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SYNTHETIC BIOLOGY: IS IT PROHIBITED BY THE BIOLOGICAL WEAPONS CONVENTION OR OTHER INTERNATIONAL LAWS?

Trason Lasley*

Abstract: Just as there continues to be a question on whether or not viruses are biological, scientists create new technologies every year that push up against what is and what is not biological. With these new technologies, it is almost possible to alter DNA using CRISPR/Cas9 technologies in one's garage. Such a development begs the question, to what extent does international law relate to and prohibit these new technologies from being used as weapons? Synthetic biology is an emerging science that pushes up against what is biological and can be split into two categories, a top-down and a bottom-up approach. Are either or both approaches encompassed by and prohibited from being used as weapons under the Biological Weapons Convention or other international law? It appears that the Biological Weapons Convention covers and prohibits synthetic biology's top-down. Still, neither the Convention nor other international laws prohibit the bottom-up approach—or more specifically, biomimetics, CRISPR/Cas9 genome-editing genome editing, and nanotechnology—because top-down synthetic biology reworks preexisting systems, while in contrast, bottom-up synthetic biology may be used to weaponized non-biological agents that can alter biological organisms.

Keywords: Synthetic Biology; Biomimetics; CRISPR; Nanotechnology; Biological Weapons Convention; BWC; International Law

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INTRODUCTION

On Wednesday, April 4, 1979, Yakov Klipnitzer called Margarita Ilyenko, asking her, "are any of your patients dying?"[1] Ilyenko was the chief physician of a medium-sized, one-hundred-bed hospital in Sverdlovsk, a city with a population of 1.2 million and the tenth-largest city in the Soviet Union.[2] She often referred patients to the larger hospital where Klipnitzer was the chief doctor at.[3] Klipnitzer had just seen two unusual deaths that came as referrals from Ilyenko's Hospital, both from what he thought looked like a severe case of pneumonia.[4] Ilyenko told Klipnitzer that she had not seen any such deaths at her facility.[5] Not soon after, Ilyenko started to see patients die at her hospital too.[6] These patients were "suffering from high fevers, headaches, coughs, vomiting, chills and chest pain."[7] Roza Gaziyeva, head of admissions at the hospital, recalled, "Some of them who felt better after first aid tried to go home.[8] They were later found on the streets—the people had lost consciousness."[9] Just two days after that initial call, Ilyenko recorded on April 6th that "There are dead bodies, people still alive, lying together. I thought, this is a nightmare. Something is very wrong, very wrong."[10]

The district where Ilyensko's hospital was located included a ceramics factory where hundreds of men worked in shifts in a building with large, high windows.[11] Less than a mile away from the factory was an army base with a closed military microbiology facility.[12] Comprised in the compound was a laboratory that developed and tested for deadly pathogens, including anthrax.[13] On April 2, two days before Klipnitzer and Ilyensko's call, the wind had been blowing down from the army base towards the ceramics factory.[14]

Inside the army base, three shifts worked around the clock, experimented with anthrax, and made batches of the deadly pathogen.[15] They would grow the bacteria used for anthrax before grinding it up into a fine powder so that it could be used in an aerosol form.[16] Anthrax is a dangerous pathogen that can cause a fatal infection.[17] It usually enters the body through inhalation and is caused by a bacteria known as Bacillus anthracis spores.[18] "The bacteria germinate and release toxins that can quickly bring on death if untreated."[19] A single gram of anthrax contains around a trillion death-causing spores.[20] For this reason, anthrax is well-suited

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[1] DAVID E. HOFFMAN, THE DEAD HAND: THE UNTOLD STORY OF THE COLD WAR ARMS RACE AND ITS DANGEROUS LEGACY, 1 (2009).
[2] *Id.* at 1-2.
[3] *Id.* at 1.
[4] *Id.*
[5] *Id.*
[6] *Id.*
[7] *Id.*
[8] *Id.*
[9] *Id.*
[10] *Id.* at 2.
[11] *Id.*
[12] *Id.*
[13] *Id.*
[14] *Id.*
[15] *Id.* at 3.
[16] *Id.*
[17] *Id.*
[18] *Id.*
[19] *Id.*
[20] *Id.*

as a biological weapon.[21] What happened at the army base is still unknown. By one account, what likely happened is that "a filter was removed and not properly replaced, and anthrax spores were released into the air."[22] After several weeks of fighting the outbreak, 358 got sick, and more than sixty people died.[23]

Seven years prior, almost to the date, in April of 1972, the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction was created.[24] The longwinded treaty name has come to be known as the Biological Weapons Convention (BWC). This treaty banned biological and toxic weapons by prohibiting their development, production, acquisition, transfer, stockpiling, and use.[25] This is the first disarmament treaty of its kind to ban an entire category of weapons of mass destruction.[26] As stated in the Treaty, the Convention was "[d]etermined, for the sake of all mankind, to exclude completely the possibility of bacteriological (biological) agents and toxins being used as weapons."[27]

The BWC did not have the effect it desired right away, as seen during the cold war, the Soviet Union still developed offensive biological weapons.[28] They were able to engineer pathogens so deadly that their killing power could be likened to that of a nuclear bomb.[29] The Soviets were able to continue this program into the early 1990s in complete violation of the BWC.[30] Nonetheless, by the late 1990s, it was common to think that the international restrictions on biological weapons—due to the Convention—presented few legal problems because the legal situation had become "so clear" that the only issue was ensuring compliance.[31] At least, that is what was thought until recently.

The Biological Weapons Convention sets up many obligations on States Parties; however, what the BWC does not do is define the scope of bacteriological or biological agents, creating potential holes and ambiguity. For example, viruses were and are still known for lying "at the edge of life."[32] Therefore, viruses were not banned as biological weapons until 1969, when they were finally defined as biological agents, 40 years succeeding the first biological weapons treaty.[33] Recent technological advances again beg the question of what is biological

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[21] *Id.*
[22] *Id.*
[23] *Id.*
[24] Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction preamble, Apr. 10, 1972, 1015 U.N.T.S. 163 [hereinafter BWC].
[25] *Id.*
[26] UNITED NATIONS: OFFICE FOR DISARMAMENT AFFAIRS, *Biological Weapons Convention*, un.org/disarmament/biological-weapons/ (last visited Oct. 31, 2022).
[27] BWC, *supra* note 24.
[28] *Assessing the Biological Weapons Threat: Russia and Beyond: Hearing Before the Subcomm. on Eur., Eurasia, and Emerging Threats of the Comm. on Foreign Aff. H.R.*, 113th Cong. 1 (2014).
[29] *Id.*
[30] *Id.*
[31] Howard S. Levie, *Nuclear, Chemical, and Biological Weapons*, 70 INT'L L. STUD. SER. US NAVAL WAR COL. 247, 258 (Horace B. Robertson ed., 1998).
[32] Durward Johnson & James Kraska, *Some Synthetic Biology May Not be Covered by the Biological Weapons Convention*, LAWFARE: BIOLOGICAL AND CHEMICAL WEAPONS (May 14, 2020, 11:05 AM), https://www.lawfareblog.com/some-synthetic-biology-may-not-be-covered-biological-weapons-convention#:~:text=While%20Article%20I%20of%20the%20BWC%20codifies%20the,employment%20of%20biomimetics%2C%20a%20dangerous%20subclass%20of%20SynBio. This debate continues today in most undergraduate microbiology classes.
[33] *Id.*

and what is not. Synthetic biology is an emerging science that pushes up against what is biological and is split into two categories, a top-down and a bottom-up approach.[34] This paper seeks to determine if synthetic biology, both or either method, is encompassed by and prohibited from being used as weapons under the Biological Weapons Convention or other international law. As outlined below, the Biological Weapons Convention covers and prohibits synthetic biology's top-down. Still, neither the Convention nor other international laws prohibit the bottom-up approach—or more specifically, biomimetics, CRISPR/Cas9 genome-editing genome editing, and nanotechnology—because top-down synthetic biology reworks preexisting systems, while in contrast, bottom-up synthetic biology may be used to weaponize non-biological agents that can alter biological organisms.

Throughout this paper, the aim is to lay out where the potential holes might be in the biological weapons and other customary international laws that would allow synthetic biology to slip through and be allowed as a biological weapon. First, in Part I of this paper, the goal will be to give an overview of the Biological Weapons Convention, outlining obligations under the treaty and how the treaty will be applied, as well as applicable customary international laws. Next, Part II of this paper will focus on introducing synthetic biology and explaining the differences between top-down and bottom-up synthetic biology. Lastly, in Part III of this paper, the goal will be to apply the biological weapons convention and other applicable international laws to synthetic biology, examining how the treaty and other norms apply to both the top-down and bottom-up approaches of synthetic biology.

I. BIOLOGICAL WEAPONS CONVENTION AND APPLICABLE CUSTOMARY INTERNATIONAL LAWS

A. The Biological Weapons Convention

In all likelihood, one of the first uses of biological agents in warfare can be traced all the way back to 1346.[35] Based on the 14th-century account of Genoese Gabriele de' Mussi, the Black Death was believed to have entered Europe from Crimea, which prior had been involved in a biological warfare attack.[36] However, no official international restrictions on the use of biological warfare were enacted until the 1925 Geneva Protocol.[37] Despite its prohibition of the use of biological weapons, it failed to prohibit the possession and development of biological weapons, and due to reservations, both with respect to the applicability and use of biological weapons in retaliation, it rendered the Geneva Protocol to become only a no-first-use agreement.[38] It did not stop states like the United States and the Soviet Union from starting and scaling offensive biological weapons programs.[39] It was clear that a more robust treaty was needed that not only prohibited the use of biological weapons but also prohibited the development and stockpiling of such weapons.[40]

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[34] Kevin Jahnke et al., *Proton Gradients from Light-Harvesting E. Coli Control DNA Assemblies for Synthetic Cells*, 12 NATURE COMMC'N 3967 (2021).
[35] Mark Wheelis, *Biological Warfare at the 1346 Siege of Caffa*, 8 EMERGING INFECTIOUS DISEASES 971 (2002).
[36] *Id.*
[37] UNITED NATIONS: OFFICE FOR DISARMAMENT AFFAIRS, *History of the Biological Weapons Convention*, www.un.org/disarmament/biological-weapons/about/history/ (last visited Oct. 31, 2022) [hereinafter *History BWC*].
[38] *Id.*
[39] HOFFMAN, *supra* note 1 at 101.
[40] As outlined in the example of the Soviet Union found in the introduction, even the development and stockpiling of biological weapons can have unwanted and disastrous consequences that harm civilian populations. *See supra* INTRODUCTION.

When the Biological Weapons Convention convened in Geneva in 1969, the goal was to supplement the Geneva Protocol.[41] At first, it was thought that the convention would keep chemical and biological weapons together just as they had been in the Geneva Protocol, but by March 1971, the Soviet Union and its allies—after much opposition to the idea of separating chemical and biological weapons—joined the United States and the United Kingdom in a convention focused on the prohibition of use, development, and stockpiling of biological weapons.[42] On August 5th, 1971, both the United States and the Soviet Union submitted separate but identical versions of the Biological Weapons Convention marking the final step of the negotiation of the Convention.[43] On April 10th, 1972, the Biological Weapons Convention opened for signatures in London, Moscow, and Washington, D.C.[44] On March 26th, 1975, after the deposit of the required instruments of ratification, the Convention came into force.[45] In the creation of this new multilateral convention was the incorporation of the above-mentioned Geneva Protocol into this new treaty.[46]

Since its conception, the convention has long had a goal of universality.[47] For the most part, the Convention has primarily been able to achieve this goal. As of November 2022, the BWC currently has one hundred and eighty-four Parties and four signatory States.[48] Yet there remain nine States that have not signed nor acceded to the Convention.[49] The BWC remains open to all States to join, with each State undertaking the process of ratification, acceding, or succeeding to the Convention according to the States own constitution.[50]

A State can join or has already joined the convention through ratification, accession, or succession—depending on when they join the Convention—if they sign the Biological Weapons Convention and deposit the required instruments.[51] Once the Convention is signed, the required instruments should then be deposited with at least one of the three Depositary States. As laid out in Article XIV of the Convention names, the Depositary Governments are the Russian Federation, the United Kingdom of Great Britain and Northern Ireland, and the United States of America.[52] If joined on a date after the BWC took force, the Convention will

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[41] *History BWC*, supra note 37.
[42] Jozef Goldbalt, *The Biological Weapons Convention – An Overview*, 37 INT'L REV. RED CROSS (SPECIAL ISSUE) 251 (June 30, 1997).
[43] *History BWC*, supra note 37.
[44] *Id.*
[45] *Id.*
[46] Evan J. Wallach, *A Tiny Problem with Huge Implications – Nanotech Agents as Enablers or Substitutes for Banned Chemical Weapons: Is a New Treaty Needed?*, 33 Fordham Int'l L. J. 857, 924 (2009).
[47] UNITED NATIONS: OFFICE FOR DISARMAMENT AFFAIRS, *Achieving Universality*, https://www.un.org/disarmament/biological-weapons/about/universalization-and-joining-the-bwc/ (last visited Oct. 31, 2022) [hereinafter *Universality BWC*].
[48] The four signatory States, which are States that have signed the Convention but have not deposited their instruments of ratification, are Egypt, Haiti, Somalia, Syrian Arab Republic. UNITED NATIONS: OFFICE FOR DISARMAMENT AFFAIRS, *Membership and Regional Groups*, https://www.un.org/disarmament/biological-weapons/about/membership-and-regional-groups/ (last visited Oct. 31, 2022).
[49] The nine non-member States are Chad, Comoros, Djibouti, Eritrea, Israel, Kiribati, Micronesia (Federated States of), South Sudan, and Tuvalu. *Id.*
[50] *Universality BWC*, *supra* note 47.
[51] *Id.*
[52] BWC, *supra* 24 at Art. XIV.

take effect for a State on the day the required instruments are deposited with one of the Depositary Governments.[53]

It might also be important to note at this point that the United States considers the prohibition of the use of biological weapons during situations of armed conflict as part of customary international law.[54] This means that at least as far as armed conflict is concerned, all nations are bound by the BWC, whether or not they are parties to the Convention.[55]

As stated above, it appears that the Convention has achieved its goal of universality, with only nine States not yet signing on to the Convention and those States most likely being bound anyways under customary international law.[56] It would seem at first blush that the only concern of the treaty would be to get those last States to join the Convention and then to make sure that everyone is complying with the articles set forth therein. Nevertheless, recently, there have been concerns about holes in the scope of the BWC. These concerns include whether or not the Convention would cover some aspects of the emerging field of synthetic biology. However, before that, it would be prudent to first define the scope of the biological weapons convention as it is known to the States who are obligated by international law to obey.

1. Obligations Under the BWC

The Biological Weapons Convention has remained unchanged for over fifty years and contains only fifteen articles.[57] Part of the reason the treaty has been able to survive as long as it has is that, over time, it has been interpreted and supplemented by binding agreements that States have reached at eight follow-up review conferences.[58] At the beginning of the Convention, the participating states were focused on the fact that biological weapons disseminated organisms that could harm or kill humans, animals, or plants, were highly contagious, or could not be confined within national borders.[59] The use of such weapons could have dramatic consequences, not just loss of lives, but "food shortages, environmental catastrophes, devastating economic loss, and widespread illness, fear and mistrust among the public."[60]

For these reasons, the Biological Weapons Convention was held in the first place, with the text written broadly. The obligations of States Parties are laid out in the first ten articles of the Convention. Therefore, this paper will next break down some of the applications of the first ten articles, followed by a summary of the remaining articles in the Convention.

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[53] *Universality BWC*, *supra* note 47. Ratification applies only to States that joined the Convention when it was first signed before the Convention entered into force. *Id.* Accession is reserved for States that did not join initially but joined after March 26th, 1975, after the Convention entered into force. *Id.* Lastly, succession is open to States that became newly independent after the Convention entered into force; such States are eligible to succeed to the Convention if the Convention would have applied to them when they were part of another State. *Id.*

[54] *Nuclear, Chemical, and Biological Weapons*, 73 INT'L L. STUD. SER. US NAVAL WAR COL. 459, 478 (1999).

[55] *Id.* at 478-79.

[56] *Universality BWC*, *supra* note 47. This is the case as long as non-party States have not been persistent objectors. Nonetheless, a non-party State's non-action might be evidence that they have accepted it as customary international law.

[57] BWC, *supra* note 24.

[58] UNITED NATIONS OFF. FOR DISARMAMENT AFFAIRS, THE BIOLOGICAL WEAPONS CONVENTION: AN INTRODUCTION: SECOND EDITION, (March 2017), https://front.un-arm.org/wp-content/uploads/2022/11/BWC-brochure-English.pdf.

[59] *Biological Weapons Convention*, *supra* note 26.

[60] *Id.*

Article I contains the central prohibitions of biological weapons; it requires that each state "never in any circumstances to develop, produce, stockpile or otherwise acquire or retain:" actual microbial or other biological agents or the methods to produce them in "quantities that have no justification for . . . peaceful purposes" and any weapons that could deliver such agents "for hostile purposes or in armed conflict."[61] This article does not outright ban specific biological agents or weapons per se, instead, it prohibits particular purposes for which agents could be employed.[62] Nonetheless, the Fourth Review Conference in 1996 affirmed that the "use" of biological weapons was a violation of the BWC.[63]

Article II obligates party States to undertake the destruction of biological weapons or at least divert such biological agents for peaceful use.[64] It also instructs new states to the convention to perform this act "as soon as possible but not later than nine months after the entry into force of the Convention."[65] Also ensuring that it is done with all necessary safety precautions to "protect populations and the environment."[66]

Article III prohibits the transfer, assistance, encouragement, or inducement of any State to acquire or retain biological weapons.[67] The main objective of this article is to stop the proliferation of biological weapons at their origins by "curbing the supply of materials and technology for hostile purposes."[68]

Article IV obligates the States to take national measures needed to implement the BWC within the State.[69] Yet the Convention leaves it up to the State to determine what these implementations look like for each State. A state could implement through "legislation, regulations, government decrees, and administrative orders or executive orders."[70] A non-governmental organization known as VERTIC has undertaken the task of creating a database that has compiled over 1,500 laws and regulations that States have enacted to follow the obligations found in Article IV.[71] As of 2016, VERTIC concluded that there were still gaps in the BWCs implementation because "many States have yet to adopt necessary measures to give effect to certain obligations," even though they have adopted some measures within their own domestic laws.[72] Such implementation of Article IV is an ongoing process, and the BWC's

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[61] BWC, *supra* note 24 at Art. I.
[62] Jenni Rissanen, *The Biological Weapons Convention*, NTI (Feb. 28, 2003), https://www.nti.org/analysis/articles/biological-weapons-convention/.
[63] Fourth Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction part II, Dec. 6, 1996.
[64] BWC, *supra* note 24 at Art. II.
[65] *Id.*
[66] *Id.*
[67] *Id.* at Art. III.
[68] RISSANEN, *supra* note 62.
[69] BWC, *supra* note 24 at Art. IV.
[70] Sonia Drobysz, *Verification and Implementation of the Biological and Toxin Weapons Convention*, 27 NONPROLIFERATION REV. 487, 488 (2020).
[71] *BWC Legislation Database: The Database*, VERTIC, https://www.vertic.org/programmes/nim/biological-weapons-and-materials/bwc-legislation-database/ (last visited Oct. 31, 2022).
[72] VERTIC, BIOLOGICAL WEAPONS CONVENTION: REPORT ON NATIONAL IMPLEMENTING LEGISLATION 16 (2016).

Implementation Support Unit has recently issued an information document on how to strengthen national implementation in 2018 and again updated its recommendation in 2019.[73]

Article V requires individual States to undertake cooperation with other States under the Treaty to solve "any problems that may arise in relation to the objective of, or in the application of the provisions of, the Convention."[74] In the Second Review Conference of 1986, the Parties agreed on specific procedures that would make sure that alleged violations of the Convention could be resolved during a consultative meeting when a State Party requests it.[75] This was later elaborated on in the Third Review Conference of 1991.[76]

Article VI gives Party States the right to request the United Nations Security Council to investigate any alleged breaches of the Convention as long as they include all possible evidence confirming the validity of the alleged breach and undertake to cooperate in carrying out the investigation.[77] Despite such a vital provision, as of 2022, no state has ever used this article to file a complaint, even though there have been several states accused of maintaining offensive biological weapons[78]—in particular, the Soviet Union, have been known to stockpile such biological armaments as outlined earlier in this paper.[79] Article VI probably has not been used because the Security Council's permanent five members'—China, France, Russia, the United Kingdom, and the United States—have veto power over Security decisions which includes decisions to conduct BWC investigations.[80]

Article VII obligates States to assist any other State that may have been exposed to danger as a result of a violation of the Convention but only are required to if the United Nations Security Council makes that finding.[81] This Article is not meant to aid victims of biological Weapons attack, it is intended to avert biological weapons attacks from occurring by demonstrating "solidarity among States Parties," because it would reduce the potential of harm.[82] As of 2022, no State has invoked Article VII—like Article VI—yet the Article remains relevant because of the fear that terrorist organizations might acquire biological weapons.[83]

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[73] Meeting of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, July 25, 2018; Meeting of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, Aug. 5, 2019. This paper's topic of enforcement and the problems that come with it are not discussed in detail because it lies outside of the scope this paper wishes to reach. However, as seen in other parts of the paper and footnotes, enforcement of the BWC has been and remains a big problem for the convention.

