# 1NC --- Neg terrorism

## OFF

### OFF

P --- Disclosure

#### Undisclosed new plan texts and advantages are bad --- Creates a moral hazard that destroys pre-round preparation and creates barriers to entry --- C/I is full disclosure 30 minutes before the round --- Independently justifies negative terrorism

### OFF

Multilat CP

#### The United States federal government should establish a framework for contingent international cooperation that expands the authority of the Federal Maritime Commission and maritime industry to pursue legal remedies

#### The CP’s framework multilateralizes antitrust---explicit reciprocity bypasses generic barriers AND spills over to deep economic integration

Dr. Daniel Francis 21, Climenko Fellow and Lecturer on Law at Harvard Law School, Doctorate of Laws Degree from the NYU School of Law, Master of Laws Degree from Harvard University, JD from Trinity College at Cambridge University, Former Deputy Director of the Federal Trade Commission, “Choices and Consequences: Internationalizing Competition Policy after TPP”, in Megaregulation Contested: The Global Economic Order After TPP, Ed. Kingsbury, Revised 8/26/2021, p. 40-48

B. Between Contracts and Networks: Frameworks

Another dichotomy that dominates the integration of competition policy pertains to the forms of internationalization, which in the competition policy space have generally been dominated by contract-style treaties on the one hand and by open networks on the other.166 Between these two models lies what seems to be an under-utilized alternative, which I call a “framework for contingent cooperation.”

[FOOTNOTE] 166 This binary view dominates the literature. See, e.g., Edward M. Graham, “Internationalizing” Competition Policy: An Assessment of the Two Main Alternatives, 48 Antitrust Bull. 947, 949 (2003) (“[M]echanisms [for antitrust internationalization] range from bilateral treaties creating arrangements for cooperation between or among national competition law enforcement agencies to informal working arrangements among agencies.”); Eleanor M. Fox, International Antitrust and the Doha Dome, 43 Va. J. Int’l L. 911, 912 (2003) (contrasting “horizontalism” with “globalism”); Anu Piilola, Assessing Theories of Global Governance: A Case Study of International Antitrust Regulation, 39 Stan. J. Int'l L. 207, 247 (2003) (“Rather than drafting overarching multilateral agreements on antitrust laws, cooperation efforts in the immediate future are more likely to succeed in managing existing diversity and promoting voluntary convergence based on approximation of domestically applied standards. Networks of antitrust authorities are well-suited to facilitate this process of cooperation and voluntary convergence.”). [END FOOTNOTE]

A “framework” in the sense that I am using that term is a facilitative arrangement that does not constitute a treaty under international law,167 and which does not carry the charge of international legal obligation, but which involves an exchange of specific and reciprocally contingent commitments by participant jurisdictions to engage in mutually beneficial conduct. Specifically, each party states that it will extend certain benefits to each other party so long as each other does likewise; the parties may also create supplementary mechanisms to monitor and/or adjudicate compliance with these commitments.168

A framework of this kind is not a treaty: it is what Kal Raustiala calls a “pledge,”169 and what Charles Lipson calls an “informal” agreement,170 involving no legal obligation, and it involves no commitment of the parties’ reputation for law-abiding behavior.171 On the other hand, it differs from an open, information-sharing network because it precisely specifies behavioral commitments, and because each of the parties shares an understanding that concrete consequences will promptly follow—exclusion from the benefits provided by others—if its behavior materially deviates from the terms of the commitment.172 A framework is therefore essentially a specific declaration of intention to engage in conduct that benefits others, contingent upon parallel behavior by other participating states, without obligatory status under international law.

This is, in some sense, the direct opposite of the approach typically taken in competition policy chapters in trade agreements. The provisions of competition policy chapters partake of the substance of treaty law, but are generally framed in broad terms rather than specifics, and generally do not reflect a shared understanding that specific consequences will attend breach. By contrast, frameworks do not bind in international law, are framed in specific terms than aspirational generalities, and reflect an understanding that the benefits of cooperation will be withdrawn in the event of violation.

Contingent cooperation thus depends for its effectiveness primarily upon three important dynamics. The first and most important of these is the rationality of strategic cooperation. A familiar mainstream view holds that to a significant extent states behave in international society in ways that rationally serve their interests.173 And when cooperation over a series of interactions is overall in the interests of each member of a group, but when each member faces a rational incentive to defect from the terms of cooperation in individual cases, familiar economic theory teaches that a strategic cooperative equilibrium can be maintained among the parties.174 In contingent cooperation, each party understands that if it defects materially from the terms of the framework, the other participants will withdraw the excludable benefits of cooperation, and this provides the incentive to comply.175

Contingent cooperation can be made more stable by the introduction of certain structures designed to monitor compliance (just as with a cartel among private companies).176 This might among other things involve the creation of a central “facilitator” that is responsible, in a general sense, for obtaining, collecting, and processing information necessary to sustain a cooperative equilibrium.177 Depending on the purpose and scope of the cooperation project, this could include (for example): reviewing the text of laws, regulations, and policy documents for consistency with the terms of the framework; conducting peer-review-style evaluations and certifications; hosting voluntary dispute resolution processes, including mediation and/or arbitration, to determine whether and when the framework has been violated; or even receiving and handling complaints of violations ombudsman-fashion (i.e., receiving the complaint, giving the subject of the complaint an opportunity to respond, and publishing findings and conclusions). A central facilitator could also go beyond a policing function and offer a common forum for certain forms of cooperation and information sharing. The nature of such broader functions, and the extent to which they would be useful or desirable, would depend on the nature and purpose of the cooperation.

The second dynamic that powers contingent cooperation is the normative appeal of the project itself. The point here is not unlike what Gráinne de Búrca calls “mission legitimacy”: the normative force of the underlying purpose of a cooperative project, and specifically the power of that normativity to secure the acceptance and cooperation of those who participate.178 Parties joining projects of contingent cooperation can be expected to be in some sense self-selecting: they join such endeavors because, in part, they are genuinely committed to promoting and achieving the ends that the project represents, and they embrace the project of cooperation as worthwhile.179 It may sound a little naïve to suggest that a project of cooperation may be more likely to “stick” if it has some normative appeal to the participating polities, but legal scholarship has long recognized that states do what they undertake to do more often than strictly rational analysis would predict.180 And I think the proposition that genuine commitment to a goal can contribute to compliance is in truth somewhat less naïve than the converse idea that compliance is just as likely without it.

