paper. A hard look at the history of nuclear weapon development One might think it unfair to say “we have just been lucky” that no technology we’ve invented has had destructive consequences we didn’t anticipate. After all, we’ve also been careful, and tried to calculate the potential risks of things like nuclear tests before we conducted them. Bostrom, looking at the history of nuclear weapons development, concludes we weren’t careful enough. In 1942, it occurred to Edward Teller, one of the Manhattan scientists, that a nuclear explosion would create a temperature unprecedented in Earth’s history, producing conditions similar to those in the center of the sun, and that this could conceivably trigger a self-sustaining thermonuclear reaction in the surrounding air or water. The importance of Teller’s concern was immediately recognized by Robert Oppenheimer, the head of the Los Alamos lab. Oppenheimer notified his superior and ordered further calculations to investigate the possibility. These calculations indicated that atmospheric ignition would not occur. This prediction was confirmed in 1945 by the Trinity test, which involved the detonation of the world’s first nuclear explosive. That might sound like a reassuring story — we considered the possibility, did a calculation, concluded we didn’t need to worry, and went ahead. The report that Robert Oppenheimer commissioned, though, sounds fairly shaky, for something that was used as reason to proceed with a dangerous new experiment. It ends: “One may conclude that the arguments of this paper make it unreasonable to expect that the N + N reaction could propagate. An unlimited propagation is even less likely. However, the complexity of the argument and the absence of satisfactory experimental foundation makes further work on the subject highly desirable.” That was our state of understanding of the risk of atmospheric ignition when we proceeded with the first nuclear test. A few years later, we badly miscalculated in a different risk assessment about nuclear weapons. Bostrom writes: In 1954, the U.S. carried out another nuclear test, the Castle Bravo test, which was planned as a secret experiment with an early lithium-based thermonuclear bomb design. Lithium, like uranium, has two important isotopes: lithium-6 and lithium-7. Ahead of the test, the nuclear scientists calculated the yield to be 6 megatons (with an uncertainty range of 4-8 megatons). They assumed that only the lithium-6 would contribute to the reaction, but they were wrong. The lithium-7 contributed more energy than the lithium-6, and the bomb detonated with a yield of 15 megaton—more than double of what they had calculated (and equivalent to about 1,000 Hiroshimas). The unexpectedly powerful blast destroyed much of the test equipment. Radioactive fallout poisoned the inhabitants of downwind islands and the crew of a Japanese fishing boat, causing an international incident. Bostrom concludes that “we may regard it as lucky that it was the Castle Bravo calculation that was incorrect, and not the calculation of whether the Trinity test would ignite the atmosphere.” Nuclear reactions happen not to ignite the atmosphere. But Bostrom believes that we weren’t sufficiently careful, in advance of the first tests, to be totally certain of this. There were big holes in our understanding of how nuclear weapons worked when we rushed to first test them. It could be that the next time we deploy a new, powerful technology, with big holes in our understanding of how it works, we won’t be so lucky.

### 2NC --- Aliens/OV

#### 2. Bayesian Analysis --- Latest calculations and best evidence possible place life as easy and common

Ananthaswamy, 20 (Anil Ananthaswamy, Anil Ananthaswamy is an Indian author, and science journalist, who is currently a Knight Science Journalism Research fellow at the Massachusetts Institute of Technology. , 7-16-2020, accessed on 5-3-2021, Scientific American, "How Many Aliens Are in the Milky Way? Astronomers Turn to Statistics for Answers", https://www.scientificamerican.com/article/how-many-aliens-are-in-the-milky-way-astronomers-turn-to-statistics-for-answers/)//Babcii