[74] BWC, *supra* note 24 at Art. V.

[75] Second Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction Part II, Art. V, Sept. 30, 1986.

[76] Third Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction Part II, Art. V, Sept. 27, 1991.

[77] BWC, *supra* note 24 at Art. VI.

[78] *The Biological Weapons Convention (BWC) At A Glance*, ARMS CONTROL ASSOCIATION (Feb. 2022), https://www.armscontrol.org/factsheets/bwc.

[79] HOFFMAN, *supra*, note 1.

[80] *Id.*

[81] BWC, *supra* note 24 at Art. VII.

[82] FILIPPA LENTZOS, COMPLIANCE AND ENFORCEMENT IN THE BIOLOGICAL WEAPONS REGIME 4 (2019).

[83] Danciel Feakes, *The Biological Weapons Convention*, 36 REV. SCI. TECH. OFF. INT'L EPIZ. 621, 623 (2017). As alluded to but might not have yet to be outrightly explained, the BWC is only binding to States and not on non-governmental actors. This means that the Convention does not cover terrorist organizations. Thus, this provision is important to the potential risk of terror attacks in promoting health and safety in States that might have had such an attack.

Because of this, the BWCs Implementation Support Unit, in 2018, issued additional understandings and agreements on Article VII that were reached at past Review Conferences.[84]

Article X, despite other provisions, gives States the right to facilitate the "exchange of equipment, materials, and scientific and technological information for the use of bacteriological (biological) agents and toxins for peaceful purposes."[85] This article was implemented so that the Convention would not hamper "the economic technological development of States Parties" in the biological sciences for peaceful purposes.[86] During the Seventh Review Conference of 2011, an Article X database was created to "facilitate the exchange of requests for, and offers to provide, assistance and cooperation among States Parties."[87]

The remaining seven articles found in the convention do not provide any more rights or obligations to the Party States but rather reaffirm past understandings found in the Geneva Treaty of 1925, clarify the objective of the Convention, define procedural mechanisms to join the Treaty, and defines when the Treaty takes force.[88] Because these topics have been discussed above, there is no need to go into detail about them here.

In summary, the Biological Weapons Convention obligates States Parties never to use, assist others to use, stockpile, acquire, or retain biological weapons or agents but rather to actively destroy such weapons or agents not used for peaceful purposes. The Convention requires that each state enforce the Convention in ways the States deem necessary within their own countries' borders and to help other States do the same while also allowing the transfer of equipment, materials, and information for peaceful purposes. Last, the Convention provides a right to the States to request the United Nations Security Council to investigate breaches of the BWC yet still obligating States to cooperate in carrying out the investigation initiated by the Council and then assisting any Party State exposed to dangers that the Security council deems was a breach of the BWC.

Despite all this, the text of the Convention does not define explicitly what a Biological Weapon is. Nonetheless, The United Nations Office for Disarmament Affairs has elaborated on what falls under the BWC as a biological weapon.[89] Because of ever-changing sciences and the vagueness of the original text of the Treaty, the BWC Implementation Support Unit regularly provides information for additional agreements that "(a) interpret, define or elaborate the meaning or scope of a provision of the convention; or (b) provide instructions, guidelines, or recommendations on how a provision should be implemented."[90] Using such information, the BWC has Review Conferences approximately every five years where States seek to "strengthen the effectiveness and improve the implementation of the Convention."[91] The first one of these Review Conferences took place in 1980, and eight others have followed since.[92]

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[84] Meeting of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction part II, July 25, 2018.
[85] BWC, *supra* note 24 at Art. X.
[86] *Id.*
[87] UNITED NATIONS: OFFICE FOR DISARMAMENT AFFAIRS, *Assistance and Cooperation Database*, https://www.un.org/disarmament/biological-weapons/assistance-and-cooperation/assistance-and-cooperation-database (last visited Oct. 31, 2022).
[88] BWC, *supra* note 24.
[89] *What are Biological Weapons*, UNITED NATIONS: OFFICE FOR DISARMAMENT AFFAIRS, *What are Biological Weapons*, https://www.un.org/disarmament/biological-weapons/about/what-are-biological-weapons/ (last visited Oct. 31, 2022).
[90] *Biological Weapons Convention*, *supra* note 26.
[91] *Id.*
[92] *Id.*

As outlined later in this paper, such Review Conferences do not foreclose the potential for the inclusion of the type of synthetic biology that might not be currently covered by the BWC.

2. Biological Weapons Defined Under the BWC

Biological weapons are weapons that "disseminate disease-causing organisms or toxins to harm or kill humans, animals or plants,"[93] they can be used for a wide variety of applications such as "political assassinations," the "infection of livestock," "environmental catastrophes," and to induce "widespread illness, fear, and mistrust."[94] Such biological weapons are made up of two parts: a weaponized agent and a delivery mechanism.[95]

a. Delivery Mechanism

First, this paper will start by quickly defining different delivery mechanisms and what that means for biological weapons. Primarily because this paper will not discuss these mechanisms in much detail later because it is not within the scope of this paper. Nonetheless, it is important to note what a delivery mechanism of a biological weapon is.

A delivery mechanism for a biological weapon is a system used to distribute a biological agent.[96] These systems can take many different forms. Historically some biological warfare programs have made "missiles, bombs, grenades and rockets," spray tanks attached to different vehicles, and smaller sprays, brushes, or needles.[97] Whatever mechanism, the concern of this paper is what biological agents are prohibited by the BWC and not what delivery mechanisms are prohibited. This is because the delivery mechanisms used to deliver a biological weapon are often dual-purposed and can be used for weapons that are both non-biological and biological. Because Article I of the Convention only prohibits delivery mechanisms that deliver biological agents, it is prudent to determine if the weaponized agent that is designed to be delivered in the mechanism is a biological agent first, as defined by the Convention. If it is biological, that mechanism is prohibited by the convention in use.[98] Therefore, the primary analysis that takes place in questions of biological weapons has to do with the agent that is being weaponized.

b. Weaponized Agents

Generally, the Convention does cover almost any disease-causing organism or toxin used as a weapon.[99] These types of organisms include bacteria, viruses, fungi, prions, or rickettsiae.[100] While toxins can be any poison derived from animals, plants, or microorganisms, they can also include synthetically derived substitutes.[101] Historically some biological warfare programs have produced agents like "aflatoxin, anthrax, botulinum toxin, foot-and-mouth disease, glanders, plague, Q fever, rice blast, ricin, Rocky Mountain spotted fever, smallpox, and tularaemia" to be used in biological weapons.[102] The BWC text itself fails to define biological agents with any specificity. Therefore, it will be helpful to look at other defining

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[93] *Id.*
[94] *What are Biological Weapons, supra* note 89.
[95] *Id.*
[96] *Id.*
[97] *Id.*
[98] BWC, *supra* note 25 at Art I.
[99] *What are Biological Weapons, supra* note 89.
[100] *Id.*
[101] *Id.*
[102] *Id.*

sources to analyze the issue at hand. The similarities and differences in the various sources can add insight into how the Convention defines a weaponized biological agent.

In general, the convention elected to adopt a broad definition that is not detailed in much specificity but has some ambiguity.[103] For this reason, it seems that Article IV of the Convention becomes important—at least in some regard. As discussed above, that article obligates the States Parties to create their domestic laws and regulations to fulfill the ends found in the BWC.[104] Therefore, it is important to look to the States for definitions because their laws are essentially the force behind the Treaty. Especially it would be important to look at the depository States because of the treaties focus on the importance of these States. Thus, this paper focuses on the United States and the United Kingdom for their definition of biological agents. Following that, this paper will have a more in-depth analysis of the BWC's second review conference's definition of a biological agent.

Though not necessarily dispositive to the international convention, the US code might bring some insight into what the United States classifies as a biological agent. The US code defines a biological agent as "any microorganism, or infectious substance, or any naturally occurring, bioengineered or synthesized component of any such microorganism or infectious substance. . ."[105] This definition is rather similar to the Convention text. Still, the US code is slightly more specific. Relevant to this paper, the code mentions the science of bioengineering and synthetic biology. Still of note—and discussed below—the bioengineering or synthetic biology prohibited here seems to apply mainly to top-down synthetic biology and not to some forms of bottom-up synthetic biology because it refers to the components of microorganisms or infectious substances that are "altered".

The Commander's Handbook on the Law of Naval Operations gives even more information on how the United States defines a biological agent.[106] In this document, biological agents include "microbial or other biological agents or toxins whatever their origin (i.e., natural or artificial). . ."[107] Again this definition seems to include synthetic biology in some way because of the "whatever their origin" language, then again, in the parentheses use of "artificial." Nonetheless, as discussed below, the science of synthetic biology is comprehensive, and that definition does not mean that this science as a whole is prohibited in use as a biological agent. In an annotated supplement to the handbook, it goes on to say in a footnote that biological weapons are "inherently indiscriminate and uncontrollable. . ."[108] This means that what is intended to be prohibited are biological agents that, when released to a population, it affects almost everyone that comes in contact with it. This applies to whether the organism used was naturally occurring or synthetically made in a lab. As discussed in detail below, this distinction still will not foreclose the use of some forms of synthetic biology.

That same footnote goes on to provide more information on the definition of a toxin. A biological toxin is a "toxic chemical by-product of biological organisms. They can be synthesized chemically and share many of the characteristics of chemical agents; however, they

[103] Throughout the research for this paper, the UN and BWC did not want to define in great detail what a biological agent is under the Convention.
[104] BWC, *supra* note 24 at Art. IV.
[105] 18 U.S.C. § 178 (2006).
[106] DEP'T OF THE NAVY & DEP'T OF HOMELAND SEC., THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS (Mar. 2022 ed. 2022).
[107] *Id.* at 10.4.
[108] *Nuclear*, *supra* note 54 at 477-78.

are considered to be biologicals. . . .”[109] This means that toxins that are the same as naturally accruing biological organisms’ toxic by-products are still covered even if they have no biological origins; nonetheless, they remain chemically based and biological. This will also be important to keep in mind in understanding if some forms of synthetic biology are considered toxins and therefore prohibited under the BWC.

Next, the United Kingdom passed the Biological Weapons Act 1974, which is the governing act passed by the UK Parliament in response to the Biological Weapons Convention.[110] Within the act, it defines both biological agents and toxins. The act provides that a biological agent is “any microbial or other biological agent.” while a toxin is “any toxin, whatever its origin or method of production.”[111] Although the definition is short, it provides that as far as toxins are concerned, synthetic biology is covered in the definition of the Convention because it might be a different “method of production.”

With the sources cited above, it is important to remember that the implementation of the Convention in State domestic law is not international law. Therefore, these domestic laws that apply the Convention’s principles are informative rather than binding on the international community. The mere fact that both the Unties States and the United Kingdom—arguably among the two most important States in the conversation because of their role in the convention as dispositors—domestic law do not have the same definition of what a biological agent shows that the Biological Weapons Conventions definition is ambiguous to an extent on what kind agents are covered. While on the other hand, both the United States and the United Kingdom’s laws are pretty much identical when it comes to toxins, so the definition of toxin is better defined by the convention as seen through its application. Nonetheless, this analysis is still important for understanding the coverage of biological agents because it shows that different States might regulate the use of synthetic biology differently. Which would mean that the Convention potentially does not cover synthetic biology clearly enough. With that being said, there has been some clarification on behalf of the Biological Weapons Convention that might help refine the definition for Party States.

In the second review conference of 1986, Bulgaria and the German Democratic Republic submitted a proposal that made sure that the Convention would cover advances in biotechnology that could lead to the creation of new pathogenic microorganisms and toxins.[112] The purpose was to affirm that the BWC covered new technologies even though the original text did not reference synthetically or artificially altered biological agents.[113] This was agreed upon with a broad consensus at the conference and then again reaffirmed at the third, fourth, sixth, and seventh review conferences.[114] Thus at the second review conference, a biological agent was defined as “appli[ng] to all natural or artificially created or altered microbial or other biological agents or toxins whatever their origin or method or production.”[115] This came as a declaration and not part of a formal amendment and revision process. Thus, it is not technically legally binding but an authoritative source for the interpretation of the Treaty.[116] Over time, however, this definition has become a norm in international law, and such norms become customary international law when State practice is consistent with the law and there is opinio

[109] *Id.* at 478.
[110] Biological Weapons Act 1974, c.6 (Eng).
[111] *Id.* at § 1(2).
[112] Johnson & Kraska, *supra* note 32.
[113] *Id.*
[114] *Id.*
[115] Second Review Conference, *supra* note 75.
[116] Johnson & Kraska, *supra* note 32.

juris present.[117] Meaning that states are following the law out of a legal obligation. In this case of international law, both of these elements are present, and thus, this definition has become customary international law.[118]

There is a strong consensus and State practice that the Biological Weapons Convention covers the definition of a biological agent as defined in the second review conference of the Convention. This can be recognized in the adoption of the declaration itself during the second review conference. Nearly all international States have adopted the biological Weapons convention.[119] Thus, the second conference of the convention would include, to some extent, the inclusion of those States. As stated, the declaration by the conference was accepted broadly by those at the conference.[120] This leads to the conclusion that this definition of a biological agent, as covered by the convention, has been widely accepted by international states as law as the definition that should be applied. In addition, State's actions also follow this definition in actual practice. As referenced above, State statutes and regulations like that of the United States either refer to synthetic biological material or some form of production that could include synthetic material.[121] Even though they are not identical in wording, these States have codified this understanding of the Biological Weapons Convention into their domestic laws and regulations.[122] This is a pure form of State practice that is evidence that states have consistently applied this law since the definition was first declared. On the flip side, however, states like Russia completely ignore the biological weapons convention, and there might be some concerns that this would not be customary international law broadly because of their actions. This is not persuasive because even if Russia decided not to obey the convention per se, they still need to object to the declaration put forth during the second conference. Due to the lack of objections by States—even states that might not follow the Convention exactly—there does appear to be, at least, almost universal State practice and acceptance that the definition declared during the second conference of the Biological Weapons Convention is the law.[123]

The actions of the States that are part of the Biological Weapons Convention indicate that they have acted not just to follow along but have acted out of a legal obligation. The doctrine of opinio juris requires that States act not because they are just following along but because they feel legally obligated to do so.[124] This particular doctrine is often hard to define and recognize because it cannot be inferred from State practice.[125] This is the case because opinio juris is more concerned with a State's psychological state and not its actions. Nevertheless, two key facts would seem to indicate that States are following the declaration of the second conference out of a legal obligation. First, the declaration is an authoritative source in interpreting the legal definition of biological agents in the Biological Weapons Convention. This becomes strong evidence when States apply the declaration and codify it into their domestic laws or regulations, and they are likely doing it because they think the statement legally applies to the BWC. Second, there have not been any persistent objections to the

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[117] *Customary International Law*, USLEGAL, https://internationallaw.uslegal.com/sources-of-international-law/customary-international-law/ (last visited Oct. 31, 2022).
[118] *Id.*
[119] *Universality BWC*, *supra* note 47.
[120] *Id.*
[121] *Supra* note 105; *see also BWC Legislation Database*, *supra* note 71.
[122] *Id.*
[123] No sources spoke to no persistent objectors directly, but the fact that there were no sources seems to imply that there likely were no persistent objectors.
[124] *Opinio Juris (International Law)*, LEGAL INFO. INST., https://www.law.cornell.edu/wex/opinio_juris_(international_law) (last visited Oct. 31, 2022).
[125] *Id.*

declaration becoming international law.[126] A persistent objector is a State that sees that an international norm is becoming customary international law and consistently objects to that norm.[127] With nearly all States joining the Convention and the second review conference declaration being broadly accepted by the parties of the convention, the declaration does not need to be formally amended into the Convention to be legally binding and has become customary international law; binding on States.

For these reasons, States and this paper should rely on the customary international law created during the second review conference. Therefore, the most reliable definition for a weaponized agent is "all natural or artificially created or altered microbial or other biological agents or toxins whatever their origin or method or production."[128] For the most part, the State domestic laws in some form follow this definition. Thus, for purposes of this paper, this will be the definition used in later sections that apply the Biological Weapons Convention to synthetic biology. In addition, for toxins specifically, this paper will use the more restrictive definition of a toxin being a "toxic chemical by-product of biological organisms . . . synthesized chemically and shar[ing] many of the characteristics of chemical agents . . . are considered to be biologicals. . . ."[129]

B. Other Customary International Law

In addition to official international treaties that cover biological weapons, it is important to know that any weapon that would be developed would still be subjected to the customary international law of armed conflict.[130] The two additional aspects of the law of armed conflict that will be important to know are that the prohibition of weapons that cause superfluous injury and those that are inherently indiscriminate.[131]

The first rule is often called the superfluous injury rule and is derived from the 1977 Additional Protocol I to the Geneva Conventions.[132] In article 35(2), States are prohibited from deploying weapons in warfare that are "of a nature to cause superfluous injury or unnecessary suffering."[133] The United States has never officially ratified this particular treaty, but the treaty itself has come to be part of customary international law.[134] Although this paper will not do an extensive review into how this treaty has become customary international law because the analysis is very similar to what was discussed earlier in this paper, the United States has mentioned such "superfluous injury" in treaties they have joined—mainly the 1899 and 1907 Hague Regulations.[135] The superfluous injury rule prohibits weapons designed to increase the

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[126] *Supra* note 124.
[127] Patrick Dumberry, *Incoherent and Ineffective: The Concept of Persistent Objector Revisited*, 59 INT'L AND COMPAR. L. Q. 779 (2010).
[128] Second Review Conference, *supra* note 75.
[129] Nuclear, *supra* note 54 at 478. This definition is by no means binding as international law. Still, it is a more restrictive definition. If a form of synthetic biology is not included in this definition of a toxin it would not otherwise be considered a toxin.
[130] OFF. OF GEN. COUNS. DEP'T OF DEF., DEPARTMENT OF DEFENSE LAW OF WAR MANUAL 28-29, 1163 (2016 ed. 2015).
[131] Johnson, *supra* note 32.
[132] ICRC, Protocol Additional to the Geneva Conventions of 12 August 1948, and relating to the Protection of Victims of International Armed Conflicts (Protocol 1) art. 35(2), June 8, 1977, https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/Article.xsp?action=openDocument&documentId=4BEBD9920AE0AEAEC12563CD0051DC9E.
[133] *Id.*
[134] Johnson, *supra* note 32.
[135] OFF. OF GEN., *supra* note 130, at 357-58.

injury or the suffering of an individual "beyond that justified by military necessity."[136] In application, this could mean one of two different things. First, the suffering caused by using the weapon has no military advantage. The other would be that the weapon is disproportionate to any benefit that is militarily expected from the use of the weapon.[137] This does not mean that weapons that cause suffering, death, or even horrible injury are prohibited; instead, such destructive weapons would only be prohibited when the resulting injury, due to the use of the weapon, was not necessary to the military mission at hand.

The second rule that comes from customary international law prohibits inherently indiscriminate weapons and is a product of the ideas of distinction and proportionality.[138] As noted above, the United States has noticed this particular aspect as being important to the weapons covered in the Biological Weapons Convention.[139] This norm has come to be part of customary international law as well. This rule is again reflected in the 1977 Additional Protocol I to the Geneva Conventions, of which the United States is not a part. Article 51(4)(b) defines and prohibits indiscriminate attacks as attacks that are not "directed at a specific military objective," "employ a method or means of combat which cannot be directed at a specific military objective," and have an uncontrollable effect.[140] This rule does not prohibit weapons that have an incidental impact that is anticipated; instead, such destructive weapons are only prohibited when the effect of the weapon is unnecessarily excessive compared to the military advantage gained by using the weapon.