The third source of a framework’s effectiveness is to be found in the acculturative and socializing effects of interaction in an environment in which values and practices are shared and reinforced as normative, and in which attention is paid to the existence and nature of violations. There is a rich and complex literature on the ways in which states, state actors, and the individuals within them may be “socialized” or “acculturated” by repeated engagement with others through common institutions and shared environments of normativity, eventually contributing to the emergence of obligations with genuine normative force.181 Jutta Brunnée and Stephen Toope have pointed out ways in which the force of legal obligation itself arises from shared communities of practice grounded in social reality and shared understandings, not formal commitments.182 As they put it, “[s]tability may be aided by explicit articulation of a norm in a text, but it is ultimately dependent upon [an] underlying shared understanding and a continuous practice of legality.”183

Participation in an endeavor of contingent cooperation may help to engender the development of such understandings and practices, and these may contribute to the effectiveness of the framework. In the longer term, this may even result in the creation of a legal instrument. But this progression is not necessary for acculturation to exert a reinforcing effect: for, as Anu Bradford accurately notes, there is no reason to think that “the pathway from nonbinding to binding rules” is an inevitable or even a natural one.184

The distinctive value of a framework is that it provides a low-cost way for jurisdictions to explore and participate in possible arrangements of mutual benefit that depend upon shared concrete understandings regarding future behavior, but without bearing the burden of an obligation under international law, without running the reputational risk of having to break a treaty, and without facing the domestic hurdles (or political scrutiny) that a treaty would necessitate.185 Use of such a framework may help to reduce the concerns grounded in political morality that might otherwise attend inter-jurisdictional action in sensitive areas:186 to use a term I have coined elsewhere, as contingent practices from which states could withdraw at any time, frameworks would benefit from considerable resources of “exit legitimacy.”187

Frameworks are not suited to every application. They seem particularly apt for types of international cooperation that generate excludable benefits for other participants and can be reasonably well monitored: in the sphere of competition policy, for example, this would include commitments to provide nondiscriminatory access to procurement markets as well as many forms of antitrust cooperation (including cooperation with one another’s investigations, coordination of enforcement activity, the operation of joint filing systems for merger review and cartel leniency programs, and so on). Certain guarantees of nondiscriminatory treatment by SOEs could also be extended on a selective basis. On the other hand, contingent cooperation is much less suitable for projects that require strong and highly credible guarantees of commitment from the participants (in which case a traditional treaty-contract would seem more appropriate188) or groups of parties still lacking the prerequisite agreement on the terms and ambit of desirable cooperation. Nor is it suitable in the absence of sufficient confidence in the ability or incentive of other parties to deliver on their commitments: in these cases, open dialogue and information exchange through a network would seem preferable. Nor, obviously, is it a good fit for projects in which the benefits of cooperation are non-excludable.189 To pick an obvious example, contingent cooperation would not recommend itself as a natural choice for an international project to introduce SOE discipline: the benefits are non-excludable (there is no obvious way to withdraw them selectively in the event of defection) and compliance is very difficult to monitor, so the use of a framework is unlikely to make much of a contribution.190

#### Normative convergence through antitrust prevents a lot of bad things that don’t cause extinction but are still bad

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A. The international political environment

At the root of international political theory is the fundamental maxim that relations between sovereign nations in the absence of mitigating factors is characterized by intense competition, mutual distrust, the inability to make credible commitments, and war.20

[FOOTNOTE] 20 Political scientists characterize the international system as “anarchic.” In the absence of world government (or other mitigating force), competition between states is largely unregulated by external laws or enforcement. The world is characterized by mistrust, the inability to contract, and the ultimate reliance on a state’s own devices. See THOMAS HOBBES, LEVIATHAN 80 (Edwin Curley ed., 1994) (in the state of nature “the condition of man . . . is a condition of war of everyone against everyone”). In fuller terms:

There is no authoritative allocator of resources: we cannot talk about a ‘world society’ making decisions about economic outcomes. No consistent and enforceable set of comprehensive rules exists. If actors are to improve their welfare through coordinating their policies, they must do so through bargaining rather than by invoking central direction. In world politics, uncertainty is rife, making agreements is difficult, and no secure barriers prevent military and security questions from impinging on economic affairs.

ROBERT O. KEOHANE, AFTER HEGEMONY: COOPERATION AND DISCORD IN THE WORLD POLITICAL ECONOMY 18 (1984). Efficiency-enhancing gains from trade are difficult to appropriate because trade itself (and any other form of exchange or agreement between nations) is characterized by the absence of credible commitments to future behavior. And underlying the problem is the ever-present threat of the use of force. See, e.g., Kenneth N. Waltz, Anarchic Orders and Balances of Power, in NEOREALISM AND ITS CRITICS 98, 98 (Robert O. Keohane ed. 1986) (“The state among states . . . conducts its affairs in the brooding shadow of violence . . . . Among states, the state of nature is a state of war.”). Although this dire characterization of the international environment is, of course, a stylized approximation of the real world—there are always overlying constraints on sovereign behavior in the form of norms, reputational effects, and customary international law, HEDLEY BULL, THE ANARCHICAL SOCIETY: A STUDY OF ORDER IN WORLD POLITICS (1977)—it is a useful and widely accepted heuristic for crafting a theory of international politics. [END FOOTNOTE]

As one commentator notes, “Nations dwell in perpetual anarchy, for no central authority imposes limits on the pursuit of sovereign interests.”21 And states are “unitary actors who, at a minimum, seek their own preservation and, at a maximum, drive for universal domination.”22 As a result, states operating on the international stage are unable to judge the sincerity of each others’ stated intentions when those intentions are contrary to this manifest interest. Because of self-help rules, states are forced in the main to assess their own security environment by assessing the capabilities of competitors, downplaying their motives. Given that the nature of the competition can implicate the fundamental survival of one (or more) of the actors, actions taken by one state to improve its own security must necessarily decrease the security of its competitor; in the absence of mitigation, security is a zero-sum game.23 In a world where cooperation is exceedingly difficult (because there is no authority to enforce agreements, nor any basis for assessing the reliability of another state’s commitments), international relations are characterized by a continuous race to the bottom, a mindless arms race rather than the opportunity to realize gains from cooperation.

It is obvious that not all relations between states are characterized by the security dilemma, however. Canada, for example, shares an unprotected border with the most powerful nation in the world without degenerating into a destructive and costly arms race. By some mechanism, then, Canada must be able reliably to judge U.S. intentions, even absent the apparent ability by the United States credibly to bind itself to a nonaggressive policy toward Canada. The key to mitigating the pressures of the security dilemma is the ability to distinguish a state with aggressive and expansionist tendencies from a benign one.24 States can be distinguished by their fundamental type. They can be classified as “revisionist,” that is, they seek to subvert the dominant order, or they can be classified as “status quo,” that is, they seek to support it.25 But, as noted, a state’s ability to judge another’s intentions (as opposed simply to counting its armaments) is extremely tenuous and comes at great cost. In fact, political science offers few well-understood mechanisms for judging a state’s propensity for aggression.