That suggestion is exactly what Kipping attempted, estimating both the probability of abiogenesis and the emergence of intelligence. For a prior, he chose something called the Jeffreys prior, which was designed by another English statistician and astronomer, Harold Jeffreys. It is said to be maximally uninformative. Because the Jeffreys prior doesn’t bake in massive assumptions, it places more weigh on the evidence. Turner and Spiegel had also tried to find an uninformative prior. “If you want to know what the data is telling you and not what you thought about it previously, then you want an uninformative prior,” Turner says. In their 2012 analysis, the researchers employed three priors, one of which was the least informative, but they fell short of using Jeffreys prior, despite being aware of it. In Kipping’s calculation, that prior focused attention on what he calls the “[four corners](https://www.youtube.com/watch?v=iLbbpRYRW5Y)” of the parameter space: life is common, and intelligence is common; life is common, and intelligence is rare; life is rare, and intelligence is common; and life is rare, and intelligence is rare. All four corners were equally likely before the Bayesian analysis began. Turner agrees that using the Jeffreys prior is a significant advance. “It’s the best way that we have, really, to just ask what the data is trying to tell you,” he says. Combining the Jeffreys prior with the sparse evidence of the emergence and intelligence of life on Earth, Kipping obtained a posterior probability distribution, which allowed him to calculate new odds for the four corners. He found, for instance, that the “life is common, and intelligence is rare” scenario is nine times more likely than both life and intelligence being rare. And even if intelligence is not rare, the life-is-common scenario has a minimum odds ratio of 9 to 1. Those odds are not the kind that one would bet the house on, Kipping says. “You could easily lose the bet.” Still, that calculation is “a positive sign that life should be out there,” he says. “It is, at least, a suggestive hint that life is not a difficult process.”

#### 3. Galactic surveys --- Latest findings place life sustaining properties drastically above predictions

Drake, 20 (Nadia Drake, Nadia Drake is a science journalist. She earned an A.B. in biology, psychology, and dance at Cornell University, 2-11-2020, accessed on 5-3-2021, National Geographic, "How many alien civilizations are out there? A new galactic survey holds a clue.", https://www.nationalgeographic.com/science/article/how-many-alien-civilizations-are-out-there-new-galactic-survey-holds-clue)//babcii

Here’s a good sign for alien hunters: More than 300 million worlds with similar conditions to Earth are scattered throughout the Milky Way galaxy. A [new analysis](https://arxiv.org/pdf/2010.14812.pdf) concludes that roughly half of the galaxy’s sunlike stars host rocky worlds in habitable zones where liquid water could pool or flow over the planets’ surfaces. “This is the science result we’ve all been waiting for,” says [Natalie Batalha](https://www.astro.ucsc.edu/faculty/index.php?uid=nabatalh), an astronomer with the University of California, Santa Cruz, who worked on the new study. The finding, which has been accepted for publication in [the Astronomical Journal,](https://arxiv.org/pdf/2010.14812.pdf) pins down a crucial number in [the Drake Equation](https://www.nationalgeographic.com/news/2014/6/140630-drake-equation-50-years-later-aliens-science/#:~:text=The%20Drake%20equation,%20formulated%20in,Way%20have%20raised%20the%20odds.). Devised by my father Frank Drake in 1961, the equation sets up a framework for [calculating the number of detectable civilizations in the Milky Way](https://www.nationalgeographic.com/science/article/the-most-vexing-variable-in-the-search-for-e-t). Now the first few variables in the formula—including the rate of sunlike star formation, the fraction of those stars with planets, and the number of habitable worlds per stellar system—are known. The number of sunlike stars with worlds similar to Earth “could have been one in a thousand, or one in a million—nobody really knew,” says [Seth Shostak](https://www.seti.org/our-scientists/seth-shostak), an astronomer at the Search for Extraterrestrial Intelligence (SETI) Institute who was not involved with the new study. Astronomers estimated the number of these planets using data from NASA’s [planet-hunting Kepler spacecraft](https://www.nationalgeographic.com/science/article/nasa-dear-kepler-how-exoplanet-hunting-opened-up-universe). For nine years, Kepler stared at the stars and watched for the brief twinkles produced when orbiting planets blot out a portion of their star’s light. By the end of its mission in 2018, [Kepler had spotted some 2,800 exoplanets](https://exoplanetarchive.ipac.caltech.edu/docs/counts_detail.html)—many of them nothing like the worlds orbiting our sun. But Kepler’s primary goal was always to determine how common planets like Earth are. The calculation required help from the European Space Agency’s [Gaia spacecraft](https://sci.esa.int/web/gaia), which monitors stars across the galaxy. With Gaia’s observations in hand, scientists were finally able to determine that the Milky Way is populated by hundreds of millions of Earth-size planets orbiting sunlike stars—and that the nearest one is probably within 20 light-years of the solar system.