At this point in the paper, the goal has been to define the applicable law that needs to be considered with synthetic biological weapons. Therefore, in summary, a weaponized biological agent or toxin is prohibited by the Biological Weapons Convention when it falls under the above definitions. In addition, a synthetic biological weapon may be prohibited by the superfluous injury rule or the inherently indiscriminate rule. The next part of the paper shifts its focus and seeks to define and explain the different theories of synthetic biology. The application of the law to synthetic biology will happen primarily in Part III of this paper.

II. SYNTHETIC BIOLOGY

In this Part, this paper does not intend to go into a complete history or explanation of the technologies of synthetic biology but instead intends to break down the top-down and bottom-up approaches traditionally used in the discipline. With that breakdown, this paper will go into the important components of the synthetic biology bottom-up approach—mainly biomimetics, CRISPR/Cas9 genome editing, and nanotechnology.

A. Top-Down

In its basic form, the top-down approach to synthetic biology uses genetic engineering techniques to give a living cell new function. This approach has the advantage of using all the components of a host cell, making use of co-factors, metabolites, transcription pathways, and other components, and adjusting them to make the cell more functional or have specific desirable characteristics.[141] More straightforwardly, what the top-down approach does is start

[136] Written Statement of the Government of the United States of America 28-29, June 20, 1995, I.C.J.
[137] OFF. OF GEN., *supra* note 130, at 359.
[138] Protocol, *supra* note 132, at Art. 51(4).
[139] *Nuclear*, *supra* note 54, at 477-78.
[140] Protocol, *supra* note 132, at Art. 51(4).
[141] Mark A. J. Roberts et. al., *Synthetic Biology: Biology by Design*, 159 MICROBIOLOGY 1219 (2013).

with an "unmodified or simplified cell" and add foreign elements or modules.[142] It takes what nature has given and optimizes it or makes it more efficient. "Th[is] might consist of genes encoding proteins that synthesize a molecule of interest in a sort of microscopic assembly line, or that causes a detectable change in response to an incoming signal."[143]

Currently, this is the most common approach in most technological advances of synthetic biology. However, as discussed below, top-down synthetic biology is prohibited by the Biological Weapons Convention when trying to make weapons. This is because the top-down approach requires a living cell as a base point. That living cell is then modified and remains biological. For this reason and because top-down synthetic biology uses something already living, any use of this form of biology would be prohibited as a biological weapon under the Biological Weapons Convention.

B. Bottom-up

It is important to note right off that the bottom-up approach to synthetic biology is inherently more challenging than the top-down approach because it creates something completely new and does not modify an existing organism.[144] The bottom-up approach creates new biological systems by combining non-living biomolecular components. Most commonly, it is used to create an artificial cell. The aim of bottom-up synthetic biology is to construct cell-like systems by starting with molecular building blocks.[145]

This approach remains less common and has been considered an unlikely possibility for a long time. Nevertheless, as technology has progressed, there have continued to be advancements in bottom-up synthetic biology—which comes with its threats. The bottom-up approach, unlike the top-down, starts from scratch, creating something entirely new that may not be able to be categorized as living. However, a subset of bottom-up synthetic biology—such as biomimetics, CRISPR/Cas9 genome editing, and nanotechnology—will be particularly troubling to the Biological Weapons Convention.

1. Biomimetics

One of the best ways to describe the science of biomimicry is that it is a type of bioinspired design that focuses on "learning from and emulating" living systems.[146] This focus essentially is on function, trying to "work like" nature and not necessarily trying to "look like" nature.[147] The main goal of this science is to create new technologies based on what nature is.[148] While it is not about extracting, harvesting, or domesticating what nature has provided.[149] In essence, biomimetics is the use of non-biological materials that mimic biological effects.[150] This science has a lot of potential benefits, and generally, the research in this field is focused

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[142] *Synthetic Biology: Life, Remixed*, MAX-PLANCK-GESELLSCHAFT (Sept. 20, 2014), https://www.mpg.de/8219292/synthetic_biology#:~:text=One%20remarkable%20achievement%20in%20top,emptied%20of%20its%20own%20DNA.
[143] *Id.*
[144] *Id.*
[145] Hannes Mutschler et. al., *Special Issue on Bottom-Up Synthetic Biology*, 20 CHEMBIOCHEM 2533 (2019).
[146] *What is Biomimicry?*, BIOMIMICRY INST., https://biomimicry.org/what-is-biomimicry/ (last visited Oct. 31, 2022).
[147] *Id.*
[148] *Id.*
[149] *Id.*
[150] Johnson, *supra* note 32.

on finding solutions to environmental problems.[151] The general idea is that nature is the best example of renewability and, therefore, the best "artificial" renewable technologies would be those that mimic nature.[152] Of course, these such uses are not what this paper intends to spotlight. This paper intends to discuss this science's potential use for more malign purposes in biological weapons. Such purposes could take the form of fully non-biological systems that mimic current deadly biological agents that could readily harm humans, animals, and plants.

2. CRISPR/Cas9 Genome-Editing

In general, genome editing includes a group of technologies that allows one to change an organism's DNA.[153] Using genome editing, genetic material can be added, removed, or altered at specific locations in an organism's genome, effectively changing that organism's functions and characteristics.[154] CRISPR/Cas9 is perhaps the most well-known genome editing technology because it is "faster, cheaper, more accurate, and more efficient than other genome editing methods." [155] CRISPR/Cas9 is short for clustered regularly interspaced short palindromic repeats and CRISPR-associated protein 9.[156] This technology was adapted from a naturally occurring genome editing system that some bacteria use in their immune defense.[157] This science is mainly interested in the prevention and treatment of human diseases.[158] Current research includes therapy for single gene disorders like cystic fibrosis, sickle cell disease, and even more complicated diseases like cancer, heart disease, and HIV infections.[159] While most changes to cells are done to somatic cells that would not pass on the changes to the DNA to another generation of cells, germline cells could also be edited, which would pass on newly edited genes to the next generation of cells.[160] Such positive uses are not the focus of this paper but instead the potential use as a weapon that could bypass the BWC. Such fear even led the former director of the US National Intelligence, James Clapper, to conclude that gene editing should be included in a list of threats that are considered "weapons of mass destruction and proliferation."[161]

3. Nanotechnology

The science of nanotechnology encompasses any science, engineering, and technology done on the nanoscale.[162] The Nanoscale is considered to be one to one hundred nanometers in length.[163] Today, nanoscience and nanotechnology in practice include seeing and controlling

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[151] *What is Biomimicry?*, *supra* note 146.
[152] *Id.*
[153] *What Are Genome Editing and CRISPR-Cas9?*, MEDLINEPLUS, https://medlineplus.gov/genetics/understanding/genomicresearch/genomeediting/ (last visited Oct. 31, 2022).
[154] *Id.*
[155] *Id.*
[156] *Id.*
[157] Napisa Pattharaprachayakul et. al., *Current understanding of the cyanobacterial CRISPR-Cas systems and development of the synthetic CRISPR-Cas systems for cyanobacteria*, 140 ENZYME AND MICROBIAL TECH. 1 (2020). This idea is very similar to biomimetics.
[158] *What Are Genome Editing*, supra note 153.
[159] *Id.*
[160] *Id.*
[161] Antonio Regalado, *Top U.S. Intelligence Officials Calls Gene Editing a WMD Threat*, MIT TECHNOLOGY REVIEW: BIOTECHNOLOGY (Feb. 9, 2016), https://www.technologyreview.com/2016/02/09/71575/top-us-intelligence-official-calls-gene-editing-a-wmd-threat/.
[162] *What is Nanotechnology?*, NAT'L NANOTECHNOLOGY INITIATIVE, https://www.nano.gov/nanotech-101/what/definition (last visited Oct. 31, 2022).
[163] *Id.* Needless to say, this is very small.

individual atoms and molecules with manmade technologies.[164] The applications of this science are incredibly diverse, including helping conventional devices run better, molecular self-assembly, and the development of new materials with dimensions on the nanoscale that can direct the control matter on an atomic level.[165] This remains a complicated science with many applications and implications for the Biological Weapons Convention. As discussed below, some nanotechnologies are non-biological, and thus the BWC may not cover devices like aerosolized nanobots.

With the majority of this paper thus far giving viable information into the applicable law and the science that is being discussed, Part III's primary goal will be to apply the law and try to answer whether or not the Biological Weapons Convention or customary international law prohibits the use of synthetic biology in weapons.

III. SYNTHETIC BIOLOGY: THE BIOLOGICAL WEAPONS CONVENTION AND INTERNATIONAL LAWS

This part of the paper will start by analyzing synthetic biology's top-down approach, specifically whether it fits within the Biological Weapons Convention. This paper will then discuss synthetic biology's bottom-up approach, how it falls within the Convention, and whether other international laws prohibit it from being used as a biological weapon. Going into more detail specifically about how these laws cover biomimetics, CRISPR/Cas9 genome sequencing, and nanotechnology. As discussed below, the Biological Weapons Convention covers and prohibits synthetic biology's top-down approach. Still, the Convention nor other international laws prohibit the bottom-up approaches of biomimetics, CRISPR/Cas9 genome-editing genome editing, and nanotechnology.

A. Top-down Synthetic Biology and the BWC

The biological weapons convention covers and prohibits synthetic biology's top-down approach because it reworks preexisting biological systems, giving living cells or organisms new functions but remaining biological in nature. In determining whether or not the Convention's scope covers the top-down approach to synthetic biology, it will be necessary to first look at the second review conference of the Biological Weapons Convention.

As stated above, the second conference sought to define what was a biological agent and, thus, what is covered under the convention.[166] At the Conference, a definition was declared that covered what a biological agent is.[167] Even though it is not technically legally binding on States because it was not part of a formal amendment and revision process of the convention, it has become customary international law.[168] The resulting definition of a biological agent includes "natural or artificially created or altered microbial of other biological agents or toxins whatever their origin or method or production."[169] The goal of this declaration was to make sure that the Biological Weapons Convention covered all synthetically created

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[164] *Id.*
[165] Alexey Belkin et al., *Self-Assembled Wiggling Nano-Structures and the Principle of Maximum Entropy Production*, 5 SCI. REP. 8323 (2015); Carlos M. Portela et al., *Extreme Mechanical Resilience of Self-assembled Nanolabyrinthine Materials*, 117 PNAS 5686 (2020).
[166] Second Review Conference, *supra* note 75.
[167] *Id.*
[168] *Supra* Part I.
[169] Second Review Conference, *supra* note 75.

bacteria that could be developed in the future.[170] What is being prohibited here is still fundamentally biological and not something else.[171]

The word "altered" is particularly indicative of the BWC's applicability to top-down synthetic biology. The foundation of synthetic biology is the altering of preexisting cells or biological systems. The top-down approach is taking something biological, keeping it biological, and just changing it to make it function better or more efficiently. In the case of biological weapons, efficiency might mean more deadly or even more transmissible. Nonetheless, an altered biological agent is still biological. Therefore, it will be prohibited by the Biological Weapons Convention because the second review conference's definition is customary international law. Because the Convention would prohibit synthetic biology's top-down approach as a biological agent, there is no need to determine if it would be prohibited as a toxin as well.

When enacted, the Biological Weapons Conventions' scope was not completely clear. Over time subsequent review conferences defined that scope, especially during the second review conference. Even though not binding, the second review conference declaration has become customary international law. Under this definition of biological agent, top-down synthetic biology, as a biological weapon, is prohibited by the Biological Weapons Convention because it does not create something new but rather "alters" preexisting cells and biological systems.

B. Bottom-up Approach and the BWC

Although there might be some aspects of synthetic biology's bottom-up approach that are prohibited by the Biological Weapons Convention and other international laws, there are particular applications of the approach—like biomimetics, CRISPR/Cas9 genome editing, and nanotechnology—that are not prohibited by international law. To understand whether or not the bottom-up approach is prohibited, the BWC and other international laws will need to be broken down into even greater detail.

As stated above, after the Biological Weapons Convention's second review conference, the scope of the Convention included biological agents that were synthetically created or altered. This inclusion has effectively become part of the convention through customary international law; however, this is not the only customary international law needed in this analysis. The additional customary law might go beyond the BWC but is relevant to understand because it is important to know the additional holes in international law. It is important to realize that any weapon that, if developed, would still be subjected to the law of armed conflict.[172] As described above, the two additional aspects of customary international law that will be important to know are the superfluous injury rule and the inherently indiscriminate rule.[173]

Generally speaking, many applications of bottom-up synthetic biology likely violate the superfluous injury rule. It is not hard to imagine creating some virus using either the top-down or bottom-up approach that would cause unnecessary and erroneous. On the other hand, of course, there are straightforward ways that the use of bottom-up synthetic biology could be

[170] Johnson, *supra* note 33.
[171] This distinction will be important later in the paper when discussing bottom-up synthetic biology.
[172] OFF. OF GEN. COUNS. DEP'T OF DEF., DEPARTMENT OF DEFENSE LAW OF WAR MANUAL 28-29, 1163 (2016 ed. 2015).
[173] Johnson, *supra* note 32.

designed and used that would not violate this rule. Instead, some uses of synthetic biology may be designed to be more humane than the current weapons being used in military tactics today. Such weapons created through synthetic biology might be designed in a way that could incapacitate a target, allowing them to make a full recovery instead of causing any permanent physical injury or death. This function could come in the form of impairing physiological tasks that do not threaten life, like "reducing the ability of enemy soldiers to stay awake, maintain balance or perform basic motor skills."[174] Even if created in a way to kill an enemy combatant, bottom-up synthetic biology—especially biomimetics, CRISPR/Cas9 genome editing, and nanotechnology—can be used in a way that does not violate the superfluous injury rule.

It is easy to recognize why, when States sought to prohibit the use of biological weapons, they were concerned with non-discriminatory biological weapons. Especially now that the world is exiting the COVID-19 pandemic that lasted at least two years and has killed, as of November 2022, over six and a half million people.[175] If any virus was non-discriminate, COVID-19 would undoubtedly qualify. With COVID-19, the harm a non-discriminate biological agent can inflict is readily seen. Such a weapon potentially could not be contained and cause vast unintended destructions. Of course, COVID-19 might be on one end of the spectrum. Still, it is an excellent example of why biological weapons are generally prohibited because they potentially harm unexpected and innocent populations. This harm remains a good reason for the banning of biological weapons. There are many applications of bottom-up synthetic biology that this rule would still prohibit. The creation of a virus from the ground up through synthetic biology that affected populations generally without much discrimination among individuals, especially enemy combatants and civilians, would be prohibited by this rule. Such weapons created through synthetic biology might be made in a way that could be programmed to target only a specific predetermined population, like targets with particular traits or prescriptive attributes of enemy soldiers.[176] This way, a State that deployed such a weapon would not be releasing it on the entire human population, but the attack would remain isolated, and in some instances, could be targeted to take down only one person. Even if created to affect a broader population, bottom-up synthetic biology—especially biomimetics, CRISPR/Cas9 genome editing, and nanotechnology—can be used in a way that does not violate the inherently indiscriminate rule.

In the next section of this part of the paper, the focus will be on whether biomimetics, CRISPR/Cas9 genome editing, and nanotechnology fall within the Biological Weapons Convention definition of a biological agent and whether they would be prohibited under other customary international laws. In this analysis, instead of speaking to each of these synthetic biology technologies generally, this paper will discuss specific examples or applications of the technology and whether it could bypass the current prohibitions and, therefore, potentially be used as a biological weapon lawfully. Of course, it is important to remember that each example is a potential technology, being a theoretical possibility and not an actual weapon already created and used.

1. Biomimetics

Many do not realize that biomimicry is everywhere; it is seen almost daily. It can be seen while watching the Olympics with swimmers' swimsuits designed like sharkskin or while

[174] Johnson, *supra* note 32.
[175] *Coronavirus Death Toll*, WORLDOMETERS, https://www.worldometers.info/coronavirus/coronavirus-death-toll/ (last visited Oct. 31, 2022).
[176] Johnson, *supra* note 32.

swimming in a frigid ocean, and how a wet suit is very similar to the thick layer of blubber that beavers have to keep them warm.[177] Each of these examples is of humans taking advantage of something seen in the biological world, making it no longer biologically based and using it in a similar way to how it was used in nature. Following this line of thinking, it is clear that the biomimicry of a new novel virus or bacteria that is non-biologically created but created with non-biological materials and designed to affect selected populations would not be covered by the Biological Weapons Convention or other international law.

The second review conference's definition of biological agents prohibits "artificially created or altered" biological microorganisms or agents, no matter the origin, method, or production.[178] As stated above, the critical element here is that it still needs to be biological. The definition still prohibits a large swath of bottom-up synthetic biology. This is because it prohibits the creation of biologically based synthetically created organisms or agents. Nevertheless, by definition, biomimetics does not concern the creation of biologically based microorganisms; instead, it is learning from and then emulating living systems.[179] Biomimetics simply are non-biological. The Biological Weapons Convention would not cover the creation of a non-biological organism that mimics that of a virus or bacteria and still cause disease or death.

The prohibition of a novel biomimetic cell that mimics a virus or bacteria would then depend on customary international law. First, the superfluous injury rule and then the inherently indiscriminate rule. Under the superfluous injury rule, a biomimetic cell could be created in a way that does not cause unnecessary injury or suffering to a target. Some viruses that infect humans do not cause much suffering or injury to individuals that catch them. One example is a condition called labyrinthitis and vestibular neuritis, which is the "inflammation of the inner ear and the nerve connecting the inner ear to the brain."[180] This condition causes a sudden and constant spinning sensation that can disable a person requiring that person to bed rest.[181] This would be an effective result in warfare that would not cause excessive suffering or injury that can be caused by viruses like with influenza and herpes. This is not a perfect example because not every herpes or flu infection causes labyrinthitis and vestibular neuritis. Still, it is descriptive to show that such a virus has the potential to cause something so debilitating without causing excessive suffering or injury. A biomimetic cell or organism could mimic such functions to cause similar effects in enemy targets. Because a biomimetic cell can be designed to not cause unnecessary injury or suffering, it would not be prohibited by the superfluous injury rule.

The inherently indiscriminate rule would also not preclude biomimetic cells or agents because these biomimetic viruses or bacteria could be designed in a way to cause an effect only on specific groups. Such a virus or bacteria could be coded in a way to only affect a particular group of people with a similar characteristic or even one individual. This kind of targeting is not too common in nature but can be seen in a general sense in leprosy. Leprosy is caused by

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[177] Shea Gunther, *8 Amazing Examples of Biomimicry: How Designers and Engineers Look at Nature for Solutions*, TREEHUGGER (July 21, 2022), https://www.treehugger.com/amazing-examples-of-biomimicry-4869336.
[178] *What is Biomimicry?*, *supra* note 146.
[179] *Id.*
[180] *Labyrinthitis and Vestibular Neuritis*, BETTERHEALTH CHANNEL, https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/labyrinthitis-and-vestibular-neuritis (last visited Oct. 31, 2022).
[181] *Id.*

a bacteria called Mycobacterium leprae.[182] Depending on certain gene variations affecting one's immune system, leprosy will develop differently in different people.[183] This means that those with specific genes could contract the leprosy disease while others without those genes would not. This example, of course, is very broad, but the principles could be applied to biomimicry on a more specific level. Knowing the genetic makeup of an individual or group of enemy combatants could allow biomimetic viruses and bacteria to target those particular groups or individuals. Because this would be discriminatory, it would not be prohibited by the inherently indiscriminate rule.

Biomimicry, by definition, is non-biological, it mimics something biological, but itself is not biological. So, a biomimetic virus or cell would not be covered by the Biological Weapons Convention. In addition, because it could be created in a way that does not cause unnecessary suffering and injury and can be discriminative, it is also not prohibited under customary international law.

2. CRISPR/Cas9 Genome Editing

CRISPR/Cas9 genome editing is a relatively new technique, with CRISPR itself being discovered in 2005 and has only grown in popularity since.[184] Variants of the CRISPR technique have been developed, but Cas9 seems to be among the most popular for its precision and speed.[185] Because of this, CRISPR/Cas9 is the form of genome editing that this paper will be looking at specifically. Most of the current concerns over this new technology are the fear that it could be used to edit the genomes of current pathogens, making them more viral and deadly.[186] This, of course, would be more of a top-down synthetic biology approach. The form of gene editing that this section is concerned with is CRISPR/Cas9 being deployed, as itself, into a weapon that could be used to "disrupt the essential genes in humans, animals, and plants."[187] Because it can be made with synthesized enzymes that are non-biological and designed to target specific genome sequences, it is not covered by the Biological Weapons Convention or customary international law.