At the same time, hegemonic states have an abiding interest in spreading and maintaining their dominant worldview.26 Not only is it imperative that dominant states receive credible signals about other states’ intentions, but it is also important that dominant states attempt to inculcate their norms within other states that, over time, might mount credible challenges to the dominant states’ security.27 The spread of hegemony through internalization of norms occurs for three reasons. First, states with similar institutions and sympathetic domestic norms are simply better and more reliable trading partners, and it is in the hegemon’s economic interest to instill its norms.28 Second, states with defensive military postures and that adhere to the status quo present significantly less security risk to dominant states.29 And finally, the hegemon has a normative interest in the spread of its culture, its worldview, and its norms.30 This conception of the playing field upon which states interact leads to the conclusion that, entirely apart from the immediate and substantial economic benefits to a state from well-ordered interactions with other states, hegemonic states also have a national security and a normative interest in the information to be gleaned from the fact that these interactions are, in fact, well ordered.

In the absence of centralized enforcement, privately held and nonverifiable information as to a state’s fundamental type is the critical problem in assessing motives.31

[FOOTNOTE] 31 See KEOHANE, supra note 20, at 31 (“Order in world politics is typically created by a single dominant power [or hegemon].”). States are consequently classified as one of two types, “revisionist” or “status quo,” based on their acceptance and adherence to the political norms, institutions, and rules created by the hegemon. Status quo states are those that try to improve their condition from within the framework of the accepted world order. Revisionist states, by contrast, seek to gain position both by working outside that order and by working to subvert the hegemonic order itself. For instance, the existing world order is generally accepted to be that created by the United States after World War II. It comprises a liberal international economic order, the use of multilateral institutions (such as the United Nations and the WTO), negotiation for dispute resolution rather than the threat of violence, and the promotion of liberal democratic moral norms. See, e.g., Schweller, supra note 24, at 85; HANS J. MORGENTHAU, POLITICS AMONG NATIONS: THE STRUGGLE FOR POWER AND PEACE 32 (1948). Trade disputes between status quo states (like tariff disputes between the United States and Europe) are resolved through peaceful negotiation rather than the threat of war. Although status quo states do not entirely eschew the use of violence, they typically seek international authorization and legitimization before employing military force, as in the multilateral operations in Iraq, Kosovo, and Afghanistan. Revisionist states, on the other hand, such as North Korea, Iran, and China, will more readily use military force as a bargaining tool and are more reluctant fully to participate in transparent military, economic, and political negotiations. [END FOOTNOTE]

States wishing to escape the pressures of the security dilemma and engage in cooperative behavior need a means of conveying their preferences to others in a credible manner. There are, in general, two means by which such information can be transmitted: states can either bind themselves in such a way that they are unable to deviate from a stated behavior (known as “hands tying” in Schelling),32 or they can signal their intention to engage in a specified course of action by incurring costs sufficiently large that they discourage the misrepresentation of preference.33

International institutions can play a crucial role in facilitating the transmission of this information.34 In particular, international agreements over the terms of trade, even without binding supranational enforcement authority, provide a means for states to bind themselves to a desirable course of behavior in the short run and, more importantly, to signal their acquiescence to the ruling world order in the long run. Because compliance with treaty obligations often requires signatories to alter their domestic laws to reflect the terms of the treaty, the costs of compliance can be substantial. In the short run, to the extent that states enforce their domestic laws they can bind themselves to a certain course of behavior. In the long run, a state’s willingness to incur the substantial costs of changing its laws, both the transaction costs inherent in changing domestic laws and the even more substantial costs in domestic political capital, signals a willingness to engage other states on the terms set by the reigning international power. Moreover, there may be unintended effects, as changes in domestic laws result in a new set of domestic incentives to which actors respond, and new windows of opportunity may open up through which policy entrepreneurs can push for the internalization of new norms.35 Competition laws in particular are susceptible to this mode of analysis.

Most nations have adopted competition laws as a way to actualize (as well as to symbolize) a degree of commitment to the competitive process and to the prevention of abusive business practices . . . . The introduction of competition laws and policies has also gone hand in hand with economic deregulation, regulatory reform, and the end of command and control economies.36

The surest way to remove the threat of war, increase wealth, conserve resources, and protect human rights is through fundamental agreement between all states (or at least effective agreement between verifiably status quo states) under a normative umbrella that promotes all of those values. This normative convergence can be effected through the stepwise internalization of the sorts of economic and democratic values inherent in international economic liberalization, perhaps most notably through the adoption of principled international antitrust standards.37

### OFF

T --- Prohibit

#### Business practices are ongoing conduct defined by the behaviors of many market participants

Kerry Lynn Macintosh 97, Associate Professor of Law, Santa Clara University School of Law. B.A. 1978, Pomona College; J.D. 1982, Stanford University, “Liberty, Trade, and the Uniform Commercial Code: When Should Default Rules Be Based On Business Practices?,” 38 Wm. & Mary L. Rev. 1465, Lexis

These new and revised articles reflect a strong trend toward choosing default rules 4 that codify existing business practices. 5 [FOOTNOTE 5 BEGINS] In this Article, the term "business practices" is used to refer to practices that emerge over time as countless market participants exercise their freedom to engage in profitable transactions. For an account of the evolution of business practices, see infra Part II. As used here, "business practices" is broader and less technical than "trade usage," which the Code narrowly defines as "any practice or method of dealing having such regularity of observance in a place, vocation, or trade as to justify an expectation that it will be observed with respect to the transaction in question." U.C.C. 1-205(2). [FOOTNOTE 5 ENDS] This is particularly true of the recent revisions to Articles 3 (Negotiable Instruments), 4 (Bank Deposits and Collections) and 5 (Letters of Credit).