#### 5. Err neg --- The fact you don’t know is reason to include them into util calculations

Milan M. **Ćirković 19**. Future of Humanity Institute, Faculty of Philosophy, University of Oxford. 01/01/2019. “Space Colonization Remains the Only Long-Term Option for Humanity: A Reply to Torres.” Futures, vol. 105, pp. 166–173.

Perhaps a skeptic wants to believe (as a kind of anti-agent Moulder, of the X-Files’ fame) that extraterrestrial intelligence is nonexistent or vanishingly rare? To begin with, it would be strange to bet the long-term future of humanity on such a technical astrobiological issue, on which we can exert no influence whatsoever. Extraterrestrial life either exists or it does not, irrespectively of any amount of our ethical or political hand-wringing. So, lacking specific information for one or the other, we should certainly make strategies for bothoptions. Further, the advances of astrobiology over the last quarter century offer many reasons for cautious belief in the conclusion that life and intelligence are reasonably abundant in astrophysically and astrochemically permissible ecosystems. Some of the arguments to that effect are summarized in Ćirković (2012).11 Even if, by some quirk of astrobiological evolution, humanity is the first intelligent species to arise in the Milky Way (as, for instance, per the well-known argument of Carter, 1983, 2008), following Torres’s advice and relinquishing space colonization will simply ensure that the second, third, or 275th intelligent species to evolve will indeed colonize the Galaxy instead of humans. If, on the other hand, Torres is wrong and it is possible to colonize the Galaxy in a peaceful and prosperous manner, humanity might survive on Earth in a kind of zoo or preserve, surrounded by friendly and considerate interstellar aliens – but obviously failing to realize its creative potential (which would also count as an existential catastrophe in Bostrom’s taxonomy).12 There is simply no way out of that quandary, unless one is a creationist who believes that humanity originated by Divine supernatural actand there is exactly zero probability of abiogenesis/noogenesis occurring elsewhere. In general, no naturalistic utilitarian calculus of various scenarios for the future of humanity could be complete if it does not take extraterrestrial intelligence into account.

#### 2. Life is resilient --- It will inevitably show up somewhere after us

Grinspoon, 03 Southwest Research Institute Principle Scientist Department of Space Studies and adjunct professor of Astrophysical and Planetary Sciences at the University of Colorado, 03 <David, Lonely Planets: The Natural Philosophy of Alien Life, pg 415>

My belief in aliens is inseparable from a certain unavoidable, foolish, naturalistic optimism about our own ultimate prospects. Everything that I’ve learned about the nature of our universe and our biosphere tells me that life will find a way to thrive.Gaia, as Lynn Margulishas said, “is a tough ~~bitch.~~” If her noosphere chops off its head, she’ll keep grooving along**.** In time, she may grow another noosphere**,** giving a different proto-intelligent species a chance at reaching the big time. I see our proud little spurt of technical invention as a little eddy in a whirling universe that is evolving, self-organizing, and moving inexorably toward more life and more intelligence. Our little whorl could wink out in an instant, or it could grow into a deeper more stable mind-storm. Is psychogenesis limited to Earth? I doubt it. Will there be a psychozoic age of the universe? Has it already begun? If we believe even in the possibility of the transformation to wisdom and immortality, then we must live in a universe increasingly permeated with intelligence, and suffused with love. I proved it mathematically in the last chapter, and equations don’t lie.