Though it is true that, by definition, CRISPR/Cas9 is a tool that edits biological genomes, the system elements that are part of CRISPR/Cas9 may not necessarily need to be biological. Though it is derived and discovered from bacteria—the mechanisms of the process of gene editing—the actual units used could be made up of artificial components.[188] Such a CRISPR weapon would deploy the gene editing devices to a target that could then edit the genes of the target. The editing could potentially biologically harm humans, plants, or animals, or it could kill them by drastically changing their DNA to make cells shut down. In the context of the Biological Weapons Convention, the BWC only prohibits weapons that are biological. CRISPR/Cas9 would be editing something biological, but it itself is not. The BWC does not regulate effects; it only regulates the agents that cause the effects. Here the effect alters

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[182] *Leprosy: Causes*, MEDLINEPLUS, https://medlineplus.gov/genetics/condition/leprosy/#inheritance (last visited Oct. 31, 2022).
[183] *Id.*
[184] Daniel Willingham, *A Fresh Threat: Will Cas9 Lead to CRISPR Bioweapons?*, J. BIOSECURITY, BIOSAFETY, AND BIODEFENSE L. (May 9, 2018), https://www.degruyter.com/document/doi/10.1515/jbbbl-2018-0010/html#Harvard.
[185] *Id.*
[186] *Id.*
[187] Fangzhong Wang & Weiwen Zhang, *Synthetic Biology: Recent Progress, Biosafety and Biosecurity Concerns, and Possible Solutions*, 1 J. BIOSAFETY AND BIOSECURITY 22 (2018).
[188] Pattharaprachayakul, *supra* note 157.

something biological, but the cause of that effect is not biological; thus, because the agent here is the CRISPR/Cas9 system that could be created in a non-biological way, it is not covered by the Biological Weapons Convention's second review conference definition of a biological agent.

The superfluous injury rule will not prohibit the use of CRISPR/cas9 genome editing as a biological weapon because it can be used in a way that either quickly causes death or causes damage to cells that regenerate and do not pass on genome changes, and thus, would have a limited effect. One way that CRISPR could be utilized as a weapon could be inhaled into the lungs. From there, the CRISPR agents would target the lung cells, editing their DNA, and leading to lung failure, with the target's death coming quickly. This death would not be drawn out over a long period and thus would not be unnecessary suffering, possibly a quicker death than other forms of warfare used today, especially because of how fast the Cas9 genome editing works. Another example would be a more debilitating effect on a target's body. In this case, the CRISPR system would be designed to target muscle cells. Doing this could weaken the muscles leaving the target unable to move. This form of harm could potentially not be permanent because it would affect somatic cells that do not pass on the genetic alteration to a later generation of the cell. Specifically, when a muscle cell is damaged, they get stimulated to divide and is then regenerated and repaired.[189] This allows a target to make a full recovery. The use of CRISPR technology in this way would not cause unnecessary suffering and injury because such suffering and injury would not kill the person and only last for a short time. In both cases, using CRISPR/Cas9 does not cause unnecessary injury or suffering, so the superfluous injury rule would not prohibit it.

The inherently indiscriminate rule would also not prohibit using CRISPR/Cas9 genome editing as a weapon because it could be targeted for specific genome sequences found only in certain populations or groups. The way that the CRISPR technology could be designed is for it to target and edit certain genes that contain a specific genomic sequence. This specific targeting could be a group or a person that would have this sequence which Cas9 is known to be able to do.[190] Additionally, this use of the CRISPR technology would only affect those initially infected by the weapon because it would not replicate and reproduce as a bacteria or virus would. Meaning it would not be contagious and passed on to potentially unexpected victims down the road. Therefore, in using CRISPR/Cas9 genome editing by targeting specific genomic sequences and not being contagious, the technology would be discriminatory and not prohibited by the inherently indiscriminate rule.

The use of CRISPR/Cas9 genome editing might affect biology—specifically the very DNA of a target—but despite the effect, the agent causing the effect would be non-biological and not prohibited by the Biological Weapons Convention. In addition, because it could affect targets in a way that would cause quick death or cause debilitation that would last for a short time and would not have unexpected consequences to a greater population, it is not prohibited under international law.[191]

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[189] UNIV. OF LEEDS: THE HISTOLOGY GUIDE, *Muscle: Muscle Regeneration*, https://www.histology.leeds.ac.uk/tissue_types/muscle/muscle_regeneration.php#:~:text=Muscle%3A%20Muscle%20regeneration&text=When%20the%20muscle%20is%20damaged,muscle%20fibres%20themselves%2C%20cannot%20divide (last visited Oct. 31, 2022).

[190] *What Are Genome Editing*, supra note 153.

[191] One interesting point not being discussed in detail here in this paper is that the Biological Weapons Convention and the law of armed conflict apply only to States. In the likelihood that the technologies referenced

3. Nanotechnology

When thinking about nanotechnology, visions of Tony Stark as Iron Man, Star Trek, and other science fiction creative works come to mind. Though at times, the thought of nanotechnology might have been a thing only for science fiction, nanorobotics or nanobots are becoming more of a reality of our day.[192] Nanobots, in essence, are robots that are near the scale of a nanometer.[193] Such nanobots could be aerosolized and inhaled, from there entering into a target's bloodstream, there causing damage to an infected individual. Those nanobots could be made so that they act like a virus, yet do not cause harm to any infected with them until they reach the individual it was programmed with specific DNA sequences to kill or wound.[194] These nanobots would be created without biological material, and possibly even 3D printed.[195] Nanobots are not biologically based and can be programmed to cause harm to specific individuals; therefore, they would not be prohibited by the Biological Weapons Convention or customary international law.

Although some forms of biotechnology can be biologically based, that is not the case with nanobots. Thus, these incredibly small robots are neither created nor altered biological agents as defined in the second review conference of the BWC. Judge Evan J. Wallach of the United States Court of International Trade claims that the Biological Weapons Convention is sufficient to prohibit the use of nanotechnology as a weapon, stating, "development of the ban, its culmination in the Geneva Protocol, and its incorporation into the BWC . . . leave no genuine room for play in any sort of legitimate, good faith argument . . . whatsoever for any . . . type of . . . biological nano weapons."[196] Yet after stating this, Wallach suggests that the BWC should be modified to make sure that States Parties intend to cover any forms of nano weapons or other forms of analogous weaponry.[197] Although Judge Wallach's good faith arguments are somewhat persuasive, his contextual analysis of the Biological Weapons Convention misses the fundamental bases of the convention, that being that the agent the Convention bans is biological. Though his analysis does seem to apply to some forms of nanomimicry, it would not apply per se to nanobots. Therefore, the creation of a non-biological nanorobot that could cause harmful effects on humans is not covered by the Biological Weapons Convention because they are not biologically based.

Under the superfluous injury rule, nanobots could be prohibited if they cause unnecessary injury or harm. However, this issue could be analyzed similarly to that of biomimicry and gene editing because of the way that the nanobots could be programmed to cause quick death or simply incapacitate. Nevertheless, some ethical issues might be presented; whether or not a nanobot that debilitates a target and that target then recovers could then be used again to cause the same effect at a later point. Though this situation might be concerning

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here become illegal—and the chances of that probably will become more and more likely as technology develop—that still would not necessarily apply to non-State actors like terrorist groups. The CRISPR/Cas9 genome editing technology, in particular, would be of concern. This technology is becoming increasingly available and, with time, could be developed with unsophisticated hands and materials like what terrorist groups could readily obtain. So, although not discussed much in this paper, the policing of such a transformative technology in the future, even if prohibited as a weapon, might still be hard to prohibit on non-state actors.

[192] NATHAN A. WEIR ET AL., A REVIEW OF RESEARCH IN THE FIELD OF NANOROBOTICS 8 (2005).

[193] *Id.*

[194] These technologies are very similar to that depicted in a recent Hollywood film. *See* James Bond: No Time to Die.

[195] Prof. Sung-Hoon Ahn, *Micro Robot by 3D Printing (Seoul National University, Korea),* YOUTUBE (Jan. 30, 2012), https://www.youtube.com/watch?v=f4IavKUzK2c.

[196] Wallach, *supra* note 46, at 956.

[197] *Id.*

and ethically hard to comprehend, it would not need to cause unnecessary injury or suffering if the use was limited to military operations. Because of the programmability of the nanobots, the harm could be done when necessary and proportional to a military mission and thus would not cause unnecessary injury or suffering and would not be prohibited by the superfluous injury rule.

The inherently indiscriminate rule would not preclude nanobots because, although they could spread to everyone non-discriminatively, they would only cause harm or death to specifically programmed individuals. There might be concerns about the spread of the nanobots because they would be infecting almost everyone, spreading as a virus might. However, as long as they do not harm those in whom the nanobots remain dormant in and only affect those targeted explicitly by the technology, this would be a discriminatory weapon. Such nanobots could be designed so that it is coded only to harm a particular group of people with similar characteristic or even one individual. Knowing the genetic makeup of an individual or group of enemy combatants could allow nanobots to target those specific groups or individuals. Because this would be discriminatory, it would not be prohibited by the inherently indiscriminate rule.

With the conclusion that each of the above technologies is not a biological agent nor prohibited by other international laws, there remains the last question as to whether they are toxins as defined under the Convention. Because the analysis of whether biomimetics, CRISPR/Cas9 genome editing, and nanotechnology are toxins would be the same for each, this next section of Part III will couple all three of the technologies together instead of separating that analysis into different sections.

C. Biomimetics, CRISPR/Cas9 Genome Editing, and Nanotechnology as Toxins

For each technology—biomimetics CRISPR/Cas9 genome editing, and nanotechnology—they would not be toxins as defined in the convention. Under the definition—as excepted earlier in this paper—a toxin is a chemically based toxic by-product of biological organisms.[198] This includes synthetically created toxins that resemble chemical agents.[199] Fundamentally, what is evident by this definition is that toxins are chemically based as a toxin. The reason the BWC covers them is likely because some toxins can be extracted from biological microbials. Nevertheless, the toxins themselves are still chemically based. This fact would still prohibit the outright bottom-up synthetic creation of toxins that strongly resemble naturally occurring biological toxins. However, the technologies discussed in this paper are not chemically based; instead, they are systems created from the ground up that are non-biological. They are not chemically based in the same way that a toxin is because toxins are simple chemical molecules that can cause harm solely based on what they are. At the same time, the technologies discussed are biological-like systems that cannot be simplified to a chemical formula.[200] Because technologies like biomimicry, CRISPR/Cas9 genome editing, and nanotechnology are complex systems and not chemically based, they are not toxins under the definition of the Biological Weapons Convention.

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[198] Nuclear, *supra* note 54, at 478.
[199] *Id.*
[200] This is not to say that chemical toxins are simple, but they are considered simple compared to much more complicated bacterial cells that discharge such toxins.

CONCLUSION

The Biological Weapons Convention does cover and therefore prohibit synthetic biology's top-down approach under the second review conferences definition of a biological agent, but neither the Convention nor customary international law prohibits aspects of the bottom-up approach—more specifically, biomimetics, CRISPR/Cas9 genome-editing genome editing, and nanotechnology—because top-down synthetic biology reworks preexisting systems, while in contrast, bottom-up synthetic biology may be used to weaponized non-biological agents that can alter biological humans, plants, and animals that is discriminatory and does not cause superfluous injury.[201]

In solving this apparent hole in the convention, tweaking the second review conference's definition of biological agents could easily change the Convention to cover bottom-up synthetic biology. This could be done in a subsequent review conference, and such changes should be made preemptively before these technologies develop further. The technologies of biomimetics, CRISPR/Cas9 genome editing, and nanotechnology are all on the edge of what could be considered life. However, as the definition of viruses was categorized as biological to be covered by biological weapons bans, so can these technologies be included under the Biological Weapons Convention so that they do not cause unnecessary and irreversible harm.

[201] Not discussed in this paper but would remain a concern of international law even if these forms of synthetic biology became prohibited under the Convention or other forms of international law would remain the problem in the policing these technologies. That is, the BWC prohibits not only the use of biological weapons but also the development and production of them. Nevertheless, it has an exception prohibiting this if it is not used to promote health. Here each of these technologies—as mentioned above—have very good uses that could promote the health and prosperity of citizens of a state. This exception means that, unlike the horrible accident that occurred in Russia that was mentioned at the beginning of this paper, where the Soviet Union had no excuse for developing Anthrax in the factory, States will have actual excuses to use these and develop the technology that would be excluded from the Convention.

THE ASCENDANCY OF CAPITAL OVER NATION-STATES IN THE INTERNATIONAL LEGAL ARENA: A HISTORICAL-MATERIALIST PERSPECTIVE ON REDEFINING HORIZONTALITY IN INTERNATIONAL LAW

Elliot Goodell Ugalde*

Abstract: Orthodox international law (IL)—primarily legal positivism, assumes a horizontal legal order. In adopting a Hobbesian understanding of the international arena, legal positivists assert that no sovereign supersedes that of any individual nation state; therefore, states hold each other legally culpable in a horizontal manner[1] and international legal institutions derive authority from state-consent. However, this document aims to challenge the adherence of orthodox IL to a horizontal legal order by demonstrating how capital effectively acts as a *de-facto* sovereign in the international arena, imposing IL top-down onto states as subordinate legal actors. This claim is corroborated by Antony Anghie's postcolonial legal assertion that IL has historically served as a Trojan horse for furthering colonial ambitions.[2] Additionally, the Marxian concept of primitive accumulation, which situates colonialism within a larger project of capital accumulation, provides further theoretical backing for this perspective. Thus, this paper posits that the orthodox conception of IL as a horizontal system of equal sovereign states is inadequate, and instead proposes a paradigm in which capital acts as a de-facto sovereign, enforcing a vertical hierarchy undergirding international legal relations. This scholarly analysis will blend Marxian analysis with the empirical historical examples posited by Anghie, offering an in-depth examination of the manner in which colonialism dynamically influences and continually restructures the very fabric of IL.[3] Ultimately, considering the implications of nation-states being subservient to the normative prescriptions of IL, coupled with the understanding that these laws are fundamentally influenced by a larger colonial project, and acknowledging that this colonial project is inherently embedded within a broader structure of capital acquisition as per the theory of primitive accumulation; it can be posited that nation-states, through their subservience to IL, are ultimately guided by capital, thus, do not operate in a horizontal, International arena.

Keywords: International Law; Legal Positivism; International Relations; Nation-State Consent; Postcolonial Legal Theory; Primitive Accumulation; Historical Materialism; International Jurisprudence

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[1] William C Starr, *Law and Morality in H.L.A. Hart's Legal Philosophy*, 16 MARQUETTE LAW REVIEW 673–689 (1984).

[2] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 739–753 (2006).

[3] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 739 (2006).

Table of Contents

INTRODUCTION

This document, as outlined below, is partitioned into three primary segments. Segment I: *Theoretical Context*, initially seeks to contextualise the concept of critical international legal jurisprudence. This includes Rosalind Higgins' New Haven approach, Anghie's postcolonial legal perspective and a Marxist historical-materialist international legal approach. Subsequently, this segment presents an argument that Anghie's approach, which extends Higgins' stance by suggesting that conventional IL is not merely normatively constructed but is tailored to suit the interests of colonialism, is advanced even further by Historical-Materialist analysis. This approach proposes that colonialism itself functions as an instrument for capital accumulation.

In section II, *Positing a Theoretical Framework*, this paper advances a theoretical construct arguing that nation-states, as legal subjects, are subordinate to the normative dictates of IL. This is in accordance with Higgins' conclusion. It further posits that IL's normative prescriptions are nested within a larger colonial project, as per Anghie's conclusion. Lastly, this document identifies that the colonial project is located within an overarching structure of capital acquisition, as per the position of primitive accumulation theorists. Consequently, nation-states emerge as legal entities subordinate to the interests of capital accumulation. Thus, it can be concluded that IL functions through a hierarchical, top-down legal order.

Finally, section III: *Historical-Materialist Legal Analysis*, will follow Antony Anghie's original chronological categorizations of IL, which span from natural law, early positivist law, the post-colonial period, to the contemporary era post-9/11 with necessary historical-materialist amendments demonstrating the ways in which colonialism is intimately tied to capital acquisition made throughout the progression. The overarching aim of this work is to enhance and build upon Anghie's perspectives, by supplementing their arguments with those of historical-materialist legal scholars to demonstrate the ways in which capital, functioning from above, enforces IL onto states, categorising them as subordinate legal entities.

Chronologically, pertaining to natural legal jurisprudence and positivist jurisprudence, this section will firstly critically examine the historical development of IL, particularly its role in legitimising the acquisition of capital and the control exerted by core states over peripheral states. Drawing on Anghie's and Marx's concepts of natural law and primitive accumulation, it interrogates the colonial period, identifying the subordination of Indigenous peoples and the theft of their land and labour as integral to the establishment of early capitalist structures. Continuing, the transition towards Legal Positivism, while purportedly grounded in empiricism and objectivity, effectively sustained the colonial project by perpetuating the dominance of European hegemonies. The paper further argues that the emergence of the Westphalian state-centric model and the legal invisibility of capital perpetuated this vertical hierarchy.

Further, in this section, interrogating the post-colonial era, despite ostensible decolonization efforts by International Organizations (IOs), continued the exploitative patterns of the past. Mechanisms like the mandate system and investor-state dispute settlements (ISDS) disproportionately advantaged Transnational Corporations (TNCs) and contributed to the systemic extraction of resources from peripheral states. Moreover, initiatives such as the Bretton Woods Institutions (BWIs) and the mandate system of the League of Nations (LON) often masked capitalist expansion under the guise of promoting good governance.

Lastly, this section examines how the war on terror in the post 9/11 era proved to be a significant challenge for traditional realist IR and positivist IL due to their shared foundational

assumptions. The emergence of non-rational, non-nation-state centred threats such as terrorism, climate change, and the Covid-19 pandemic posed issues for those frameworks that primarily focus on states as the primary and rational actors within the international arena and as such, capital was able to capitalise on these existing theoretical blindspots within orthodox IR and IL to shape the international arena evident in the ways in which the post-9/11 era saw the creation of new mechanisms for capital accumulation, prioritising the interests of capital and further marginalising peripheral states at the behest of capital.

Consistently, throughout all these periods, IL consistently endorsed a process of commodification and privatisation of peripheral resources, contributing to the global capital accumulation system. This paper thus concludes by challenging the orthodox international legal conceptualising of the international arena as horizontal and anarchic, arguing instead for its recognition as a vertical order dominated by the interests of capital.

I. THEORETICAL CONTEXT

A. International Law as A Series of Normative Prescriptions

According to jurist Rosalyn Higgins, who aligns herself within New Haven jurisprudence, the concept of international legal subjecthood lacks objective credibility.[1] Indeed, Higgins argues that the inclusion or exclusion of certain actors as legal subjects is determined by normative doctrine rather than objective criteria.[2] By accepting Higgins' argument that political structures construct international legal ontologies, including the determination of who qualifies as a legal subject, a new question arises: what purpose do these structures serve? Higgins' position challenges the orthodoxy of IL, which is primarily rooted in legal positivism, by revealing that such orthodoxy relies on a set of normative ontologies that are structurally constructed rather than objective and apolitical.[3] In this sense, she– as a critical legal theorist, argues that IL is itself politically-latent and a means to serve political interest.

Combining this premise with that of international relations (IR) poststructuralist, critical scholar Robert Cox's position that "theory exists for someone, and for some purpose",[4] it can be inferred that the orthodoxy of IR, functioning as a normative theory, similarly exists "for someone, and for some purpose".[5]

Reiterating the acknowledgment of theory's normative ontological and epistemological assumptions, it becomes evident that theory exists with a specific purpose in mind. In light of Higgins' assertion that international legal orthodoxy adheres to normative theoretical prescriptions, it logically follows that the purpose of international legal orthodoxy as a theory is to fulfil a particular objective or serve a specific function.

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[1] Rosalyn Higgins, *Conceptual thinking about the individual in international law*, 4 BRITISH JOURNAL OF INTERNATIONAL STUDIES 1–19 (1978).
[2] CLAPHAM, A. RETHINKING THE ROLE OF NON-STATE ACTORS UNDER INTERNATIONAL LAW, UNITED NATIONS - LECTURE SERIES, https://legal.un.org/avl/ls/Clapham_IL.html.
[3] Rosalyn Higgins, *Conceptual thinking about the individual in international law*, 4 BRITISH JOURNAL OF INTERNATIONAL STUDIES 1–19 (1978).
[4] Robert W. Cox, *Social Forces, states and world orders: Beyond international relations theory*, 10 MILLENNIUM: JOURNAL OF INTERNATIONAL STUDIES, 1981), at 126.
[5] Robert W. Cox, *Social Forces, states and world orders: Beyond international relations theory*, 10 MILLENNIUM: JOURNAL OF INTERNATIONAL STUDIES, 1981), at 126.