#### ‘Prohibition’ must ban all instances of anticompetitive behavior

James Lane Buckley 91, Judge on the United States Court of Appeals for the District of Columbia Court, BA and JD from Yale University, Former Undersecretary for Security Assistance at the State Department, Former United States Senator from New York, “Hazardous Waste Treatment Council v. Reilly”, United States Court of Appeals for the District of Columbia Circuit, 938 F.2d 1390, 1395-1396, 1991 U.S. App. LEXIS 16095, 7/26/1991, Lexis

Petitioners claim that the EPA considers a state law to "act as a prohibition" under the regulation only when it bans all treatment, storage, and disposal within a State, and they point to the ALJ's statement, based on his reading of the preamble to the regulations, 45 Fed. Reg. at 33,395, that the EPA "appears to have construed the phrase 'act as a prohibition' in [paragraph (b)] as equivalent to an outright ban or refusal to accept hazardous waste for treatment, storage, or disposal." ALJ Decision at 112. Petitioners contend that the regulation must embrace any law that would even indirectly, as in the instant case, prohibit any treatment facility; otherwise, a State could accomplish a total ban one facility at a time. Senate Bill 114, they charge, epitomizes the "NIMBY" syndrome: In response to the needs of the nation for treatment of hazardous waste, North Carolina has simply said, "Not in my backyard." By refusing to respond, petitioners urge, the EPA ignores its duty to monitor state programs.

Although, at oral argument, government counsel [\*\*13] attempted to defend the "ban on all treatment" position that petitioners ascribe to the EPA, that is not the basis on which the agency concluded that Senate Bill 114 did not act as a prohibition within the meaning of section 271.4(b). In explaining why the second condition of paragraph (b) had not been met, the Regional Administrator emphasized that of the 485 riparian miles available in North Carolina for a facility of the kind proposed by GSX, 333 remained available under the Act, and noted that a smaller plant could be built at the Laurinburg site. Final Decision at 2. We therefore construe the EPA's decision to mean that a state law "acts as a prohibition" on the treatment of hazardous wastes when it effects a total ban on a particular waste treatment technology within a State, and nothing more.

[\*1396] Such a construction is reasonable and merits deference. The language of paragraph (b), which uses the word "prohibit[]" rather than "impede[]" or "restrict[]" as in the case of paragraph (a), suggests that the former allows States greater latitude in regulating particular treatment facilities before a prohibition is found to exist. This is consistent with the preamble's expression of [\*\*14] a desire to encourage the development of state programs by avoiding the establishment of "very tight standards." See 45 Fed. Reg. at 33,385. Second, defining prohibition in terms of the ban of a particular technology falls well within the language of paragraph (b). Finally, we see nothing inconsistent between this construction and the language of the underlying statute, 42 U.S.C. § 6926(b), which merely asserts that a state program may not be authorized if "such program is not consistent with the Federal and State programs applicable in other States." This language allows the agency enormous latitude in structuring its own implementing regulations and in interpreting them.

### OFF

T --- TPS

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

#### 1---By identifies an agent

Lexico, ND (“BY English Definition and Meaning” https://www.lexico.com/en/definition/by)

PREPOSITION

1 Identifying the agent performing an action.

#### 2---“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>

#### 3---“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

### OFF

Protospermia CP

#### 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

Abolition K

#### The plans investment into the criminality divide upholds modern day incarceration

Grasso, 18 (Anthony Grasso, Ph.D. in Political Science from the University of Pennsylvania and B.A.s in Political Science and History from Rutgers University “Punishment And Privilege: The Politics Of Class, Crime, And Corporations In America”, 2018, University of Pennsylvania, https://repository.upenn.edu/cgi/viewcontent.cgi?article=4860&context=edissertations)//babcii

V. Conclusion

By the 1950s, regulation was the state’s main response to corporate wrongdoing. Any potential in the earlier stages of the New Deal to create a new way of overseeing corporate crime was extinguished by bankers, exchange officials, industry executives, and legislators who appealed to older regulatory ideologies. By the 1940s and 1950s, shifts towards commercial Keynesianism ensured that the state not only viewed the prosecution of corporations as rarely appropriate, but also saw too much regulation as hostile to economic progress.

The political development of the regulatory state during the New Deal and midcentury mirrors the story David Vogel tells about the latter twentieth century. During a period of economic crisis, legislators and the public were keen to listen to the demands of industry. At a moment where there was tremendous fear of over-burdening the businesses trying recover from the Depression, the voices of the primary sectors the economy were amplified in the political arena. Industry leaders used this opportunity to good effect, reframing regulatory ideology to have a specific appeal in the political and economic climate of the Great Depression.

Most importantly, the story of the New Deal illustrates how deeply entrenched regulatory ideology was in political institutions. Policymakers intent on pushing back on the status quo who had reputations for cracking down on corporate power—like Thurman Arnold, William O. Douglas, and Thomas Corcoran—were in positions of power in the 1930s and 1940s. Still, they remained wedded to the basic precepts of regulatory ideology that shaped the institutions they operated within. By the time political actors seeking real change secured real power, the regulatory approach to monitoring corporate wrongdoing had firmly established itself as a common-sense approach.

The regulatory state was designed within a specific set of ideological parameters that hardened over time. The regulatory state sends an ideological message that the corporate actor who commits a crime is tangibly different from the “common criminal,” and his or her actions therefore take on a unique and more favorable meaning. This system exists next to a criminal justice system that expresses the ideological message that the poor are pathologically dangerous. Beginning in the 1960s, these two institutional arrangements worked in tandem to promote the class-based brand of punitive politics that drove mass incarceration by channeling street criminality into criminal justice institutions and corporate criminality into regulatory arrangements separated from the dynamics of carceral growth

CHAPTER 8: THE MUTUAL CONSTITUTION OF CLASS AND CRIME IN AMERICAN POLITICAL DEVELOPMENT

“We are the good guys…We are on the side of the angels.” - Jeffrey Skilling, former Enron CEO, in the wake of Enron’s collapse (2002)1061

When Jeffrey Skilling told a Senate Committee shortly after Enron’s collapse that the company’s leadership consisted of “the good guys,” he made a familiar appeal. He defended his arguably criminal actions through reference to the good character and intentions of business leaders. But his statement also made an assumption—the assumption that everyone knew who the “bad guys” were.

It is thoroughly documented that the U.S. is the world’s leader in incarceration and has also historically struggled to prosecute corporate crime. This project has illustrated how these phenomena are related. Distinctive ideational constructions of street and corporate criminality have been entrenched into U.S. regulatory and carceral apparatuses, but both reflect and reinforce a common set of ideas about who the “bad guys,” or the real “criminals,” are.

The state’s approaches to monitoring street and corporate criminality are products of a shared set of political and ideological forces. In the late nineteenth century, regulatory and rehabilitative ideologies were built around a common conception of criminality that poor, low-income, and socially marginalized populations fit and corporate leaders did not. These ideologies have travelled over time and been embedded into carceral and regulatory institutions that have hardened in ways that legitimize this politically constructed idea of criminality. This dissertation has shown how this idea originated and, at formative junctures, was embedded into the state’s criminal justice and regulatory machinery.