### 2NC --- AT --- Alien’s save us

#### 1. They couldn’t

Easterbrook 03, Senior fellow, New Republic, <Gregg, We’re All Gonna Die!, Wired 10.12.http://www.wired.com/wired/archive/11.07/doomsday\_pr.html>

"The present vacuum could be fragile and unstable," Rees frets in his book. A particle accelerator might cause a tiny bit of space to undergo a "phase transition" back to the primordial not-anything condition that preceded the big bang. Nothingness would expand at the speed of light, deleting everything in its path. Owing to light speed, not even advanced aliens would see the mega-destructo wave front coming

#### 2. <C/A answers from aliens trigger OR read here>

### 2NC --- AT --- Alien’s trigger

#### 2. Science is localized---believing aliens will develop the same tech is parochial

Basalla 05 – Dr. George Basalla, PhD, Professor of History of Science and Technology at the University of Delaware, “Universal Science”, <https://www.fossilhunters.xyz/intelligent-extraterrestrials/universal-science.html> [Quoting Nicholas Rescher, University Professor of Philosophy and Former Director of the Center for Philosophy of Science at the University of Pittsburgh]

When philosopher Nicholas Rescherwas asked to comment on Drake’s notion of alien science**,** he dismissed it as infinitely parochial**.** It was like saying that extraterrestrials share our legal or political system**.** Rescher was well qualified to examine Drake’s claims. He had recently studied the anthropomorphic character of human science and how it related to alien science. Rescher struck at the heart of the popular conception of alien science when he challenged the widely held view that there is only one natural world and a single science to explain it**.** He called this the one world, one science argument. The physical universe is singular, Rescher agreed, but its interpreters are many and diverse**.** What we know about physical reality stems fromour special biological and cognitive make-up and our unique cultural and social heritage and experiences. We have no reason to suppose that extraterrestrials share our peculiar biological attributes, social outlook, or cultural traditions. Human science, therefore**,** is incommensurable with extraterrestrial science. If extraterrestrials cultivate science, it will be their kind of science, not our kind. Alien science is a wholly different form of knowledge. It is not human science raised to a higher degree. Rescher offered a compelling illustration of how human biology and our situation on Earth shaped our science. Astronomy as practiced by humans has been molded by the fact that we live on the surface of the Earth (not underwater), that we have eyes, and that the development of agriculture is linked to the seasonal positions of celestial objects. Intelligent alien creatures living in an oceanic abyss might develop sophisticated hydrodynamics but fail to study the motion of heavenly bodies, investigate electromagnetic radiation, or build radio telescopes. Even if extraterrestrials are surface dwellers, their biological endowment will determine what they are able to sense, their ecological niche, what aspects of nature they exploit to satisfy their needs, their cultural heritage, which questions about nature they find interesting to ask**.** Rescher acknowledges the existence of intelligent extraterrestrials who possess the ability to develop science and technology. He does not dispute the scientists’ repeated claims (1) that there is a single scientifically knowable physical reality and (2) that aliens are not simply other humans inhabiting a different planet. After adopting these claims, he demolishes the idea of a universal science that serves as a common language in the universe. Rescher maintains that wherever science exists in the universe, it will be localized**.** It will be the science of the creatures who have fashioned it. They will act according to their special physical constitution, environment, history, and needs. Hence, science diverges in the universe. It does not converge on the theories, concepts, and topics that happen to interest terrestrial researchers at this point in the history of the human intellect.

#### 3. This is anthropomorphizing alien life---they’re completely different

Goldstein 6 – Dr. Alan H. Goldstein, Professor of Biomaterials, Fierer Chair of Molecular Cell Biology, and Biomedical Materials Engineering and Science Program Chair at Alfred University, Ph.D. in Genetics at University of Arizona, B.Sc. in Agronomy at New Mexico State University, Shell-Economist Prize Winner Molecular Biologist, Theoretician in the Field of Nanobiotechnology, “I, Nanobot”, Salon, 3-9, http://www.salon.com/tech/feature/2006/03/09/nanobiobot/index\_np.html