This understanding emphasises that international legal orthodoxy is not a value-neutral or objective framework but is driven by specific purposes and objectives. By examining the normative foundations and underlying motivations of international legal orthodoxy, we can gain insights into the intended aims and interests it serves.

B. International Law Situated Within a Larger Colonial Project

If IL is designed to advance someone's interests, the identity of this someone may not necessarily be a clearly identifiable or rational actor actively driving the agenda. Instead, this someone can represent a broader tendency or inclination that surpasses the sovereignty of individual nation-states in shaping IL.[6] Under this perspective, the interests and motivations shaping IL may extend beyond the actions and intentions of specific actors or states. It suggests the existence of underlying forces or dynamics that influence and guide IL in a manner that transcends individual nation-states' autonomy.

Indeed, Antony Anghie supports this notion by arguing that colonialism, as a phenomenon, not only shapes IL but also overrides the sovereignty of individual nation-states. According to Anghie, colonialism has played a pivotal role in constructing the framework of IL, exerting influence that extends beyond the boundaries of sovereign states. This perspective highlights the ways in which colonialism has impacted the formation and operation of international legal norms and structures.

Notably, within this perspective, the phenomenon of colonialism is not a single political actor or an identifiable "someone",[7] as per Cox's quote. Rather the colonial phenomena represents a broad set of proclivities noted to further the political advancements of an international colonising class despite not being guided by a definitive rational actor. Indeed, colonialism exhibits irrationality and is fraught with multiple self-undermining internal contradictions, rather than demonstrating rationality.[8]

Both Marxian and Gramscian renditions of historical-materialism corroborate this analysis by acknowledging the significance of class tensions in shaping the capitalist mode of production. It recognizes that within capitalist societies, different social classes, such as the bourgeoisie and the proletariat, play crucial roles and have conflicting interests. However, historical-materialism also emphasises that these classes are not necessarily guided by rational decision-making processes just as Anghie emphasises that the colonising class present in their analysis should not be understood as a rational, unitary political actor.

Considering the ability of the historical-materialist approach to provide a historical context and analyse the power dynamics underlying IL, it is indeed appropriate to subject IL to a historical-materialist interrogation. Such an interrogation can help illuminate dominant political structures and their respective interests.[9] While Antony Anghie's account of IL does employ elements of historical-materialist analysis, particularly in his exploration of colonialism's central role in shaping IL, he falls short in fully centering colonialism within the

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[6] Colin Murray & James Ferguson, *The anti-politics machine: "development", depoliticization and bureaucratic power in Lesotho.*, 29 MAN 199 (1994).
[7] Robert W. Cox, *Social Forces, states and world orders: Beyond international relations theory*, 10 MILLENNIUM: JOURNAL OF INTERNATIONAL STUDIES, 1981), at 126.
[8] David Harvey, *The spatial fix - hegel, von Thunen, and Marx*, 13 ANTIPODE 1–12 (1981).
[9] Elliot Goodell Ugalde, *Developing A Critical Approach Towards Contrasting Protectionist and Free-Trade Paradigms*, 16 ON POLITICS 87–100 (2023).

broader structure of capital accumulation.[10] While he emphasises the significance of colonialism in determining the normative ontological prescriptions of IL, he does not extensively explore the intersectionality between colonialism and the larger project of capital accumulation.

Indeed, Anghie's inquiry establishes that the colonial endeavour serves as a pivotal influence in shaping international legal orthodoxy. Moreover, the deliberate assimilation of international legal orthodoxy by legal positivists signifies a purposeful endeavour to conceal the impact of colonialism in its formation.[11] Anghie further proposes that colonial ambitions provide legitimacy to the enforceability of IL by resolving John Austin's positivist contradiction. Austin's contradiction suggests that the equality of nation-state sovereignty and anarchic nature of the international arena makes IL vertically unenforceable.[12].

Anghie puts forward the proposition that colonial ambitions played a significant role in legitimising IL by establishing legal subordination of peripheral states to hegemonic states. Consequently, this suggests that IL could indeed be enforced within a hierarchical and vertical framework, where states operate through inter-state subordination, rather than in a horizontal and anarchic state of nature thereby circumventing Austin's paradox concerning the legitimacy of IL.[13] Fundamentally, Anghie posits that the historical influence of colonialism on IL clearly illustrates the inherent inequality among nation-states in the international sphere, given that core states tend to wield significantly more political influence than their peripheral counterparts.

To reiterate, as per Anghie's assertion, if the colonial project's influence over the international arena is greater than the dominance of individual nation-states, IL operates through a vertical legal order where the colonial project's inclinations effectively function as a de-facto sovereign over nation-states in the international arena. Yet, despite this assertion, Anghie fails to identify the ways in which the colonial project is itself intimately tied to the acquisition of capital by-way-of primitive accumulation.

C. The Colonial Project as A Structure of Capital Accumulation

While Anghie acknowledges colonialism as a guiding meta-narrative in the historical development of IL and its influence on the underlying normative principles, he falls short of sufficiently situating the colonial project within the broader framework of capital accumulation. A phenomenon which is often referred to by historical-materialists as primitive accumulation.[14] By not adequately centering the colonial project within the larger structure of capital accumulation, Anghie's analysis may overlook important dynamics and power relations at play.

Instead of engaging in a holistic, capital-centric analysis to explain IR's historical colonial proclivities, Anghie concurs with the positions of positivist jurists, including E.H. Carr, suggesting that IL's colonial ambitions are unitarily a result of nation-states being unable to

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[10] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 739–753 (2006).
[11] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 743-744 (2006).
[12] James Brown Scott, *The legal nature of international law*, 1 AMERICAN JOURNAL OF INTERNATIONAL LAW 831–866 (1907).
[13] Beate Neuss, *Kenneth N. Waltz, theory of international politics, New York 1979*, SCHLÜSSELWERKE DER POLITIKWISSENSCHAFT 481–485.
[14] Siddhant Issar, *Theorising 'racial/colonial primitive accumulation': Settler colonialism, slavery and racial capitalism*, RACE & CLASS (2021).

establish universal legal principles.[15] Restated, Anghie suggests that colonialism guides IL as a consequence of "a dynamic of difference"[16] between European and peripheral states' cultures. Combining Anghie's work with the theories of primitive accumulation suggests that Anghie's analysis, which attributes colonial underpinnings to cultural difference, may be culturally deterministic. Contrastingly, the insights provided by primitive accumulation theorists indicate that the colonial aspects of IL are not simply arbitrary outcomes of cultural disparities. Rather, they are deeply rooted in the historical dynamics of capital accumulation and power relations. Therefore, a comprehensive understanding of IL's colonial dimensions should consider both cultural factors and the broader structural and material forces of capital accumulation.[17]

Primitive accumulation as an analytical tool posits that colonial structures exist as a means of divorcing producers from their means of subsistence.[18] Restated, it suggests that colonial structures primarily exist to further the interests of capital. Marx's original account of the phenomena suggests that the transition between feudal and capitalist modes of production required vast amounts of original capital, particularly land and labour.[19] The acquisition of this original capital was achieved via colonial expansion with Marx specifically citing the discovery of gold in the Americas and the enslavement of Indigenous peoples in haciendas thereafter as a prerequisite to the capitalist mode of production.[20]

> "The colonial system ripened, like a hot-house, trade and navigation. The *societies Monopolia* of Luther were powerful levers for concentration of capital. The colonies secured a market for the budding manufactures, and, through the monopoly of the market, an increased accumulation. The treasures captured outside Europe by undisguised looting, enslavement, and murder, floated back to the mother-country and were there turned into capital" (Marx, *Das Kapital*, at 351).[21]

Indeed, the imposition of colonial laws, particularly those related to the commodification of land and labour, played a crucial role in furthering the colonial project's pursuit of capital accumulation. These laws often undermined Indigenous land tenure, facilitating the advancement of private capital acquisition by colonial powers. By disregarding and undermining the existing rights and relationships of Indigenous peoples to their lands, colonial authorities sought to exploit and extract resources for the benefit of private capital interests.[22]

Indeed, contemporary historical-materialists posit that structures of neo-colonialism continue to advance primitive accumulation via a process of accumulation by dispossession. For one, David Harvey highlights the ongoing capitalist crisis of overaccumulation, which he argues requires the continuation of accumulation by dispossession. According to Harvey, accumulation by dispossession is more efficient in accumulating capital than the traditional exploitation of labour power. This is because, in the context of over-accumulation, surplus

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[15] Jack Goldsmith & Stephen D. Krasner, *The limits of idealism*, THE GLOBALIZATION OF INTERNATIONAL LAW 265–282 (2017).
[16] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 2006 at 743.
[17] NOEL CASTREE & DEREK GREGORY, DAVID HARVEY, A CRITICAL READER (2006).
[18] KARL MARX, GABRIEL PIERRE DEVILLE & LA MONTE ROBERT RIVES, THE PEOPLE'S MARX; A POPULAR EPITOME OF KARL MARX'S CAPITAL (1900).
[19] MAXIMILIEN RUBEL & MARGARET MANALE, MARX WITHOUT MYTH: A CHRONOLOGICAL STUDY OF HIS LIFE AND WORK (1976).
[20] Karl Marx, *The Genesis of Industrial Capital*, *in* CAPITAL: A CRITIQUE OF POLITICAL ECONOMY 2019 at 35.
[21] Karl Marx, *Part 8: So-Called Primitive Accumulation*, *in* CAPITAL: A CRITIQUE OF POLITICAL ECONOMY (2019).
[22] KARL POLANYI, THE GREAT TRANSFORMATION: THE POLITICAL AND ECONOMIC ORIGINS OF OUR TIME (1968).

capital cannot be reinvested into the cycle of accumulation at the same rate at which it is being produced. As a result, surpluses of capital remain idle, creating a condition of stagnation. Harvey's analysis underscores the significance of accumulation by dispossession as a means to address the crisis of overaccumulation and maintain the accumulation of capital within the capitalist mode of production.[23]

Harvey notes, following the transition from feudal-slave labour to capitalist-waged labour, capital developed a tendency to forcefully expand in order to address its crises of overaccumulation. This drive for expansion is driven by the need to find new sources of labour, markets, and assets. Capitalism's inherent need for constant growth and accumulation pushes it to seek out new territories, resources, and labour in order to sustain its expansionary trajectory. This expansionary drive is often accompanied by processes of colonialism, imperialism, and accumulation by dispossession, as capital seeks to overcome the limitations posed by overaccumulated capital and ensure its continued accumulation and profitability.[24]

Reiterated, accumulation by dispossession provides overaccumulated capital with an influx of new assets to utilise and thereby no longer lie idle thereby synthesising capital's crisis of overaccumulation. Hence, capital naturally inclines towards participating in colonialism, and Anghie's emphasis on IL's role in facilitating such colonialism signifies the result of this inclination. Instances like international land grabs and agrarian land reforms,[25] which are facilitated through IL, serve as clear and contemporary illustrations of the ongoing process of colonial dispossession within an international legal framework.

II. POSITING A THEORETICAL FRAMEWORK

Ultimately, to refute legal positivists' belief in a horizontal IL order requires demonstrating that nation-states are not politically-equal and dominant actors in the international arena. Anghie, corroborates this refutation by suggesting that the role of colonialism in guiding IL policy supersedes that of any individual nation-state. In his account, the colonial project exists as a de-facto sovereign in the international arena. Yet, primitive-accumulation posits that colonialism is itself guided by mechanisms of capital accumulation. By combining these premises, the logical conclusion—and the argument presented in this paper—is that IL operates within a vertical legal order, wherein capital imposes IL from the top down onto states as subordinate legal actors, aligning with its own interests.

[23] DAVID HARVEY, THE NEW IMPERIALISM (2013).
[24] DAVID HARVEY, THE NEW IMPERIALISM (2013).
[25] A. Claire Cutler, *Critical reflections on the Westphalian assumptions of International Law and Organization: A crisis of legitimacy*, 27 REVIEW OF INTERNATIONAL STUDIES 133–150 (2001).

Reiterated, in the forthcoming section III, this paper's theoretical argument rests on the following provable premises:

1. Nation-states are legal subjects subservient to the normative prescriptions of International Law

2. International Law's normative prescriptions are situated within a larger colonial project.

3. As per primitive accumulation, the colonial project is situated within a larger structure of capital acquisition.

Ergo, nation-states exist as legal actors subordinate to the interests of capital accumulation. Thus, IL operates via a top-down, vertical legal order.

The document: *The Evolution of International Law: Colonial and Postcolonial Realitie*s by Antony Anghie has already provided empirical evidence to support the first two premises by demonstrating the subordinate status of peripheral states to colonial international legal prescriptions.[26] Additionally, Marxian scholars studying primitive accumulation have already proven the validity of the final premise. As such, this document seeks only to expand on Anghie's empirical examples of IL's— and nation-states' by extension, subordination to colonialism and tie them to primitive accumulation to elucidate a more holistic, historical-materialist understanding of IL as a structure of capital acquisition, not just as a "dynamic of [cultural] difference".[27] In demonstrating that colonialism— as a mechanism of capital acquisition, supersedes the dominance of individual nation-states on the international arena, a vertical legal order exposes itself and the positivist assumption of an internationally anarchic, horizontal international arena is negated.

Thus, section II will analyse Anghie's historical empirical examples that demonstrate how colonialism shapes and redefines the "actual body of international law"[28] by systematically contextualising each of Anghie's examples, which span from natural law, early positivist law, the post-colonial period, to the contemporary era post-9/11, within a broader framework of primitive accumulation. Additionally, this document will provide supplementary examples of capital's influence on IL by referencing the investor-state dispute regime and the concept of the "legal invisibility of capital".[29] The ultimate goal of this document is to complement and supplement Anghie's positions rather than discredit them. Furthermore, this paper supports Anghie's premise that IL serves to advance colonial interests. Simultaneously,

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[26] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 739–753 (2006).
[27] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 2006 at 742.
[28] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 2006 at 739.
[29] A. Claire Cutler, *Critical reflections on the Westphalian assumptions of International Law and Organization: A crisis of legitimacy*, 27 REVIEW OF INTERNATIONAL STUDIES 2001 at 133.

the argument presented challenges Antony Anghie's assertion that colonialism is primarily an end in itself, or at least an unintended consequence of international-cultural difference. Instead arguing that colonialism is a means employed to advance the interests of capital.

III. HISTORICAL-MATERIALIST LEGAL ANALYSIS

A. Natural and Theologian International Jurisprudence

IL's historical inception, rooted in natural jurisprudence, [30] established IL's preliminarily subordination to capital acquisition. Anghie describes how natural law legitimised 16th century colonialism in the Americas citing Francisco de Vitoria's legal prescriptions of supposedly naturalised Indigenous subordination. Additionally, the concept of *Terra Nullius*, originating from natural law, served to legitimise the initial colonial project.[31] By supplementing Anghie's position with the theoretical concept of primitive accumulation, it is suggested that Vitoria's theologian jurisprudence not only served to legitimise colonialism as a means of advancing Euro-exceptionalism via a fallacious appeal to nature, as Anghie suggests, but also primarily aimed at separating Indigenous peoples from their means of subsistence in order to facilitate the acquisition of capital. This perspective highlights the underlying motive of capital acquisition as a driving force behind pre-capitalist colonialism.

In *Das Kapital*, Marx parallels Anghie's assertion that the theologian, natural law sought to rationalise and legitimise the colonial project. Specifically, Marx likens primitive accumulation's origins to the "original sin in theology".[32] However, unlike Anghie, Marx argues that the legitimization of colonialism through the application of theological and legal frameworks primarily served as a project to accumulate capital, rather than being solely a consequence of conflicting cultural beliefs upon contact. Effectively, Marx suggests that colonialism is not an end in itself, rather a means of engaging in the theft of Indigenous land and labour.[33] Rearticulated, Whereas Anghie suggests that Vitoria's legal prescriptions sought only to subordinate Indigenous peoples due to a perceived cultural inferiority masquerading as natural jurisprudence, Marx highlights the ways in which the subordination of Indigenous peoples was itself rooted in a project of appropriating Indigenous lands and labour for the purposes of capital procurement.

Therefore, if we consider that natural law's theologian legal prescriptions aimed to legitimise the colonial project, as empirically demonstrated by Anghie, and that the colonial project itself aimed to justify the appropriation of Indigenous resources for capital acquisition, as demonstrated by Marx, it logically follows that natural law also served to legitimise the appropriation of Indigenous resources as a means of acquiring capital. As such, amalgamating Marx' and Anghie's positions suggests that natural international legal jurisprudence operated vertically insofar as its legal prescriptions ultimately existed as colonial structures of capitalist expansion.

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[30] Stephen C Neff, *A short history of international law*, INTERNATIONAL LAW (2018).
[31] Chelsea Vowel, *in* INDIGENOUS WRITES: A GUIDE TO FIRST NATIONS, MÉTIS & INUIT ISSUES IN CANADA 236–237 (2017).
[32] Karl Marx, *The Secret of Primitive Accumulation*, *in* DAS KAPITAL: A CRITIQUE OF POLITICAL ECONOMY 2010 at 507.
[33] KARL MARX & DAVID C. MACLELLAN, GRUNDRISSE (1972).

B. Incipient International Legal Positivism

In the 18th century, the infantile capitalist project had acquired sufficient original capital through primitive accumulation to realise itself.[34] As such, the feudal mode of production was replaced with the capitalist mode of production.[35] Furthermore, the system of feudal enslavement of Indigenous peoples was replaced by the imposition of waged labour, which, despite changes in form, still upheld class continuity.[36]

Corresponding, legal positivist jurisprudence overshadowed natural international legal jurisprudence claiming to have replaced natural law's theological, normative prescriptions with a legal grounding within empiricism and objectivity.[37] Still, post-positivist jurists like Rosalind Higgins argue that labelling legal positivism as empirical is a misnomer, as legal positivism's jurisprudence often imitates the inclination of natural law to put forward its own set of normative legal assumptions.[38] Additionally, Anghie suggests that these legal positivist assumptions continued to exist as a means of naturalising the colonial project. He argues that legal positivism's reliance on Westphalian-derived assumptions about sovereignty were deliberately constructed to obscure the significant influence of colonialism in shaping IL.[39]

In essence, he contends that the sovereignty doctrine perpetuated the subordination of peripheral states by European states even after the decline of natural law's influence. However, he mistakenly concludes that this doctrine existed solely as a teleological result of European political supremacy during the emergence of legal positivism,[40] failing to recognize its underlying purpose of safeguarding the interests of capital as exposed by historical-materialist analysis.

In truth, Westphalian state-centric assumptions about the international arena not only obfuscate the role of colonialism in constructing IL, but also the role of capital in constructing IL.[41] Further, Claire Cutler posits that because orthodox IL assumes nation-states to be the most dominant actors in the international arena, private activity is insulated from legal accountability. Cutler refers to this as "the legal invisibility"[42] of capital under IL whereby under legal positivism's jurisprudence, capital's role in shaping IL is obfuscated and IL's ability to restrict that role is non-existent. This reveals an asymmetric relationship between capital and IL, where capital influences and regulates IL to enable the accumulation of resources through dispossession, serving as a way to address crisis of overaccumulation. Meanwhile, transnational corporations (TNCs) benefit from a legal invisibility that prevents IL from effectively regulating or disciplining capital in response. This mono-directional legal

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[34] Andre Gunder Frank, *On so-called primitive accumulation*, 2 DIALECTICAL ANTHROPOLOGY (1977).
[35] KARL POLANYI, THE GREAT TRANSFORMATION: THE POLITICAL AND ECONOMIC ORIGINS OF OUR TIME (1968).
[36] MICHAEL PERELMAN, THE INVENTION OF CAPITALISM: CLASSICAL POLITICAL ECONOMY AND THE SECRET HISTORY OF PRIMITIVE ACCUMULATION (2004).
[37] Stephen C Neff, *A short history of international law*, INTERNATIONAL LAW (2018).
[38] Rosalyn Higgins, *Conceptual thinking about the individual in international law*, 4 BRITISH JOURNAL OF INTERNATIONAL STUDIES 1–19 (1978).
[39] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 739–753 (2006).
[40] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 739–743 (2006).
[41] Mohsen al Attar & Claire Smith, *Racial capitalism and the dialectics of development: Exposing the limits and lies of International Economic Law*, LAW AND CRITIQUE (2022).
[42] A. Claire Cutler, *Critical reflections on the Westphalian assumptions of International Law and Organization: A crisis of legitimacy*, 27 REVIEW OF INTERNATIONAL STUDIES 2001 at 133.

disciplining further corroborates a wholly top-down, vertical application of IL derived from legal-positivism's adherence to the state-centric, Westphalian paradigm.