#### The alt is a continuum of solutions based on decarceration that restructures justice

Davis 3 – American political activist, philosopher, academic, Marxist feminist, and author. She is a professor emerita at the University of California, Santa Cruz [Angela, Are Prisons Obsolete?, 2003, pg. 106-108, DKP]

It is true that if we focus myopically on the existing system-and perhaps this is the problem that leads to the assumption that imprisonment is the only alternative to death-it is very hard to imagine a structurally similar system capable of handling such a vast population of lawbreakers. If, however, we shift our attention from the prison, perceived as an isolated institution, to the set of relationships that comprise the prison industrial complex, it may be easier to think about alternatives. In other words, a more complicated framework may yield more options than if we simply attempt to discover a single substitute for the prison system. The first step, then, would be to let go of the desire to discover one single alternative system of punishment that would occupy the same footprint as the prison system.

Since the 1980s, the prison system has become increasingly ensconced in the economic, political and ideological life of the United States and the transnational trafficking in U.s. commodities, culture, and ideas. Thus, the prison industrial complex is much more than the sum of all the jails and prisons in this country. It is a set of symbiotic relationships among correctional communities, transnational corporations, media conglomerates, guards' unions, and legislative and court agendas. If it is true that the contemporary meaning of punishment is fashioned through these relationships, then the most effective abolitionist strategies will contest these relationships and propose alternatives that pull them apart. What, then, would it mean to imagine a system in which punishment is not allowed to become the source of corporate profit? How can we imagine a society in which race and class are not primary determinants of punishment? Or one in which punishment itself is no longer the central concern in the making of justice?

An abolitionist approach that seeks to answer questions such as these would require us to imagine a constellation of alternative strategies and institutions, with the ultimate aim of removing the prison from the social and ideological landscapes of our society. In other words, we would not be looking for prisonlike substitutes for the prison, such as house arrest safeguarded by electronic surveillance bracelets. Rather, positing decarceration as our overarching strategy, we would try to envision a continuum of alternatives to imprisonment-demilitarization of schools, revitalization of education at all levels, a health system that provides free physical and mental care to all, and a **justice system based on reparation and reconciliation** rather than retribution and vengeance.

The creation of new institutions that lay claim to the space now occupied by the prison can eventually start to crowd out the prison so that it would inhabit increasingly smaller areas of our social and psychic landscape. Schools can therefore be seen as the most powerful alternative to jails and prisons. Unless the current structures of violence are eliminated from schools in impoverished communities of color-including the presence of armed security guards and police-and unless schools become places that encourage the joy of learning, these schools will remain the major conduits to prisons. The alternative would be to transform schools into vehicles for decarceration. Within the health care system, it is important to emphasize the current scarcity of institutions available to poor people who suffer severe mental and emotional illnesses. There are currently more people with mental and emotional disorders in jails and prisons than in mental institutions. This call for new facilities designed to assist poor people should not be taken as an appeal to reinstitute the old system of mental institutions, which were and in many cases still are-as repressive as the prisons. It is simply to suggest that the racial and class disparities in care available to the affluent and the deprived need to be eradicated, thus creating another vehicle for decarceration.

To reiterate, rather than try to imagine one single alternative to the existing system of incarceration, we might envision an array of alternatives that will require radical transformations of many aspects of our society. Alternatives that fail to address racism, male dominance, homophobia, class bias, and other structures of domination will not, in the final analysis, lead to decarceration and will not advance the goal of abolition.

## Case

### 1NC --- Turn

Turn --- Vacuum Decay

#### 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" \l "B1); [Chatrchyan et al., 2012](https://www.frontiersin.org/articles/10.3389/fspas.2018.00040/full" \l "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" \l "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" \l "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" \l "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 unforeseenWe 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 --- CP

### 2NC --- “Create humans”

#### 2. Time scales, biogenic capacity, and strong planets solves creating more humans

**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

Protospermia, as a technological capability, could defy ethical resolution according to the criteria explored in previous debates. First, the timescales involved aren’t inherently human, or at least human-cultural. If we choose to ‘send the goo’ to various destinations in our solar system and beyond, it would likely take thousands or millions of years for a self-replicating chemical system to emerge, far beyond even the most long-lived of our mortal concerns. Second, by sending a biogenic capacity and not a strictly predetermined molecular architecture, we would circumvent some of the uglier, more domineering aspects involved with pushing an alien (ie, Terran) physiology on other unsuspecting worlds through in situ missions or terraforming. Whatever arose would be a product of that world. If that world already had life, it is very unlikely that the goo we send could practically overwrite what is already there.

## 2NC --- Roomba Decay

### 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.

#### The impact is linear --- The more we observe the more likely a decay

Arkell 14 (Esther Inglis-, Contributor to the Genetic Literacy Project, Contributing Editor and Senior Reporter at io9, Freelance Writer for Ars Technica, BS in Physics from Dartmouth College, "We Might Be Destroying The Universe Just By Looking At It", io9 – Gizmodo, 2/3/14, <https://io9.gizmodo.com/we-might-be-destroying-the-universe-just-by-looking-at-1514652112>)

Dark energy drives the expansion of the universe. Although bubbles decay, they decay along different lines according to the energy state they're in when they start collapsing. If they're in a high energy state, the rate of decay is also high. If they're in a low energy state, the rate of decay is slow. Put the fast rate of decay in a race against the expansion of the universe, and we are all winked out of existence. Put the slow rate of decay in that same race, and we all have the chance to live productive lives. The problem is, when we observe a system, we can keep it in a certain state. Studies have shown that repeatedly observing the state of an atom set to decay can keep that atom in its higher-energy state. When we observe the universe, especially the "dark" side of the universe, we might be keeping it in its higher-energy state. If the process of collapse happens when it is in that state, the universe will cease to exist. If we stop looking, and the universe quietly shifts to a state at which its decay is slower, then we're all saved. The more we look at the universe, the more likely it is to end.