If we continue to insist that life on Earth can only result from biological evolution, then the first BTM interfaces built by nanobiotechnology will be speciously trivialized as just a great invention of Homo sapiens. We will congratulate ourselves and conclude that the supremely gifted toolmaker has built the first portal between the worlds of living and nonliving materials. This simplistic view of nanobiotechnology is very much like humanity's current strategy in the search for extraterrestrial life. In a chemically diverse universe we insist on a perversely self-congratulatory strategy. Water and organic molecules, such as methane, are the identified spoor on this trail. We look for these signs because the biology-centric assumption is that aliens will be just like us, only very, very different -- little green people with acid for blood, sentient jellyfish with a taste for cheeseburgers, or insects that have evolved with a sense of humor. Even search strategies that use "universal mathematical constants" ignore the possibility, proposed by some postmodern [philosophers of science,](http://en.wikipedia.org/wiki/Philosophy_of_mathematics) that formal modern mathematics is a function of cognitive structure unique to humans, or less specifically to a narrow range of beings similar to humans, for example, hominids. The point is that technology analysts who can only see life as some variation on biology will see the BTM interface as a way for "us" to plug into "it." Within this paradigm there are no consequences for the definition of life, only new enhancements for the one true life form: biology. We hold up the mirror of humanity and see our own image reflected in the universe.

Most dictionaries define biology as "the science of living things." But the (correctly) limitless nature of that definition is truncated when plants and animals are immediately used as the prime examples. NASA, an agency that should know better, has saturated the media for decades with hypnotic invocations of water and organics as the true signs of extraterrestrial life. Meanwhile, Hollywood and pop culture endlessly [anthropomorphize aliens.](http://www.salon.com/ent/movies/feature/2001/06/21/robots/print.html)

Robots get the blues. Silicon sentience springs directly from human mythology. Stories of demonic computers and undead cyber-blood lust are endlessly refilmed with really cool graphics, a variety of soundtracks, and excellent eyewear. Skynet, the "self-aware" computer system of the "Terminator" series, hates us and wants us dead. The equally demonic cyber-beings of "The Matrix" want to enslave us and eat our energy (making this computer both physically dangerous and dangerously ignorant of the physical laws of the universe). It is distinctly ironic that when we consider aliens, life on Earth infuses our scientific models, our dreams, and our entertainment. We could call this "the biology paradox." The biology paradox makes xenobiology speciously comprehensible, but by clinging to it we dismiss almost all of the chemistry in the universe.

### 2NC --- AT --- Type II Civ

#### 2. Timeframe is way slower

Michio , 21 (Michio Michio , theoretical physicist. He holds the Henry Semat Chair and Professorship in theoretical physics at the City College of New York (CUNY), where he has taught for over 25 years. He has also been a visiting professor at the Institute for Advanced Study at Princeton, as well as New York University (NYU)., 4-6-2021, accessed on 4-30-2021, Mkaku, "The Physics of Interstellar Travel : Official Website of Dr. Michio Kaku", https://mkaku.org/home/articles/the-physics-of-interstellar-travel/)

By contrast, we are a Type 0 civilization, which extracts its energy from dead plants (oil and coal). Growing at the average rate of about 3% per year, however, one may calculate that our own civilization may attain Type I status in about 100-200 years, Type II status in a few thousand years, and Type III status in about 100,000 to a million years. These time scales are insignificant when compared with the universe itself.

On this scale, one may now rank the different propulsion systems available to different types of civilizations:

Type 0

* Chemical rockets
* Ionic engines
* Fission power
* EM propulsion (rail guns)

#### 3. Humans will never be able to leave the universe --- No offense

Siegel, 16 (Ethan Siegel, , Ethan R. Siegel is an American theoretical astrophysicist and science writer, who studies Big Bang theory. In the past he has been a professor at Lewis & Clark College , 5-12-2016, accessed on 4-30-2021, Forbes, "The Limits Of How Far Humanity Can Go In The Universe", https://www.forbes.com/sites/startswithabang/2016/05/12/the-limits-of-how-far-humanity-can-go-in-the-universe/?sh=5a6b921a4ae5)//Babcii