C. The Post-Colonial Era's International Jurisprudence

The post-colonial era implies a temporal distancing from the colonial project. Yet, as Anghie and other scholars note, various international organisations (IOs) involved in administering IL for the purposes of decolonization such as the League of Nations (LON) paradoxically served to maintain the subordinate class continuity of peripheral nation-states[43] and thereby maintain the exploitation of these peripheral states' capital.[44] Anghie suggests that the LON's mandate system served as a dialectical synthesis aimed at resolving the contradiction between the conflicting interests of colonised and coloniser states. This system provided a legal framework wherein colonial powers could retain political control over newly independent states while creating an illusion of legitimate emancipation.[45]

To maintain dominance over peripheral states, the mandate system established several committees like the Permanent Mandates Commission (PMC) and the International Labour Organization (ILO).[46] These committees played a crucial role in monitoring and guiding the conduct of peripheral states under the mandate system's governance structure. While supporting Anghie's perspective through a historical-materialist lens that prioritises the role of capital, Susan Stokes argues, as per the logics of accumulation by dispossession, that this discretion ultimately served to incentivize privatisation for the purposes of foreign acquisition.[47] Thus, the mandate system too existed as means of furthering capitalistic expansion insofar as it encouraged peripheral states to privatise and commodify their assets for the purposes of foreign procurement.[48]

At the same time, despite the post-colonial era's exponential growth of TNCs, both in number and relative political influence,[49] the legal invisibility of capital and TNCs as legal actors remained an inalienable feature of IL.[50] In truth, the post-colonial era saw individual nation-states grow increasingly subservient to the interests of capital as IOs prescribed IL inline with an international political ethos of neoliberal austerity.[51] Additionally, economic globalisation intensified the financial interdependence between core and peripheral states, leading to a greater dependence of peripheral states on core ones. This situation enabled TNCs to obtain capital from peripheral states by compelling them towards privatisation.[52]

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[43] *in* THE LIFEWORK OF A LABOR HISTORIAN: ESSAYS IN HONOR OF MARCEL VAN DER LINDEN 47–70 (2018).
[44] Prebisch, Raúl: The Economic Development of Latin America and its principal problems, DIE 100 WICHTIGSTEN WERKE DER ÖKONOMIE 194–195 (2019).
[45] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 739–753 (2006).
[46] B. Rajagopal, *in* INTERNATIONAL LAW FROM BELOW: DEVELOPMENT, SOCIAL MOVEMENTS, AND THIRD WORLD RESISTANCE 50–53 (2007).
[47] SUSAN CAROL STOKES, MANDATES AND DEMOCRACY: NEOLIBERALISM BY SURPRISE IN LATIN AMERICA (2001).
[48] NITA RUDRA, GLOBALIZATION AND THE RACE TO THE BOTTOM IN DEVELOPING COUNTRIES: WHO REALLY GETS HURT? (2008).
[49] GWYNNE SKINNER, RACHEL E. CHAMBERS & SARAH MCGRATH, TRANSNATIONAL CORPORATIONS AND HUMAN RIGHTS: OVERCOMING BARRIERS TO JUDICIAL REMEDY (2020).
[50] A. Claire Cutler, *Critical reflections on the Westphalian assumptions of International Law and Organization: A crisis of legitimacy*, 27 REVIEW OF INTERNATIONAL STUDIES 2001 at 133.
[51] Anna Chadwick, *Neoliberal legality: Understanding the role of Law in the neoliberal project*, 30 EUROPEAN JOURNAL OF INTERNATIONAL LAW 1071–1076 (2019).
[52] N. Ram & Andre Gunder Frank, *Capitalism and underdevelopment in Latin America*, 1 SOCIAL SCIENTIST 73 (1973).

However, the most significant mechanism reinforcing state subservience to capital in the post-colonial era was the implementation of the investor-trade regime, which enabled TNCs to employ IL as a tool for legally disciplining states.[53] This regime functions through the introduction of investor-state dispute settlements (ISDS) during the post-colonial era. Many of these settlements include asymmetrical provisions that empower TNCs to use IL to litigate against states, without providing states with equivalent means to litigate against TNCs.[54] Coupling ISDS treaties' transfer of rights without adequate responsibilities onto TNCs[55] Cutler's assertion of a legal invisibility protecting TNCs from IL further exposes a wholly vertical legal order whereby capital's influence over states via IL is entirely mono-directional. To reiterate, when we combine a critical analysis of ISDS with Cutler's examination of the legal invisibility of TNCs, it becomes evident that TNCs utilise IL as a tool to discipline states through ISDS mechanisms. However, states are unable to employ IL to discipline TNCs in return since TNCs are not recognized as legal entities themselves. This coupling of perspectives illustrates an extension of the vertical international legal order in the post-colonial era, wherein IL's prescriptions perpetuate the subordination of states to the interests of capital.

David Harvey further elucidates the impact of capital on IL during the post-colonial era. He posits that the liberation of colonies was deliberately executed under the assumption that these newly freed colonies would lack the required infrastructure to economically compete with dominant or hegemonic states. This pre-established assumption was in service to the interests of capital, thereby guaranteeing the persistent economic superiority of the colonial forces even in the post-colonial period.[56] Therefore, the LON' mandate system, followed by the role of the Bretton Woods Institutions, notably the International Monetary Fund (IMF), and the International Bank Of Reconstruction and Development (IBRD) in privatising industries in peripheral states, can be understood as mechanisms designed to attract foreign capital under the guise of promoting good governance and purportedly alleviating the predicted economic challenges faced by newly emancipated, peripheral states. This approach masked the underlying objective of accumulating foreign capital through these initiatives.[57]

To illustrate this point, one can examine one of the LONs' covenant, which explicitly justifies its authority to guide the economic policies of newly independent states as a means of assisting them in adapting to the "strenuous conditions of the modern world".[58] This justification served as a pretext for exerting control over the economic decisions of peripheral states and ensuring their alignment with the interests of capital. In reality, the notion of good governance as exemplified by the LONs' mandate system or the Washington Consensus as represented by the later Bretton Woods Institutions and their structural adjustment programs, actively promoted accumulation by dispossession. These initiatives aggressively and actively encouraged peripheral nations' governments to create favourable investment climates for

[53] B. Rajagopal, *in* INTERNATIONAL LAW FROM BELOW: DEVELOPMENT, SOCIAL MOVEMENTS, AND THIRD WORLD RESISTANCE 50–53 (2007).
[54] Michelle Chan et al., *Impacts of the international investment regime on Access To Justice*, SSRN ELECTRONIC JOURNAL (2018).
[55] Gus Van Harten, *Private Authority and transnational governance: The contours of the international system of investor protection*, SSRN ELECTRONIC JOURNAL (2004).
[56] DAVID HARVEY, THE NEW IMPERIALISM (2013).
[57] DAVID HARVEY, THE NEW IMPERIALISM 2013 at 57.
[58] B. Rajagopal, *in* INTERNATIONAL LAW FROM BELOW: DEVELOPMENT, SOCIAL MOVEMENTS, AND THIRD WORLD RESISTANCE 2007 at 57.

foreign capitalists, ultimately leading to the dispossession of local resources and the further concentration of capital at the behest of hegemonic states.[59]

Rearticulated, Harvey concedes that various postcolonial, western-imposed economic programs were imposed in peripheral states under the pretext that they would stimulate economic growth. However, he contends that these programs, which were backed by IL and ranged from the mandate system to later structural adjustment policies, mainly aimed to stimulate the privatisation of goods in peripheral regions. This, in turn, facilitated their acquisition by Western entities as a method of accumulation through dispossession.[60]

In addition to legitimising the role of the Bretton Woods Institutions as "gatekeepers to western capital"[61] and promoting the privatisation of peripheral resources, throughout the post-colonial era, IL also legitimised the commodification of these resources. This process of commodification assumed that peripheral goods could be treated as commodities, a notion that aligns with Karl Polanyi's original depiction of the commodification of land and labour.[62] IL played a crucial role in endorsing and facilitating this commodification process, reinforcing the capitalist framework of resource exploitation. An illustrative example of this is seen in the postcolonial era, where IL facilitated agrarian land reforms aimed at transforming Indigenous land tenure in peripheral states, which often existed as *res extra commercium*, into commodities that could be internationally privatised. This process aligned with capital's inclination to devise and legitimise new forms of private appropriation, thereby furthering the accumulation of capital through the commodification of land.[63]

Ultimately, in the post-colonial era, IL replaced the overt bondage of formal colonisation as a means of capital acquisition with a system of international economic dependence, as highlighted by dependency and world-systems economists. This system continued to serve as a mechanism for capital accumulation, while simultaneously solidifying capital's formal and legal dominance over states through the introduction of ISDS mechanisms. Still, in both pre-colonial and postcolonial international legal frameworks, there exists a vertical legal order whereby core states' dominion over peripheral states operates in the interests of capital and legal positivism's adherence to a horizontal and anarchic international arena is proven axiomatically false.

D. Post 9/11 Era International Jurisprudence

Anghie's original document identifies 9/11 as the temporal focal point which differentiates the era of contemporary IL with post-colonial era IL (Anghie, 2006). Cynthia Enloe concurs with this temporal delineation, describing it as a consequence of orthodox IR, particularly the state-centric perspective of realist internationalism failing to address contemporary geopolitical grievances. According to Enloe, realist internationalism's state-centric approach fails to adequately account for the challenges posed by non-state actors that are prevalent in the current era. These non-state actors have emerged as significant threats and

[59] Susanne Soederberg, *Taming corporations or buttressing market-led development? A critical assessment of the global compact*, RECOGNITION AND REDISTRIBUTION 73–85 (2019).
[60] Giovanni Arrighi, Nicole Aschoff & Ben Scully, *Accumulation by dispossession and its limits: The Southern Africa Paradigm Revisited*, 45 STUDIES IN COMPARATIVE INTERNATIONAL DEVELOPMENT 410–438 (2010).
[61] B. Rajagopal, *in* INTERNATIONAL LAW FROM BELOW: DEVELOPMENT, SOCIAL MOVEMENTS, AND THIRD WORLD RESISTANCE 2007 at 95.
[62] KARL POLANYI, THE GREAT TRANSFORMATION: THE POLITICAL AND ECONOMIC ORIGINS OF OUR TIME (1968).
[63] STEPHEN GILL & A. CLAIRE CUTLER, NEW CONSTITUTIONALISM AND WORLD ORDER (2015).

power brokers, highlighting the limitations of traditional state-centric perspectives in understanding and addressing contemporary global issues.[64]

Indeed, the onset of the war on terror presented substantial challenges for the conventions of IR realism and positivist IL, largely due to their shared ontological postulates. These conventional methodologies predominantly perceive nation-states as principal entities within the international stage, assuming them to exhibit rational behaviour. However, the unconventional character of terrorism, which encompasses non-state and non-rational actors, has complicated the traditional paradigms of IR realism and positivist IL.[65] Simultaneously, IL jurists, who endeavoured to uphold the Westphalian paradigm by presuming that terrorists were indeed rational actors, found themselves grappling with the emergence of other non-rational, existential security threats such as climate change and more recently, the Covid-19 pandemic.

Although these security threats exposed a glaring blindspot within orthodox IR and IL demonstrating a need to abandon state-centric international ontologies and subsequently dismantle the Westphalian paradigm,[66] IL continued to maintain TNCs' legal invisibility. In line with capital's inclination to find profitable solutions to emerging crises, the post-9/11 era witnessed the establishment of a series of new mechanisms for accumulation by dispossession. Rather than addressing the inherent flaws within state-centric international frameworks, these mechanisms prioritised the interests of capital. This highlights how the dominant economic forces shape and exploit global crises to further their own accumulation strategies, often at the expense of marginalised communities and peripheral states[67]

For instance, Antony Anghie points out the United States' lack of legal accountability for the 2003 invasion of Iraq as evidence of a revival of a colonial meta-narrative rooted in a notion of civilising subordinate states.[68] In a complementary manner, David Harvey demonstrates how this resurgence of the meta-narrative aligns with the interests of capital. By placing Anghie's analysis within a broader historical-materialist framework, Harvey illustrates how capital has effectively utilised this meta-narrative to advance processes of dispossession. This highlights the interconnectedness between the colonial meta-narrative, the interests of capital, and the perpetuation of dispossession.

Primarily, Harvey emphasises the ways in which a contemporary, post-9/11 era meta-narrative of civilising peripheral states allows for the destruction and devaluation of peripheral states' assets for the purposes of private, foreign acquisition.[69] International sanctions, facilitated by IL as a means of economically disciplining supposedly uncivilised states, pressure such states to privatise and sell their assets at which point TNCs can acquire these assets and use them to recycle their overaccumulated capital. Indeed, military occupation, such as the previously mentioned invasion of Iraq, can devalue foreign assets and resources, which in turn serves the interests of TNCs seeking to acquire and exploit those resources. The justification for such military interventions, often framed within a neocolonial civilising meta-narrative, further facilitates the devaluation and subsequent procurement of foreign assets by TNCs. This highlights how the narrative of civilising in order to bring stability can be used to

[64] Kathryn Ward & Cynthia Enloe, *Bananas, beaches, and bases: Making feminist sense of international politics.* 22 CONTEMPORARY SOCIOLOGY 80 1993 at 46.
[65] PETER HOUGH ET AL., INTERNATIONAL SECURITY STUDIES: THEORY AND PRACTICE (2015).
[66] Nargis Zahra, *Realism and the State*, 64 PAKISTAN HORIZON 61–74.
[67] NOEL CASTREE, DAVID HARVEY: A CRITICAL READER (2009).
[68] Antony Anghie, *The evolution of international law: Colonial and postcolonial realities*, 27 THIRD WORLD QUARTERLY 739–753 (2006).
[69] NOEL CASTREE, DAVID HARVEY: A CRITICAL READER (2009).

legitimise actions that ultimately benefit the interests of capital and TNCs in their pursuit of resource acquisition.

In this sense, the events of 9/11, which exposed the limitations of orthodox IL in accounting for non-state actors, were not utilised as an opportunity to revise and move away from orthodox IL's state-centric Westphalian assumptions. Instead of critically reassessing the framework. "In line with capital's tendency to never solves its crisis— opting instead to move them around spatiotemporally",[70] the war on terror as a crisis, was commandeered by capital as a means of establishing a neo-colonial meta-narrative of civilising peripheral states which in turn, justifies contemporary capital dispossession through IL facilitated sanctions and military occupations.

Indeed, even when the fundamental ontologies of state-centrism within IL are critically challenged, capital maintains its influence in shaping IL to further its own interests. This suggests that IL operates in a vertical manner, guided by the interests of capital. Despite potential challenges and critiques to the state-centric paradigm, capital continues to exert its influence over IL, perpetuating a system whereby the interests of capital are prioritised and upheld.

Simultaneously, the utilisation of ISDS treaties by TNCs to counter state-imposed damages when dealing with modern non-state facilitated, collective-action crises [71] has weakened the capacity of states to effectively tackle these crises. For example, state employed climate change measures and measures meant to address Covid 19 both continue to be stunted by TNC evocation of ISDS treaties.[72] Furthermore, the emergence of these crises, which highlights the shortcomings of the traditional state-centric approach to IL, has not led to the abandonment of the Westphalian paradigm. [73] Instead, it has provided transnational corporations with an opportunity to exploit the ISDS regime as a means of disciplining states that attempt to address such crises evident in the surge of TNCs' litigation grievances against nation-states for trying to restrict corporate emissions.[74]

Contrary to the viewpoint of legal positivists, who argue that IL's failure to effectively tackle collective-action problems facilitated by non-state actors, such as Covid-19 and climate change, highlights the ineffectiveness and illegitimacy of IL,[75] as per Austin's paradox,[76] the reality is that IL is not incapable but rather unwilling to address these crises. This reluctance stems from IL's tendency to align itself with capital's exploitation of these crises for its own benefit.[77] Restated, IL fails to address contemporary collective-action crises' not as a result of its legal illegitimacy, rather as a result of its legitimising of TNCs' ability to employ the ISDS regime to discipline states who attempt to address these crises.

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[70] NOEL CASTREE, DAVID HARVEY: A CRITICAL READER 2009 at 236.
[71] Todd Sandler, *Collective action and Transnational Terrorism*, 26 THE WORLD ECONOMY 779–802 (2003).
[72] Kyla Tienhaara, *Investor–state dispute settlement*, REGULATORY THEORY 475–691 (2017).
[73] Joseph Tuman, COMMUNICATING TERROR: THE RHETORICAL DIMENSIONS OF TERRORISM (2010).
[74] NOEL CASTREE, DAVID HARVEY: A CRITICAL READER (2009).
[75] Khaled Al-Kassimi, *A "New Middle East" following 9/11 and the "arab spring" of 2011?—(NEO)-Orientalist imaginaries rejuvenate the (temporal) inclusive exclusion character of Jus Gentium*, 10 LAWS 29 (2021).
[76] Beate Neuss, *Kenneth N. Waltz, theory of international politics, New York 1979*, SCHLÜSSELWERKE DER POLITIKWISSENSCHAFT 481–485.
[77] MAXIMILIEN RUBEL & MARGARET MANALE, MARX WITHOUT MYTH: A CHRONOLOGICAL STUDY OF HIS LIFE AND WORK (1976).

CONCLUSION

The assumption of a horizontal legal order by Orthodox IL, particularly legal positivism, is ultimately flawed. However, Anghie's argument regarding a vertical legal order, whereby the colonial project functions as a de-facto sovereign over individual nation-states, only provides a partial understanding of the situation. In centring Anghie's position within a framework of primitive accumulation, it becomes evident that although colonialism and neo-colonialism shape IL, neither are ends in themselves. Indeed, colonialism, in its various forms, is part of a broader project of capital accumulation. In this context, as per Anghie's assertion, IL does adhere to a vertical legal order. However, within this vertical legal order, capital itself assumes the role of the de-facto sovereign in determining the prescriptions of IL. Historical legal prescriptions cited as evidence in this document include the legal invisibility of TNC's, the ISDS regime, the mandate system's ability to maintain an economic periphery, the Bretton Woods Institutions' role in the privatisation of foreign capital, and the contemporary application of sanctions and military occupations as a means of capital acquisition justified through a contemporary meta-narrative of civilising peripheral states.

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PERSONAL DATA PROTECTION UNDER INTERNET PLATFORM ECONOMY

Dongyi Shi*

Abstract: The data subjects' ownership of personal data and the basic rights and interest derived from it need to be implemented and clarified in practice by laws and regulations, an corresponding supporting regulatory systems should also be constructed accordingly. This article deduces "ownership" by discussing the "transmission" of personal data, studies th data's usage through discussing the case of Taobao v. Meijing and explores the supervisio direction brought by technological progress. Platform companies should satisfy data users' wishes to obtain and transmit their personal data. Transfer of personal information being determined by individuals, makes for a fair and healthy competition environment amon Internet platform companies. Under the most recent law environment, requiring every dat subject to grant informed consent, would face complex application issues in practice. In orde to make personal data circulate more conveniently in the society, this article proposes to refer to the spirit of the "Personal Information Protection Law", which is, the basis of "informed consent" and the principle of "minimum necessity", plus the method of "explicit permission", and adopt a "payment consideration" model in specific commercial fields.

Keywords: Personal Data; Data Subject; Data Ownership; Right to Data Portability; Right to Control

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INTRODUCTION

A. Research Background

Nowadays, we are deeply involved in the era of data explosion where the data produced per day overwhelms those over past thousands of years in the human history. Here are the questions: Who owns the data? What is the data's source and destination? Who has access to the data? Who can control the data? and Who must register with the competent authority for the data? In the times of Internet, personal data has become important assets for which various platform enterprises are competing. Questions such as whether the data is carried tangibly, whether individuals can be endowed with the Information Property Rights, or whether the data information can be commercialized, still remain unanswered.