#### Massive colliders are coming soon that greatly increase the risk

McKeown 15 – Rory McKeown, Journalist for the Daily Star, quoting Wang Yifang, Director of the Institute of High Emergency Physics at the China Academy of Sciences, Stephen Hawking and Sir Martin Rees, President of the Royal Society, Fellow of Trinity College and Emeritus Professor of Cosmology and Astrophysics at the University of Cambridge, “China To Build A Gigantic Hadron Collider That Could Destroy The UNIVERSE”, The Daily Star, 12-13, https://www.dailystar.co.uk/news/latest-news/481133/China-build-gigantic-hadron-collider-destroy-UNIVERSE

Physicists in the Far East want to start building a huge particle accelerator to uncover the unsolved mysteries surrounding the universe. The proposed gigantic machine will better Europe’s collider at CERN in Switzerland for both power and size. With a staggering circumference of between 30 to 62 miles, it is long enough to circle New York's Manhattan. But the move could have disastrous consequences for the universe as we know it – with its potential to create a black hole or spontaneously combust. Brit scientist Professor Stephen Hawking made a bleak claim last year that search for the Higgs boson particle – often referred to as the God particle – could end the world in 10 to 100 years time. China is expected to start building its Frankenstein’s Monster of physics in 2020. But conspiracy theorists were quick to point out the date coincides with a prophecy suggesting the arrival of the antichrist. The Circular Electron Positron Collider (CEPC) was announced by experts at the China Academy of Sciences and reportedly will generate millions of Higgs bosons particles – a huge amount more than the Large Hadron Collider. Wang Yifang, director of the Institute of High Emergency Physics at the academy, said the massive tunnel will hold two super colliders. They want the CEPC to be the first stage of the project, which aims to discover how the Higgs boson particle decays following collision. China hopes its mean machine will get the closest humanity has ever got to creating the conditions just after the Big Bang. Wang said the project will generate seven times the energy of Europe’s own collider. He said: “LHC is hitting its limits of energy level. “It seems not possible to escalate the energy dramatically ay the existing facility. “The technical route we chose is different from the LHC. “While the LHC smashes together protons, it generates Higgs particles together with many other particles.” He told China Daily the CEPC, which is set to be build near the start of the Great Wall, creates a “clean environment that only produces Higgs boson particles.” “This is a machine for the world and by the world: not a Chinese one", he added. The second stage of the accelerator – a Super Proton-Proton Collider (SPPC) would begin construction in 2040. Here scientists could be able to shed light on dark matter, the Big Bang and black holes. And the process would, according to Sir Martin Rees, Astronomer Royal of the UK, leave the planet “an inert hyperdense sphere about one hundred metres across.” But for all the advancement in science and technology, some fear human intervention into the unknown could wipe out the universe. Prof Hawking described the discovery of the Higgs boson particle in 2012 as a doomsday scenario. He warned: “The Higgs potential has the worrisome feature that it might become metastable at energies above 100 billion gigaelectronvolts. “This could mean that the universe could undergo catastrophic vacuum decay, with a bubble of the true vacuum expanding the speed of light. “This could happen at any time and we wouldn’t see it coming.”

#### 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.

### 2NC --- AT --- Universe extinction inev

#### 2. Timeframe is massive, and life will survive

Becker, 15 (Adam Becker, Adam Becker is an American astrophysicist and popularizer of science. He is a visiting scholar at University of California, Berkeley., 6-2-2015, accessed on 5-13-2021, Bbc, "How will the universe end, and could anything survive?", http://www.bbc.com/earth/story/20150602-how-will-the-universe-end)//Babcii

There's certainly no reason for us, individually, to worry about the end of the universe. All of these events are trillions of years into the future, with the possible exception of the Big Change, so they're not exactly an imminent problem. Also, there's no reason to worry about humanity. If nothing else, genetic drift will have rendered our descendants unrecognizable long before then. But could intelligent feeling creatures of any kind, human or not, survive? Physicist [Freeman Dyson](http://www.sns.ias.edu/dyson) of the Institute for Advanced Studies in Princeton, New Jersey considered this question in [a classic paper published in 1979](http://dx.doi.org/10.1103/RevModPhys.51.447). At the time, he concluded that life could modify itself to survive the Big Freeze, which he thought was less challenging than the inferno of the Big Crunch. But these days, he's much less optimistic, thanks to the discovery of dark energy. "If the universe is accelerating, that's really bad news," says Dyson. Accelerating expansion means we'll eventually lose contact with all but a handful of galaxies, dramatically limiting the amount of energy available to us. "It's a rather dismal situation in the long run." The situation could still change. "We really don't know whether the expansion is going to continue since we don't understand why it's accelerating," says Dyson. "The optimistic view is that the acceleration will slow down as the universe gets bigger." If that happens, "the future is much more promising."

### 2NC --- AT --- humans key

#### 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.

### 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.

#### We don’t need to win aliens real to outweigh ---

#### 1. Only our impact removes the possibility of future life --- multiple shots at life outweigh

#### 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 Margulis has 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.

#### 3. Even if humans are unique --- Panspermia solves absent a phase transition

Shostak, 03 SETI Senior Astronomer, 03 <Seth, Panspermia: Spreading Life Through the Universe, Jul. 24, http://www.seti.org/site/apps/nl/content2.asp?c=ktJ2J9MMIsE&b=191981&ct=220926>

About 25 years ago, two British astronomers, Fred Hoyle and Chandra Wickramsinghe, proposed that comets might be the Johnny Appleseeds of life, carrying vital spores from star system to star system, an idea that is known today as panspermia. If the tail of such a life-loaded comet were to brush the Earth, it might pass some of its frozen microorganisms into the atmosphere where they could descend to our planets surface. The two astronomers ventured that this might account for the start of life on Earth. They also made the disturbing suggestion that panspermia could spread disease. Now you might wonder whether life from space, as intriguing as the idea might be, solves the mystery of how biology got started in the first place. Or does this theory merely push the problem of lifes origin into someone elses lap? Well, of course, to some extent it only accomplishes the latter. But there is an appealing aspect to panspermia: it allows life to be widespread, even if the genesis of life is a difficult and rare event. After all, humans cover the planet, even though Homo sapiens got his start in only one locale (Africa, presumably.) Life might blanket the Galaxy even if it only sprung up on a small number of worlds**.** Great.

### 2NC --- AT --- Fermi’s

#### a. Time

New Scientist, 07 <Aliens need a lot more time to find us, 20 January, http://space.newscientist.com/article/mg19325875.100-aliens-need-a-lot-more-time-to-find-us.html>

"SO, WHERE is everybody?" Nobel laureate Enrico Fermi reportedly quipped to fellow physicists in 1950, when discussing why we haven't seen any signs of alien civilisations if, as many believe, our galaxy is teeming with life. Now, a maths model may have an answer to Fermi's paradox**.** Rasmus Bjørk of the Niels Bohr Institute in Copenhagen, Denmark, has calculated that eight probes - travelling at a tenth of the speed of light and each capable of launching up to eight sub-probes **-** would take about 100,000 years to explore a region of space containing 40,000 stars. When Bjørk scaled up the search to include 260,000 such systems in our galaxy's habitable zone, the probes took almost 10 billion years - three-quarters the age of the universe - to explore just 0.4 per cent of the stars ([www.arxiv.org/astro-ph/0701238v1](http://www.arxiv.org/astro-ph/0701238v1)). So, Bjørk's answer to the Fermi paradox**:** aliens haven't contacted us because they haven't had the time to find us yet.