If you peer out into the depths of space -- at the vast expanse of stars, galaxies, and even the leftover glow from the Big Bang itself -- you might think that if humanity can understand the laws of nature and create a good enough technology, there are no limits to what we can explore. If we were to develop nuclear fusion technology, antimatter storage capabilities, or even the ability to harness dark matter as we traveled, we could unlock the potential for interplanetary, interstellar or even intergalactic travel. By accelerating ourselves over months or even years to reach near-light speeds, we could even reach our target destination within a single human lifetime.

Yet even if we imagine a future where we can do exactly that, there are still parts of the Universe that will be forever inaccessible to us. If the Universe were static, constant and forever unchanging, then all it would take was time to reach even the most distant object we could fathom. But our Universe isn't any of those things; it's expanding, cooling, and gravitating from an initially hot, dense state known as the Big Bang.

# 1NR --- Districts R2

## 2NC --- T --- Courts

### 2NC --- O/V

#### 2. ‘Prohibitions’ must be legislative enactments

Benjamin Hill 7, Judge on the Georgia Appeals Court, “Rose v. State”, Court of Appeals of Georgia, 1 Ga. App. 596, 601-602, 58 S.E. 20, 22-23, 1907 Ga. App. LEXIS 47, 4/11/1907

The words "otherwise prohibited," relied on by the State, really mean nothing in this statute. When the legislature used the words "prohibited by law," it exhausted the subject, and the addition of the words "high license or [\*\*\*11] otherwise" was "wasteful and ridiculous excess." These general words are sometimes added to specific enumeration in statutes out of abundance of caution, but they usually mean nothing. Certainly such words must be "restricted to the same genus as the things enumerated," and the use of the word "otherwise," following the words "prohibited by law," meant that the "otherwise" prohibition of the sale of liquor was to be a legal prohibition, that is, prohibited by the law of high license, or otherwise prohibited by law. But we do not think this general word means anything in this statute. Whatever it was intended to mean, it could not by any rule of logic give to the failure of the commissioners to grant licenses the force and effect of a positive enactment prohibiting the sale. The word "prohibit" is an active, transitive verb. As defined by the Standard Dictionary, it means "to forbid, especially by authority or legal enactment; interdict; as, to prohibit liquor-selling, or a person from selling liquor." The word "prohibit," [\*\*23] in its legal sense, implies some legislative enactment forbidding something. "The laws of England, from the early Plantagenets, sternly prohibited the [\*\*\*12] conversion of malt into alcohol." "Prohibition," in the United States, specifically means "the forbidding [\*602] by legislative enactment of the manufacture and sale of alcoholic liquors for use as beverage." Giving, therefore, to the word "prohibited" its ordinary signification and its technical meaning, as applied to the particular subject-matter of the sale of spirituous liquors, it must involve some positive act done by authority.

#### 3. AND “the scope of antitrust law” is not governed by court action

**Utah Law Review, 63** (Utah Law Review, Leading law review for the university of Utah, 1963, accessed on 7-20-2021, Utah Law Review, "CASES NOTED" “GOVERNMENT CONTEMPT ORDER PROVIDES POSSIBLE PRIMA FACIE CASEFOR PRIVATE ANTITRUST ACTION", https://collections.lib.utah.edu/dl\_files/e6/34/e6346be7b172efa1c6d32d6e15d4f5094339c121.pdf)//Babcii