The 4th Plenary Session of the 19th CPC Central Committee was held in Beijing in October 2019. The session deliberated on and approved the *Decision of the CPC Central Committee on Some Major Issues Concerning How to Uphold and Improve the System of Socialism with Chinese Characteristics and Advance the Modernization of China's System and Capacity for Governance*. The session also clearly stated that "It is required to improve the mechanism where the market evaluates the contribution and determines remuneration according to contribution for labor, capital, land, knowledge, technology, management, data and other production factors".[1] In addition, "data" should be included into the category of factors to get rid of institutional obstacles for its participation in income distribution.

The digital age promotes the revolution of national governance system and capacity. From the article *Constant Optimization and Enhancement of Chinese Digital Economy*, General Secretary Xi Jinping points out the improvement of the digital economic governance system, national laws and regulations, mechanism as well as the modernization of digital economic governance system and capacity.[2] The digitalization plays a crucial part on modernization[3] of national governance system and capacity, which is the essential reflection of the law-ruling thoughts[4] from Xi Jinping. In March 2020, during the onsite visit in Hangzhou, the general secretary Xi Jinping pointed out that to apply leading technologies such as Big Data to promote the government governance innovation, models, and methodology, and build a digital government is the only way to promote the modernization of government governance

[1] The Fourth Plenary Session of the 19th CPC Central Committee, *Questions and Answers about the Decision Adopted at the Fourth Plenary Session of the 19th CPC Central Committee, 37. Why It Is Necessary to Improve the Mechanism where the Production Factors such as Labor, Capital, Land, Knowledge, Technology, Management, Data, etc. Are Assessed by the Market for Contributions, and the Returns Will Be Determined by the Corresponding Contribution* (Apr. 30, 2022, 11:02 AM), https://www.12371.cn/2019/12/27/ARTI1577414321749300.shtml?from=groupmessage&ivk_sa=1024320u.

[2] Xi Jinping, *Constant Optimization and Enhancement of Chinese Digital Economy*, QIU SHI, 2022 (2) / (No.807), at 7-8.

[3] The important proposition as "Modernization of National Governance System and Capability" is abbreviated as the "National Governance Modernization" by some scholars. It is considered as the 5th Modernization after the modernization of "Industry, Agriculture, National Defence and Scientific Technology" (Four Modernization).

[4] In November, 2020, Xi Jinping's Rule by Law Thought is expressly determined as the guidelines for the Rule by Law from all aspects in the Central Comprehensive Rule by Law Working Conference which is held for the first time in the history of CPC. Xi Jinping's Rule by Law Thought is the latest achievements of the Sinicization of Marxist theory of the Rule by Law which is created by complying with the expectations for great rejuvenation of the Chinese nation. It is also the important part of the Xi Jinping Thought on socialism with Chinese characteristics in the new era, as well as the fundamental guidance and action guide for the comprehensive Rule by Law.

system and capacity. How to achieve above is the major topic for national governance under today's digital transformation background.[5]

At present, there is a political trend that there are ethical arguments in the algorithm operation of data capture from the platform enterprises, and this technology should be supervised and restricted. The platform can restrict the browser content through Big Data, which is against the initial reading purpose of data subject. Facebook uses Big Data to influence the political views of the US people, to influence the voting results and the US election; Similarly, the intense discussion on "Cocoon Room Effect" triggered by today's headline algorithm shows that the attention should be aroused on information promotion impact of the platform on individuals and society.

The Data attributes from the current theoretical discussion include full public ownership (including state-owned and public data), full private ownership (including platform and individual ownership) and complex ownership. Only there is a clear picture on Data ownership problem, there is a base of judgement for infringement. In order to define a certain behavior if it infringes on information rights, it is necessary to decide the relief measures' basis of the claim right – the information ownership. The thesis aims to analyze the above open topic to decide the ownership, application and supervision direction of personal data under the platform economy.

B. "Data Ownership" Methodology

Nowadays, how to define the "Data ownership" becomes a key topic due to the situation that "data" has become a production factor which has a significant impact. Its ownership directly determines the basic Data value and the allocation of responsibilities and obligations. *Opinions of the CPC Central Committee and the State Council on Improving System and Mechanism for Factor Market-Oriented Allocation* (hereinafter referred as to *Opinions)* is the first central government document on the allocation of factor market. *Opinions* highlights the revolution direction by classifying in the five factors of land, labor, capital, technology, and data, it also defines the specific measures to improve the factor market-oriented allocation. As a new factor, the data becomes the focus in the opinions.[6] On 30th Nov. 2021, the Ministry of Industry and Information Technology (hereinafter referred as to MIIT) issued the *Big Data Industry Development Plan in the "14th Five Year Plan"*, which further emphasizes the value of Data based on continuing the definition and connotation of Big Data industry in the "*13th Five Year Plan*". The MIIT pointed that data is an important production factor in the new era and a national basic strategic resource. China pays high attention on the cultivation of data factor market.[7] In Dec. 2021, the Central Cyberspace Affairs Commission published *National Informatization Plan for the 14th Five Year Plan (The plan)* as the programmatic document leading the national informatization development in the next five years. The plan proposes to establish an efficient data resource system as a solid foundation for the construction of a strong, digital China and wisdom society.

On this matter, Lawrence Lessig, an American scholar and early ideologist who supported the creation of free market for personal data stated his view of "In cyberspace, code

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[5] Shangguan Lina, *Practice of Modernization of Government Governance Capability in Digital Times*, NATIONAL GOVERNANCE, 1-2022 (Part 1), at 25.

[6] *Opinions on Building of Improved System and Mechanism for Market-oriented Allocation of Factors by the CPC Central Committee and the State Council*, SOCIALIST FORUM, 5-2020.

[7] *Interpretation of Big Data Industry Development Plan in the 14th Five-year Plan* (May 10, 2022, 10:22 AM), www.gov.cn/zhengce/2021-12/01/content_5655197.htm.

is the law" in the early development of the Internet. However, along the Internet developing time, the issue is far from what the ideologist thought. "Ownership" refers to the obligee right of legal possession, usage, revenue and disposal of immovable or movable property.[8] It is a free right. This is the most basic property theory from civil law, which is also the premise of international trade. However, as the Internet era arrives, especially after the beginning of the 21st century, the new search engines based on various algorithms (i.e. Google) and "social Internet" (i.e. Facebook) jointly formed the "digital economy" platform which has broken the obligees' disposal right on properties. The vague data ownership has also affected the national data protection associated with individual behavior on the Internet. It results in an increasingly acute social phenomenon after the year of 2015, the relevant conflicts are urgently to be resolved.

The popularity of digital economic platform in the middle and late 2010 enables the platform to collect and use massive personal data on business development for users who are using the services from Headlines, TikTok, WeChat, Taobao, JD and other platform software. This is basically by considering the interests of those platform companies themselves, rather than as declared of improving social efficiency as well as the welfare, even generates negative effects. Whereas, the laws and regulations somehow lag behind. In the absence of relevant laws, the platform has been encouraged to freely collect personal data, which causes the situation that the privacy, safety and rational usage of personal data are unable to be governed and guaranteed. The effectiveness of the *Personal Information Protection Law*[9] has enhanced the laws and regulations of China. However, the data ownership and its derived basic rights and interests still need to be implemented and clarified by laws and regulations in practice. In addition, optimizing the use of data jointly by individuals and platform enterprises is equally important, and the corresponding supporting regulations and systems should be constructed accordingly.

As the definition of "Data Ownership" is unclear, the author believes that it is a feasible methodology to provide hypothesis on the "ownership" by relating the "Transfer of Data". Learning from the beneficial experience from international legislation and adding relevant provisions[10] on personal information portability is a highlight of the *Personal Information Protection Law*. When discussing "how to use" and "how to circulate" of the data, by knowing that if individuals have "right to data portability" and the data can be transferred, it can be deduced that the data belongs to individuals rather than platforms. On this basis, it can further distinguish the transferable situations so as to make a systematic decision.

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[8] Zhong Hua Ren Min Gong He Guo Min Fa Dian (中华人民共和国民法典) [Civil Code of the People's Republic of China] (promulgated by Nat'l People's Cong., May 28, 2020, effective Jan. 1, 2021) NAT'L PEOPLE's CONG. (China). Article 240.

[9] The Personal Information Protection Law of the People's Republic of China was approved by the 30th meeting of the Standing Committee of the No.13 National People's Congress of the People's Republic of China and implemented on November 1, 2021.

[10] In accordance with Article 45 of the Personal Information Protection Law of the People's Republic of China, "Individuals have the right to check and reproduce personal information from the personal information processor unless otherwise specified in Paragraph 1, Article 18 and Article 35 of the Law. The personal information processor shall timely provide the information that is to be checked and/or reproduced by individuals. And personal information processor shall provide the way of information transfer when individuals request to transfer personal information thereof to the another designated personal information processor and such request meets the requirements of the Cyberspace Administration of China."

II. "DATA OWNERSHIP" CONFIRMATION METHODOLOGY

Firstly, to analyze the Data Ownership from Data Portability.

A. The Inspiration on Personal Data Information's Definition, Domestic and International Laws and Regulations on "Data Portability" and the Practice of "Transfer Network with Number"

1. Definition of Personal Data, Personal Information

Definition from Article 4 Paragraph 1 of EU *General Data Protection Regulation* (hereinafter referred as to "GDPR") states that "personal data" means any information relating to an identified or identifiable natural person ("data subject"); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person.[11]

Definition of "Personal Information" of *California Consumer Privacy Act, USA,2018, (hereinafter referred as to "*CCPA") is information that "identifies, relates to, or could reasonably be linked with you or your household". For example, "it could include your name, social security number, email address, records of products purchased, Internet browsing history, geolocation data, fingerprints, and inferences from other personal information that could create a profile about your preferences and characteristics."[12]

The China's *Civil Code* defines part of provisions on Data Protection. The Article 127 states, "according to the law, it has provisions on the protection of data and network virtual property." Meanwhile, Article 1034 defines, "The personal information of a natural person is protected by law. Personal information hereby is defined as all kinds of information recorded electronically or means that can identify a specific natural individual or combine with other information, including but not limited to the name, date of birth, ID number, biometric information, address, telephone number, e-mail, health information, tracking information, etc. The private data shall apply to the private data provisions, otherwise the provisions on the personal information shall apply."

Whereas, the "identifiable" characteristic is the key standard to distinguish individual or non-individual information.

2. "Right to Data Portability" Theory and Development

"Right to Data Portability" theory is raised by the social organization "Data Portability.org" of its Data Portability Project[13]，Google and Facebook announced to join this project in 2008. Meanwhile, Google established "Google Takeout" tool to support users to export or download the data generated while using the server. Marshall Kirkpratrick mentioned that "users can take their data from the websites they use to reuse elsewhere and where vendors

[11] Article 4, General Data Protection Regulation, Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] OJ L 119/1.
[12] California Consumer Privacy Act (CCPA), CA Civ Code § 1798 (2018).
[13] *Data Portability Project* (Apr. 29, 2022, 11:08 AM), dataportability.org.

can leverage safe cross-site data exchange for a whole new level of innovation."[14]. In year 2010, the US white house promoted "My Data"[15] scheme, which accelerates the data circulation. Google, Facebook, Microsoft and Twitter jointly launched the "Data Transfer Project" in 2018, emphasizes that "portability and interoperability are central to cloud innovation and competition, allowing people who want to switch to another product or service they think is better to do so as easily as possible."[16]

3. Development Process of International "Right to Data Portability" Legal System

The EU has established data protection system for personal data rights through GDPR, and affirmed the "Right to Data Portability" in legal provisions for the first time in 2016, which involves the personal data control over data subject, that is, the free attribution in the process of implementing its rights. The realization of this attribute in the "data portability" is that the data subject has the free right to receive and transfer the personal data. GDPR raised many new requirements to data controllers (i.e. Internet platform companies) to collect, store and process personal data within the EU, the new requirements include setting access rights and clarifying the portability of data, and mentioned that data subjects have the right to require controllers to provide access, modification or deletion of personal data. According to Article 20 of GDPR, the data subject is legally to get the relevant personal data provided to the controller, and the personal data shall be "in a structured, commonly used and machine-readable format", and the data subject shall have the right to "transmit those data to another controller without hindrance from the controller to which the personal data have been provided". That is, data subjects can transfer their personal data from one platform to another through "One Click Transfer". Paragraph 4 of Article 20 of GDPR also confines right to Data Portability to the data subject that the right shall "not adversely affect the rights and freedoms of others".

The California Privacy Rights and Enforcement Act (hereinafter referred to as the "CPRA") was passed in 2020 in USA. It is the amendment to CCPA. It clarifies consent standards and the special right to limit use of sensitive personal information, expands definition of sensitive personal information.[17]

Apart from the EU and the USA, India, Japan, Singapore and other jurisdictions have also introduced the basic concept of "Right to Data Portability" as a personal information right. The Item 11, Paragraph 1, Article 2 from Japan's Law on *The Prevention of Illegal Competition* defines that behavior in terms of theft, fraud, coercion or other illegal behavior to data, or by improper using and disclosing restricted data, which are classified as illegal competition.[18] Singapore's *Personal Data Protection Law* defines that "Right to Data Portability" includes three core contents, which are "Data Transmission Request Right and Data Transmission

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[14] Marshall Kirkpatrick, Bombshell, *Google and Facebook Join DataPortability.org - ReadWrite* (Apr. 29, 2022, 10:22 AM), https://readwrite.com/goog-fb-data/.

[15] Kristen Honey, Phaedra Chrousos, Tom Black, *My Data: Empowering All Americans with Personal Data Access* (Apr. 29, 2022, 11:33 AM), https://obamawhitehouse.archives.gov/blog/2016/03/15/my-data-empowering-all-americans-personal-data-access.

[16] Craig Shank, *Microsoft, Facebook, Google and Twitter Introduce the Data Transfer Project: An Open Source Initiative for Consumer Data Portability* (Apr. 29, 2022, 9:10 AM), https://blogs.microsoft.com/eupolicy/2018/07/20/microsoft-facebook-google-and-twitter-introduce-the-data-transfer-project-an-open-source-initiative-for-consumer-data-portability/.

[17] Alston & Bird, *The California Privacy Rights and Enforcement Act of 2020 – Key Impacts* (Apr. 29, 2022, 9:01 AM), https://www.jdsupra.com/legalnews/the-california-privacy-rights-and-38090/.

[18] Li Yang, *Law against Unfair Competition and View on Data Protection in Japan*, JOURNAL OF POLITICAL SCIENCE AND LAW, 8-2021 (4), at 72.

Obligation", "Conditions and Restrictions for Data Transmission" and "Relevant Rules for Third-Party Data Transmission".[19]

4. China's Law to "Right to Data Portability" and Inspiration of Historical "Transfer Network with Numbers" Practice in Telecom Industry

China's *Personal Information Protection Law* involves the concept of "Rights to Data Portability", which is in parallel with the fundamental *Civil Code* and *Criminal Law*. It is the only law directly marked "according to the Constitution" in China's current Network Laws, reflecting the constitutional spirit of respecting and protecting human rights, the inviolability of human dignity, and the legal protection of citizens' freedom and privacy of communication. China's "*Personal Information Protection Law"* fully guarantees the "independent" decision making on the purpose and method of processing personal information from data user.[20] Article 4 defines the definition and scope of personal information processing which should be legal, legitimate and necessary; Article 6 regulates that personal information should be processed in a way that has the least impact on personal rights and interests; Article 14 extends out the right to know and consent; Article 15 refers to the right of withdrawal; Article 16 regulates that personal information processors shall not refuse to provide products or services by the reason that individuals disagree or withdraw on the consent to personal information; Article 45 refers to the relevant provisions on the right to personal data portability.

In historical practice, the "Across Network with Numbers" of the mobile communication industry is an example of the "Right to Data Portability". The similarity between the Mobile Number Portability right and the Data Portability Right is that both allow users to carry highly associated products with themselves.[21] The EU expects the data portability right as fluent as transfer network with numbers. China has explored multi-solutions on Transfer Network with Numbers at national situation, which strengthens the control of users over personal information. Its legal effect is to break the strong position of existing telecom operators, to generate competition so as to optimize the mobile communication market structure. By advocating the same principle and spirit of rights of Internet platform can also generate the competition of digital economy of Internet platform and optimize the market structure.

B. Complex properties of Data Ownership

The famous American magazine "The New Yorker" once published a cartoon "On the Internet, nobody knows you're a dog"[22], which shows the network virtuality and reflects its privacy of personal data in the Internet era.

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[19] Dong Chunhua, *"Data Portability" in Personal Data Protection Law of Singapore*, CHINA SOCIAL SCIENCES, 6-7-2021 (007).

[20] Zhong Hua Ren Min Gong He Guo Ge Ren Xin Xi Bao Hu Fa (中华人民共和国个人信息保护法) [Personal Information Protection Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Aug. 20, 2021, effective Nov. 1, 2021) STANDING COMM. NAT'L PEOPLE's CONG. (China). Paragraph 1, Article 73.

[21] Zhong Chun and Wang Zhengyu, *Conception on Right to Data Portability and Practice from the View of Competition Law*, ELECTRONICS INTELLECTUAL PROPERTY, 2021 (5), at 11.

[22] Michael Cavna, *'NOBODY KNOWS YOU'RE A DOG': As iconic Internet cartoon turns 20, creator Peter Steiner knows the joke rings as relevant as ever* (Apr. 13, 2022, 11:08 AM), https://www.washingtonpost.com/blogs/comic-riffs/post/nobody-knows-youre-a-dog-as-iconic-internet-cartoon-turns-20-creator-peter-steiner-knows-the-joke-rings-as-relevant-as-ever/2013/07/31/73372600-f98d-11e2-8e84-c56731a202fb_blog.html.

Richard A. Posner, a legal economist, believes that personal information is a property right.[23] Through qualitative analyzing of personal information from the economics perspective, will help to clarify the economic benefits, which is, the personal and social benefits from the property rights of personal information. The Right to Data Portability is the exquisite right of the data "owner", which depends on the identity status of the subject right. Data portability right has exceeded the definition of "freedom right" in traditional theory. It is the freedom of access and transmission of data with personal attributes, and individuals have property interests in the data, which is independent.

In China's practice, medical records are a form of Right to Data Portability which can be "portable and insertable". This right belongs to individuals rather than platforms. Platform enterprises cannot arbitrarily trade personal medical data; Hospitals and platforms must not prevent patients from accessing their own medical records. In the past, the situation such enterprises refused to provide medical records is because they did not receive sufficient economic benefits rather than the reason of no provisions in the law. Medical records by carrying the plug-in format from patients overcame this unfair and unreasonable situation. In addition, some scholars emphasize that giving Internet platform users the right to access their personal information is equivalent to empower the data producers the right. The author believes that this is not sufficient. The nature of the right to access, read the personal data information is different from that of data ownership, such as a user borrowing a book from the library does not mean that he has ownership of the book; Under the mandatory requirements of public security, the company shall provide citizens' check in records to the public security and WeChat chat records to national security, which does not mean that the state or the platform has the ownership of those data. Therefore, the author firmly believes that those data information is owned by individuals.

In fact, before the *Personal Information Protection Law* was passed, under the inequivalent resources and capabilities, the premise for individuals to consume on Taobao website is to agree to the terms and conditions from the platform, which forces users to provide user data accordingly.[24] In this case, when the single option of "agree and access to the website" and "If disagree, you can't use the website" is set, the user actually has no choice but to accept, however Taobao receives income by using those data. Therefore, when Taobao forces individuals to share data with their platforms, it is violating users' information property rights.

In real life, in real estate industry, it appears "House checking with Helmet" (which is, the customer wears helmet to avoid being captured by the face recognition system from the sales). With the system above, the developer can receive the information related to the customer, which results in constantly advertisements promotion to the customers, or share the data to peers, however with no prenotice or inform to the customers. It is obviously an illegal behavior to receive the personal data.

It is difficult to suspend this illegal behavior if without any regulation governed, in this case, it highlights the necessity of institutional protection. After the implementation of the

[23] Richard A. Posner, *The Right of Privacy*, GEORGIA LAW REVIEW (1978), Vol. 12, No. 3.

[24] In accordance with Article 3.2 of Taobao Platform Service Agreement, user account can only be assigned when "conditions that allow assigning of user account as specified by Taobao platform rules are satisfied. As per Article 5.2, Taobao is authorized by users to deliver information that is provided and forms during the period of user registration and/or service use to Ali platform, Alipay and/or any other service providers, or obtain information that is provided and forms during the period of user registration and/or service use from Ali platform, Alipay and/or any other service providers." *Taobao Platform Service Agreement* (Apr. 30, 2022, 10:11 AM), https://www.taobao.com/go/chn/member/agreement.php.