#### b. Lack of power

Shostak 01, Senior Astronomer SETI, is an [American](http://en.wikipedia.org/wiki/United_States) [astronomer](http://en.wikipedia.org/wiki/Astronomer). He grew up in[Arlington, VA](http://en.wikipedia.org/wiki/Arlington,_VA)[[1]](http://en.wikipedia.org/wiki/Seth_Shostak#cite_note-Nifty-0) and earned his [physics](http://en.wikipedia.org/wiki/Physics) degree from [Princeton University](http://en.wikipedia.org/wiki/Princeton_University) and a[Ph.D.](http://en.wikipedia.org/wiki/Ph.D.) in [astronomy](http://en.wikipedia.org/wiki/Astronomy) from the [California Institute of Technology](http://en.wikipedia.org/wiki/California_Institute_of_Technology).[[2]](http://en.wikipedia.org/wiki/Seth_Shostak#cite_note-SETI-1) He is the Senior Astronomer at the [SETI Institute](http://en.wikipedia.org/wiki/SETI_Institute) in [Mountain View, California](http://en.wikipedia.org/wiki/Mountain_View,_Santa_Clara_County,_California), and the 2004 winner of the [Klumpke-Roberts Award](http://en.wikipedia.org/wiki/Klumpke-Roberts_Award) awarded by the[Astronomical Society of the Pacific](http://en.wikipedia.org/wiki/Astronomical_Society_of_the_Pacific) in recognition of his outstanding contributions to the public understanding and appreciation of astronomy.[[3]](http://en.wikipedia.org/wiki/Seth_Shostak#cite_note-GALE-2) < Seth. Nov. 08, SETI Institute Fermi's Paradox Part 2 What's Blocking Galactic Civilization? http://www.seti.org/site/pp.asp?c=ktJ2J9MMIsE&b=179285>

Of course, if energy costs can be brought way down, for example with fusion or matter-antimatter technology, or by capturing more of the radiation spewed into space by the home star, this explanation might not hold water. But even if the aliens can afford colonization, maybe they haven’t got the stamina to see it through. Subduing the Galaxy takes more than sending a ship full of restless nomads to the next star. The nomads have to settle that star, and then spawn pilgrims of their own. And those émigrés have to produce yet more settlers. And so on. If each and every colony eventually founds two daughter settlements (a pretty decent accomplishment), then 38 generations of colonists are required to bring the entire Galaxy under control. Even the Polynesians, who swept across the western Pacific domesticating one island after another, didn’t manage this. Maybe the aliens can’t do it either.

### 2NC --- AT --- No Sentience

#### 2. Math disproves --- It’s common and easy

Wall, 16 (Mike Wall, Michael has been writing for Space.com since 2010. His book about the search for alien life, "Out There," was published on Nov. 13, 2018. Before becoming a science writer, Michael worked as a herpetologist and wildlife biologist. He has a Ph.D. in evolutionary biology from the University of Sydney, Australia, a bachelor's degree from the University of Arizona, and a graduate certificate in science writing from the University of California, Santa Cruz., 5-5-2016, accessed on 5-13-2021, Space, "The Universe Has Probably Hosted Many Alien Civilizations: Study ", <https://www.space.com/32793-intelligent-alien-life-probability-high.html)//Babcii>

Many other planets throughout the universe probably hosted intelligent life long before Earth did, a new study suggests. The probability of a civilization developing on a potentially habitable [alien planet](https://www.space.com/16681-alien-planets-quiz.html) would have to be less than one in 10 billion trillion — or one part in 10 to the 22nd power — for humanity to be the first technologically advanced species the cosmos has ever known, according to the study. "To me, this implies that other intelligent, technology-producing species very likely have evolved before us," said lead author Adam Frank, a professor of physics and astronomy at the University of Rochester in New York. [[13 Ways to Hunt Intelligent Alien Life](https://www.space.com/20155-hunting-intelligent-aliens-extreme-seti.html)] In 1961, astronomer Frank Drake devised a formula to estimate the number of extraterrestrial civilizations that may exist today in the Milky Way. Adam Frank and co-author Woodruff Sullivan of the University of Washington were interested in the odds that intelligent aliens have ever existed anywhere in the universe. So they tweaked the famous [Drake equation](https://www.space.com/25219-drake-equation.html), coming up with an "archaeological version" that doesn't take into account how long alien civilizations may last. Frank and Sullivan also incorporated observations from NASA's Kepler space telescope and other instruments, which suggest that about 20 percent of all stars host planets in the life-friendly, "habitable zone," where liquid water could exist on a world's surface. The researchers then calculated the probability that Earth was the universe's first-ever abode for intelligent life, after taking into account the number of stars in the observable universe (about 20 billion trillion, according to a recent estimate). "From a fundamental perspective, the question is, 'Has it ever happened anywhere before?'" Frank said. "Our result is the first time anyone has been able to set any empirical answer for that question, and it is astonishingly likely that we are not the only time and place that an advanced civilization has evolved."

#### 3. This is human exceptionalism

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 142-143>

Some evolutionary biologists have argued that intelligence in the universe must be rare because there are no other examples on Earth. We are it. Dolphins and chimps notwithstanding, no one else has our cultural, communicative, and technological abilities. Among all the millions of species that have come and gone, and those that are around today, intelligence has evolved only once. If it was very useful or likely, then many species would have it. Therefore, most planets will not develop intelligence. Am I the only one who finds this argument incredibly lame? The fact is, we haven’t been here long**.** We speak these opinions as if we were the omniscient observers, looking over the whole stretch of Earth history and drawing final, sweeping conclusions. We discuss evolution as if it were a done deal, for which we were providing the wrap-up commentary, rather than an ongoing, unfolding process that we are bound up in. We are more like the first sunflower shooting up in a patch of thousands, opening our petals, and confidently declaring, “There are no other sunflowers and therefore sunflowers are extremely unlikely.**” The** first intelligence will always be the only intelligence. Only if it is really not too swift will it conclude from this that it represents something that must be highly improbable.