It does not, however, necessarily follow that the same is true for the purposes of a private litigant. It must be recognized that the private litigant's rights exist only by virtue of section 5. The term "antitrust laws" has been narrowly construed to **include only** the **statutory provisions** of the Sherman and Clayton Acts **and to exclude other** statutes which apply **broad antitrust policies** to specific segments of business. 22 If this interpretation be accepted, it is arguable that the term "antitrust laws" as used in section 5 excludes antitrust decrees on which the contempt violation was based. 23 Further, the statutory language here involved, "a final **judgment or decree** . . . rendered . . . under the antitrust laws to the effect that a defendant has violated said laws . . ." does not bear out the interpretation given the section by the instant court. From the literal language of the section it would appear that the complaint in the instant case was based upon a criminal contempt citation brought for violation of a court order and not for violation of the antitrust laws. In a similar case, another Federal District Court stated that "**the term 'antitrust laws' could not be construed as** pertaining to a judgment or decree entered by **a court** in connection with an antitrust case." 24

#### 4. AND Resolved implies a legislative instrument

LA House 5 (Lousiana House of Representatives, <http://house.louisiana.gov/house-glossary.htm>)

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

### 2NC --- AT: by atleast

#### 2. By at least implies that the plan must expand law so as to increase prohibitions, not that all expansions of law *a priori* qualify as increased prohibitions

William H. Hanson, “The Formal-Structural View of Logical Consequence: A Reply to Gila Sher”The Philosophical Review , Apr., 2002, Vol. 111, No. 2 (Apr., 2002), pp. 243-258, Duke University Press on behalf of Philosophical Review

3. Logic, the A Priori, and the Empirical

The other major criticism I made in my 1997 of Sher's work was that FS violates the apriority criterion of my pretheoretic account of logical consequence. This is because under FS there are arguments we can know to be valid or invalid a posteriori but not a priori. As an example I gave an argument involving the quantifier 'Q\*', which I defined as behaving exactly like 'all' in models with domains of cardinality > n, but like 'at least one' in models with domains of cardinality < n, where the value of n is an integer we can know a posteriori but not a priori. (In my example n is the least number of whole seconds in which, up through the end of the twenty-first century, a human runs a mile.)9 The argument in question is:

(Q\*x) (Dog(x) → Black(x))

(Q\*x) Dog(x)

∴ (Q\*x) Black(x)

Since we know that n > 3, we know the argument is invalid, but we can't know this a priori. Yet 'Q\*' counts as a logical term according to FS, so FS violates my apriority criterion.10 [\*\*start footnote 10\*\* 10 That the operator expressed by 'Q\*' satisfies Sher's criterion for formal operators can be seen by consulting the account given in section 1 of how that criterion applies to unary quantifiers. Specifically, since for any two models with domains of the same car- dinality the operator expressed by 'Q\*' functions either as the operator expressed by 'all' in both models or as the operator expressed by 'at least one' in both, the operator expressed by 'Q\*' is formal for the same reasons these other two operator.\*\*end footnote 10\*\*]

This violation should be of concern to Sher, since my criterion is drawn directly from Tarski, whose work is in many ways the foundation of hers. Tarski wrote:

Certain considerations of an intuitive nature will form our starting-point. Consider any class K of sentences and a sentence X which follows from the sentences of this class. From an intuitive standpoint it can never happen that both the class K consists only of true sentences and the sentence X is false. Moreover, since we are concerned here with the concept of logical, i.e., formal, consequence, and thus with a relation which is to be uniquely determined by the form of the sentences between which it holds, this rela- tion cannot be influenced in any way by empirical knowledge, and in par- ticular by knowledge of the objects to which the sentence X or the sentences of the class K refer. The consequence relation cannot be affected by replacing the designations of the objects referred to in these sentences by the designations of any other objects. (1936, 414-15)

In formulating my apriority criterion, I was influenced by this passage, especially by the last part of the penultimate sentence: "[the logical consequence] relation cannot be influenced in any way by empirical knowledge, and in particular by knowledge of the objects to which the sen- tence Xor the sentences of the class Krefer" (emphasis added). This is, of course, somewhat obscure. Still it sounds compatible with, and I think even suggests, the standard I adopted, namely, that knowledge of whether the logical consequence relation holds in any particular case is knowledge that can be had a priori, if at all. Logic has long been held to be free, in some fundamental way, of all things empirical, and I believe many logicians have thought that logic achieves this freedom by meeting this (or a similar) standard.