### 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

### 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 --- Cosmic rays/Tunneling

#### 2. Scratch this argument off your flow --- It is the equivalent of 4th grade logic and has been debunked

MIT 11 – MIT Technology Review—Emerging Technology from the arXiv, “Update: Black Holes, Safety, and the LHC Upgrade”, MIT Technology Review, 11-9, https://www.technologyreview.com/s/426078/update-black-holes-safety-and-the-lhc-upgrade/

Their argument is that the Earth has been bombarded by high energy cosmic rays for billions of years. These particles would have collided with particles in our atmosphere at much higher energies than are possible at the LHC. So if a catastrophe were possible, it would have happened by now. That means the continued existence of the Earth, and indeed many other astronomical bodies, is powerful evidence that the LHC is safe. The problem is this: there is an important difference between the collisions that occur in the atmosphere and those that occur at the LHC. Cosmic rays hit the atmosphere at a substantial fraction of the speed of light. That means the debris from these collisions also travels at a substantial fraction of the speed of light, giving it limited time to interact with the Earth. The collisions at the LHC are different. These involve two beams, both travelling at almost the speed of light but colliding head on. So the collision occurs at rest with respect to the Earth. That’s a significant point. It means that the debris from the collision can hang around for longer and so have a greater chance of interacting with the Earth. When this effect is taken into account, it is not at all clear that similar events have taken place regularly in our atmosphere or indeed anywhere else.

### 2NC --- AT --- Multiverse

#### 2. Only our universe will support life

Davies, 04 Professor of Natural Philosophy Australian Centre for Astrobiology, <Paul: 'Multiverse Theory' Holds That the Universe is a Virtual Reality Matrix Sydney Morning Herald | July 22 2004 http://uplink.space.com/showflat.php?Cat=&Board=sciastro&Number=9684&page=20&view=collapsed&sb=7&o=0&fpart=>

Things get interesting when the multiverse theory is combined with ideas from sub-atomic particle physics. Evidence is mounting that what physicists took to be God-given unshakeable laws may be more like local by-laws, valid in our particular cosmic patch, but different in other pocket universes. Travel a trillion light years beyond the Andromeda galaxy, and you might find yourself in a universe where gravity is a bit stronger or electrons a bit heavier. The vast majority of these other universes will not have the necessary fine-tuned coincidences needed for life to emerge; they are sterile and so go unseen. Only in Goldilocks universes like ours where things have fallen out just right, purely by accident, will sentient beings arise to be amazed at how ingeniously bio-friendly their universe is.

#### 3. Not falsifiable and isn’t a reason to not think about problems

Horgan, 19 (John Horgan, John Horgan is an American science journalist John Horgan is an American science journalist. Horgan was an associate editor at IEEE Spectrum, the journal of the Institute of Electrical and Electronics Engineers, from 1983 to 1986. He received a B.A. in English from Columbia University's School of General Studies in 1982 and an M.S. from Columbia's School of Journalism in 1983., 11-25-2019, accessed on 4-30-2021, Scientific American Blog Network, "Multiverse Theories Are Bad for Science", https://blogs.scientificamerican.com/cross-check/multiverse-theories-are-bad-for-science/)//Babcii

I am not a multiverse denier, any more than I am a God denier. Science cannot resolve the existence of either God or the multiverse, making agnosticism the only sensible position. I see some value in multiverse theories. Particularly when presented by a writer as gifted as Sean Carroll, they goad our imaginations and give us intimations of infinity. They make us feel really, really small—in a good way.

But I’m less entertained by multiverse theories than I once was, for a couple of reasons. First, science is in a slump, for reasons both internal and external. Science is ill-served when prominent thinkers tout ideas that can never be tested and hence are, sorry, unscientific. Moreover, at a time when our world, the real world, faces serious problems, dwelling on multiverses strikes me as escapism—akin to billionaires fantasizing about colonizing Mars. Shouldn’t scientists do something more productive with their time?

# 1NR

## 2NC --- T --- TPS

### 2NC --- O/V

#### AND Substantial also means all --- Oxford and blacks law agree

Lorne Slotnick 15, Chair of the Arbitration Board, Labour Arbitration Awards has issued the following decision: IN THE MATTER OF AN ARBITRATION BETWEEN: St. Joseph’s Healthcare Hamilton -and- Canadian Union of Public Employees Local 786, Labour Arbitration Awards: St. Joseph’s Healthcare Hamilton v Canadian Union of Public Employees, Local 786, 2015 CanLII 18978 (ON LA), 2015

The union points to the definition of “similar” in the online Oxford English Dictionary as “having a marked resemblance or likeness; of a like nature or kind,” and in Black’s Law Dictionary as “nearly corresponding; resembling in many respects; somewhat like; having a general likeness, although allowing for some degree of difference.” In addition, “substantially” is defined in the Oxford English Dictionary as “in all essential characters or features; in essentials, to all intents and purposes, in the main,” and in Black’s [Law Dictionary] as “essentially; without material qualification; in the main; in substance; materially; in a substantial manner.” The fact that the collective agreement uses both words together must mean that the two shift rotations have to be essentially corresponding or resembling each other in all essential respects for the conditions to be met, the union argues.

### 2NC --- Limits / AT: Overlimiting

#### 158 sub industries

Dodonov, 20 (Vitalii Dodonov, Product owner @ Vhinny, 5-16-2020, accessed on 9-2-2021, Towards Data Science, "How Many Industries are There? - Towards Data Science", https://towardsdatascience.com/how-many-industries-are-there-74890132581b)

Sector vs. Industry Unlike conventional misconception, what many people call “an industry” is in fact called “a sector”. There are 11 sectors based on the Global Industry Classification Standard (GICS): Energy Materials Industrials Consumer Discretionary Consumer Staples Health Care Financials Information Technology Communication Services Utilities Real Estate These sectors are broken down further into 24 industry groups, 69 industries and 158 sub-industries.

#### 27 million private firms

Biery, 13 (Mary Ellen Biery, research specialist at Sageworks, a financial information company, 5-26-2013, accessed on 9-2-2021, Forbes, "4 Things You Don't Know About Private Companies", <https://www.forbes.com/sites/sageworks/2013/05/26/4-things-you-dont-know-about-private-companies/?sh=371cab55291a)//babcii>

Here are four things you might not know about private companies:

Private firms dominate. Out of the 27 million firms in the U.S., nearly all are privately held. Even among the 5.7 million firms with employees, less than 1 percent of them have shares listed on a U.S. exchange. And private firms are a growing majority of U.S. firms. The number of companies listed on U.S. exchanges has fallen from more than 7,000 in 2000 to fewer than 5,000 in 2012, according to statistics from the World Federation of Exchanges.