Personal Information Protection Law, it shows the bright future that the data ownership belongs to data owners.

III. ANALYSIS ON USAGE OF PERSONAL DATA IN THE PATTERN OF PLATFORM ECONOMY BASED ON THE CASE OF MEIJING SUED BY TAOBAO[25]

How to use personal data under the condition of platform economy plays a significant role. The author decides to analyze it by considering relevant case since the crucial points in the ownership of personal data may be indirectly avoided by the platform economy in practice. And such concern is reflected by the *Unfair Competition Case on Big Data Products of Meijing Sued by Taobao*. However, the original determination of legal responsibility may be proved irrational due to the change of the legal environment.

A. Descriptions of the Case on Meijing Sued by Taobao

The Case on Meijing Sued by Taobao is deemed as a representative case involving the use of personal data by the Internet platform in 2018. It is selected as one of the *10 Major Civil Administrative Cases Handled by the People's Court in 2018* with details of the Case described as follows:

Taobao (China) Software Co., Ltd. (hereinafter referred to as "Taobao") is the developer and operator of the data products relating to retail E-Commerce at the seller end of Alibaba – the "Business Advisor". As claimed by Taobao, the data provided by the "Business Advisor" is essentially derived from the massive raw data that are formed on the basis of the traces of browsing, searching, saving, purchasing, transaction and/or any other activities performed by the users on Taobao E-Commerce platform (including Taobao and Tmall) and collected and recorded by Taobao with the consent of the users. The raw data accepts the Desensitization Treatment, excludes the personal data and individual privacy and completes with the Deep Treatment. Hence, Taobao believes that the data provided by the "Business Advisor" doesn't infringe on any of the users' rights during the process of formation. It is the achievements obtained by Taobao legally.

During the business operation as mentioned above, Taobao discovers Anhui Meijing Information Technology Co., Ltd. (hereinafter referred to as "Meijing")'s violation against the legal rights of Taobao which is committed through "Gugu Help Platform" (software) and "Gugu Crowdfunding Consultancy" (website), implementing the substantive substitution of the data products of Taobao, directly resulting in the reducing order quantities and sales volume of such data products and constituting the unfair competition.

As defended by Meijing, Taobao illegally captures, collects and sells the information of which the ownership belongs to Taobao Merchants or Taobao software users for the purpose of profit making without the prior consent of such Taobao Merchants or Taobao software users since the capture, collection and/or selling infringes on the property right and individual privacy of Internet users as well as the business secrets of merchants. Moreover, it is unfair to

[25] Taobao (Zhongguo) Ruanjian Youxian Gongsi Su Anhui Meijing Xinxi Keji Youxian Gongsi Bu Zheng Dang Jingzheng Jiufen An (淘宝（中国）软件有限公司诉安徽美景信息科技有限公司不正当竞争纠纷案) [Case on Meijing Sued by Taobao], Case No. of First Trial: (2017) Z.8601M.C.No.4034; Case No. of Second Trial: (2018) Z01M.Z.No.7312; Case No. of Retrial: (2019) Z.M.S.No.1209. (China).

force the owners of the raw data to buy the data products derived from their own data properties at a high price since the data control is monopolized by Taobao.

B. Major Concerns in Case Trial in 2018

The argument provided by Meijing in the case comes to the heart of the entire Internet platform economy, which is whether Taobao has legal right of the data products provided by the "Business Advisor". The unfair competition such as Meijing's infringement on Taobao's rights will become groundless provided that Taobao's operation activities are illegal. However, Meijing lost the lawsuit and paid Taobao totally RMB 2,000,000 as the compensation for Taobao's economic loss and any other reasonable expenses as decided by the competent court.

Pursuant to the basis of determination provided by Zhejiang Senior People's Court, which is also the Court of Retrial in this case: First, Taobao's collection and usage of user data information doesn't constitute any violation of legal provisions since the user information categories relating to the "Business Advisor" fall within the scope of information collectable and usable as declared in the Service Agreement and Privacy Policy which are already published by Taobao on Internet. Second, Taobao legitimately enjoys the competitive property right over the data products provided by the "Business Advisor" since such data products "evolve into the Big Data Products through detailed analysis, handling, integration and processing" and "act independently from the Internet user information and raw network data". Moreover, the data products can be actually "controlled and used" by the operator and produce "economic profits" for the operator regardless of its presentation as "Intangible Resource". The data products are essentially capable of the exchange value.

Remarkably, the Big Data Products provided by the "Business Advisor" differ from the raw Internet data in the logic mentioned above. Contents of the Big Data Products refer to the "Derived Data not directly corresponding to the Internet user information and raw Internet data". However, the mere argument of the raw Internet data is not "disengaged from the information scope of the original Internet user". And the Internet operator's usage of the raw Internet data is still subject to the "Internet user's control over the information provided by such Internet user". With the absence of independent right, the Internet operator can only exercise its "Right of Use" over the raw data as agreed with the Internet user.

C. Usage of Personal Data

The Court of Retrial believed that Taobao legitimately owns the rights of data products provided by the "Business Adviser". Taobao's collection and usage of the user data information doesn't constitute any violation against the legal provisions since "the user information categories relating to the Business Advisor fall within the scope of information collection and usage as declared in the Service Agreement and Privacy Policy which are already published by Taobao on Internet". Things have changed since the promulgation of *Personal Information Protection Law* from November 1, 2021. The situation that "individuals are unwilling to authorize but cannot reject the Internet platform's forced access to personal information" is prohibited which however widely existed in the Internet platform economy. Article 16 of the Law expressly provides the basis as "Informing and Consent". To be specific, "the Information Processor's rejection to provide products and/or service cannot be justified by the individual's dissent in processing personal information and/or consent withdrawal. Personal information that is necessary for provision of products and/or service is excluded from such limitation." Platform company's access to data will be illegal without the voluntary authorization of the user. Thus, the obtainment of derived data is devoid of legal basis due to the same cause. The

promulgation of the *Personal Information Protection Law* drags the Case on Meijing Sued by Taobao into trouble where "a thief plays the trick to stop another thief".

According to Article 1035 of the *Civil Code*, "personal information shall be processed legally, fairly and necessarily. Over-processing is unacceptable", which remains consistent with Article 6 of the *Personal Information Protection Law* and can be abbreviated as the "Principle of the Least Necessity". To be specific, "personal information shall be processed for definite and rational purpose, and in direct relationship with the purpose of such processing. The processing shall be carried out with the least impact onto personal rights. Collection of personal information shall be restrained to the minimum scope that can realize the purpose of processing. Over-collection of personal information is prohibited". The new law taking effect since 2021 will affect the essential interests of the platform enterprises. In particular, all businesses of Alibaba are derived from the user's personal data, e.g. Alibaba Express, ads, pushes, etc. Hence, Taobao's claim to the so-called "Desensitization Treatment" in the case as mentioned herein is in vain before personal data protection.

In the new legal environment, how to deal with implementation of the legal framework is worth thinking. From the perspective of the platform, its basic business pattern can hardly escape from profit seeking which results in massive collection of personal data of users. However, the technology barrier exists in the practice that we can hardly require all users to be informed and provide consent before using the platform service. Moreover, platform enterprises have gifted advantages and overwhelming position compared with individual users. Pursuant to the *Anti-monopoly Law* applicable for the time being, the process during which the platform enterprise develops, expands, and grows into market leader does not violate the *Anti-monopoly Law*.[26] Thus, it is a big concern whether or not each data subject required to be informed and consent is still applicable in the complex practice.

As presented by the author, deriving a concept as "Usufruct" is a feasible development path in China under existing platform economy. Professor Shen Weixing from the School of Law, Tsinghua University proposed this concept as mentioned here. He intends to turn Data Control to be a Dual Right Structure[27] in which the data originator has data ownership and the data processor has Data Usufruct through the provisions of the law from the perspective of establishing "Data Usufruct" so as to facilitate the orderly development of capital. Restricted real rights are attributed to the platform enterprise. Furthermore, crucial issues also include how to improve the rational commercial use of data, coordinating the tension between use rights and human rights, etc.

It is definite that the platform enterprise shall be included into the regulation scope of the *Anti-monopoly law* and sanctioned provided that the platform enterprise that is developed and ascends to a dominant position in the market is disruptive of the normal market competition order and hinders the development of the platform economy via monopoly, its dominant market position, monopoly agreement and/or improper business concentration.[28]

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[26] Li Dan, *Study on Regulation of Monopoly of Platform Enterprises*, Economic Law Review, 2021 (1) / (Vol.37), at 62.
[27] Shen Weixing, *Study on Data Usufruct*, Chinese Social Sciences, 2020 (11), at 110.
[28] Li Dan, *Study on Regulation of Monopoly of Platform Enterprises*, Economic Law Review, 2021 (1) / (Vol.37), at 62.

IV. SUPERVISION DIRECTION OF DATA OWNERSHIP WITH TECHNICAL PROGRESS

As defined by the *Statistical Classification of Digital Economy and Its Core Industries* (2021) published by the National Bureau of Statistics, "Digital Economy" refers to the economic activities which take the data resources as essential production factors, modern information network as the critical carrier and effective use of the information communication technology as the significant impulse behind efficiency promotion and economic structure optimization.[29] As mentioned in the preceding sentence, the Digital Economy serves as the significant impulse behind efficiency promotion and economic structure optimization in current stage. Furthermore, it is also the main field where new growth areas and drivers are fostered. Digital Economy will be a new social-economic formation where human beings are living in succession to the agricultural economy and industrial economy. Valid governance is the integral part of the healthy development of the Digital Economy. Thus, the Digital Economy Governance plays a significant role in the national governance system.[30]

Technological advancements, particularly the cloud and encryption, will soon render our current legal frameworks outdated. Preserving the balance between security and privacy in the context of law enforcement therefore requires updating our warrant regime to better align the incentives of government, technology companies, and individual consumers.[31] Numerous irrationalities and injustices exist in the platform monitoring in China under current legal framework. As stated in the service terms and privacy policy of WeChat (Tencent), "Property of the WeChat accounts remains with Tencent. The user, upon completion of the registration procedures, will be entitled to the use of the WeChat account. The Right of Use however only belongs to the original applicant and cannot be granted, lent, rented, assigned or sold. Tencent is authorized to recover the user's WeChat account where necessary for business."[32] The user's personal data and information stored in WeChat account may be lost or disclosed, and the withdrawal of balance in the WeChat Pay will be disabled provided that Tencent recovers the WeChat account without consent of the user. The service terms mentioned above essentially refer to provisions of credit card prepared by the issuing bank. That is "Party B (Issuing Bank) has the property of the credit card. The credit card can only be used by the cardholder rather than rented or lent. Otherwise, Party B has the right to claim RMB 1,000 from Party A as the Default Money."[33] It indicates the gap between platform enterprise's understanding and implementation of personal data ownership and the spirit of applicable new laws enacted in China.

The data subject is provided with the Right to Data Portability so as to highlight the basic concept of data protection and reinforce the active control of personal data by the data

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[29] *Statistical Classification of Digital Economy and Its Core Industries (2021) (No.33 Directive by National Bureau of Statistics)*, STATE COUNCIL GAZETTE, 2021 (20), at 17.

[30] Ouyang Rihui and Liu Jia, *Data Economy Governance - the Integral Part of National Governance System*, GOVERNANCE, 12-2017 (2), at 14.

[31] Reema Shah, *Law Enforcement and Data Privacy: A Forward-Looking Approach*, YALE LAW JOURNAL (2015), at 558.

[32] Tencent, *Tencent's Wechat Terms of Use and Privacy Policy* (Apr. 30, 2022, 8:07 AM), https://support.weixin.qq.com/cgi-bin/mmsupport-bin/readtemplate?stype=&promote=&fr=&lang=zh_CN&check=false&nav=faq&t=weixin_agreement.

[33] China Construction Bank, *Terms of Use in the Claim and Use Agreement on and in respect of Party A's claim and use of the Dragon Credit Card (hereinafter referred to as Credit Card) entered into by and between the Dragon Card applicant (herein after referred to as Party A) and Branch, China Construction Bank (hereinafter referred to as Party B)* (Apr. 30, 2022, 11:02 AM), http://creditcard1.ccb.com/cn/creditcard/service/card_lingyongxieyi.html.

subject. The platform enterprise shall meet the user's demand for having access to and barrier-free spread of personal data. The user shall decide the circulation of personal information in sole discretion, which is beneficial to the fair and positive competition among Internet platform enterprises. In China, the platform shall provide convenience to the individual to obtain data without prejudice to the expectation of privacy and legal rights of data subject. The platform enterprise shall by no means put up technical barriers against users in data migration.[34]

It is noted that the improper use of the Right to Data Portability will result in hidden dangers. For example, all of the user's information may be obtained and transferred by the hacker who steals or fraudulently uses the user's identity once the user is entitled to the Right to Data Portability.[35] Thus, China shall enhance the study on theory and practice of the Right to Data Portability. Moreover, as specified by GDPR published by the EU, the data subject (user) may claim to the Right to Erasure (also called as Right to be Forgotten)[36] when claiming to the Right to Data Portability from the data controller (Internet platform enterprise), which may however deprive the original data controller (platform enterprise A) of the legal ownership of the personal data after sending to any other data controllers (platform enterprise B).[37] Chinese laws and legal practice will be inspired by this from new perspective. Applicable scope of the Right to Data Portability is not explicitly provided in the *Personal Information Protection Law* applicable for the time being. It is expected to further explore and improve the specific business scenario and judicial interpretation of the Right to Data Portability in practice, including the way of portability, payer of the expenses aroused from the supporting measures to the Right to Data Portability, etc.[38]

Frame of "Informing and Consent" lays foundation for the data protection system established by EU, which secures the data ownership, a type of combined rights having the property of personality and property attribute. A data user may essentially receive a "license" to use the subject's data, since the data subject has temporarily waived her right to exclude it from using her information. But the data subject maintains the discretion to terminate this license and force the data user to cease storing or using her information.[39] For the purpose of more convenient circulation of personal data in the society, the author believes that the *Personal Information Protection Law* can be referred with its spirit which is represented by "Informed Consent" basis and "Minimum Necessity" principle together with the way of "Explicit Approval" so that the mode of "Pay with Valuable Consideration"[40] can be carried out in dedicated business fields, which makes personal data available for commercialized transaction on the premise that the data subject (user) has property control. Meanwhile the data subject (user) always reserves the final rights of the complex right.

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[34] Ding Xiaodong, *Study on Property, Influence and Application in China of the Right to Data Portability (RTC)*, STUDIES IN LAW AND BUSINESS, 2020 (1/37), at 73.
[35] Ding Xiaodong, *Study on Property, Influence and Application in China of the Right to Data Portability (RTC)*, STUDIES IN LAW AND BUSINESS, 2020 (1/37), at 77.
[36] Article 17, General Data Protection Regulation, Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] OJ L 119/1.
[37] Zhuo Lixiong, *Right to Data Portability: Basic Concept, Challenges and Replies by China*, ADMINISTRATIVE LAW REVIEW, 2019 (6), at 142.
[38] Wu Xiaoli, *Portable Personal Data*, CHINA CONSUMER NEWS, 8-25-2021 (004).
[39] Jacob M. Victor, *The EU General Data Protection Regulation: Toward a Property Regime for Protecting Data Privacy*, YALE LAW JOURNAL (2013), at 524.
[40] Hong Weiming and Jiang Zhanjun, *Data Information, Commercialization and Protection of Property Rights of Personal Information*, REFORM, No. 3, 2019 (No. 301), at 154.

CONCLUSION

As proposed by the Report of the 19th National Congress of the Communist Party of China, "we must promote further integration of the Internet, big data, and artificial intelligence with the real economy, and foster new growth areas and drivers of growth in medium-high end consumption, innovation-driven development, the green and low-carbon economy, the sharing economy, modern supply chains, and human capital services."[41] In the era of digital economy, the data subject and the data controller may obtain access to more information and improve information processing capability via the Internet, big data and artificial intelligence. Mastery of data will influence the interested parties (users and platform enterprises) which make decisions on the basis of information when data becomes one of the production factors of great significance.

In accordance with the important article – *Adherence to and Intensified Promotion of the Socialist Legal System with Chinese Characteristics* of Xi Jinping (the General Secretary of the CPC Central Committee, the State President and the Chairman of the Central Military Committee) in the No.4 *Qiushi* published on February 16, 2022, we must expedite the legislation work in the field of digital economy, and make endeavors to complete the legal system which is urgently needed by state governance and can satisfy the Chinese people's increasing aspiration for a better life. The Rule of the Communist Party by Law shall play the role of political assurance in developing the cause of the party and the state. It is expected to form a pattern in which national laws and party regulations complement each other.[42]

The rise of digital economy has changed the public attitude for data to great extent. The platform enterprises acquire measureless data on the daily basis. They optimize the commercial strategy and business behavior pattern through algorithm so as to improve the efficiency. Data trading and other gray industry chains emerge under this circumstance. Nevertheless, laws and regulations relating to the virtual assets are not explicitly established in China. The Authentic Right of data will affect the rights distribution among individuals, enterprises and authorities, and has fundamental significance in facilitating the development of data economy. The important role of law relies in ensuring the realization of the core public interests of the society. It is possible and necessary to establish the property right of personal information since the urgent demand for data's Authentic Right is reflected by local legislation in practice.

The data's Authentic Right is of significance to the Internet platform enterprises in China. The attendant phenomenon under the platform economy directly affects the political positioning and valuation of all platform enterprises. Most platform enterprises develop through constant rising valuation and financing despite the nonprofitable beginning. In the past 2-decade development history of Internet, the rising valuation of the Internet platform enterprises is benefited from the ambiguity in the data ownership which is caused by the indefinite ownership. The chain reaction is unavoidable once the global monitoring environment is toppled to whichever extent. Many competitive Chinese enterprises such as Alibaba, Tencent, TikTok, etc. enter the international market and provide service and products to consumers in EU and any other nations and regions in the new international environment

[41] Lu Jing, *Ministry of Industry and Information Technology of the P.R.C.: Facilitating the Deep Integration of Internet, Big Data, AI and Real Economy* (May. 10, 2022, 7:12 AM), https://www.cs.com.cn/xwzx/201806/t20180625_5829078.html?open_source=weibo_search.
[42] Xi Jinping, *Adherence to and Intensified Promotion of the Socialist Legal System with Chinese Characteristics*, QIU SHI, 2022 (4) / (No.809), at 6.

where regulation becomes the common practice. Only with the better protection of personal data and the winning of the users' trust, Chinese enterprises can expand the market and obtain more opportunities overseas, and avoid punishment caused by violation of local laws. Thus, China will have a louder voice and bigger leadership in formulation of personal data protection rules.[43]

[43] Zhuo Lixiong, *Right to Data Portability: Basic Concept, Challenges and Replies by China*, ADMINISTRATIVE LAW REVIEW, 2019 (6), at 143.

SOLVING THE PROBLEM OF THE WHITENESS OF WEALTH

Elizabeth Tharakan*

Abstract: Peggy McIntosh details "white privilege"[1] as including: being in the company of people of her own race; renting or purchasing affordable housing in a desirable area; having pleasant neighbors; shopping alone without being harassed or followed; and turning on the TV or opening the newspaper to see heavy representation of people of her own race.[2] The history of slavery is one major source of wealth disparity: four generations ago, African-Americans were a form of wealth as slaves and even before that, Africans in Africa were seen as primitive. The socioeconomic disadvantages to African-Americans and finding solutions to this problem, especially solutions through funding HBCU's, targeted debt relief, and increased Black representation in the media, are the aims of this paper on the black-white wealth gap.

The average per capita wealth of White Americans was $338,093 in 2019 but only $60,126 for Black Americans.[3] On average between 1950 and 2010, Black households held about 7 percent of their wealth in stock equity; among White households, it was 18 percent. According to the 2016 General Social Survey, a 55% majority of white Republicans agree with the statement that black Americans are worse off financially "because most just don't have the motivation or willpower to pull themselves up out of poverty."[4] 42% of white Republicans thought black Americans were lazier than white Americans and 26% rated black Americans as less intelligent.[5] The history of the black-white wealth gap is entrenched in slavery and its after-effects. These effects include the Jim Crow rules, the sharecropping landownership system, discrimination, Congress passing unfair tax laws, the tenfold wealth gap, and attempts to fix it with affirmative action.

One solution is the benefit of educating black students at historically black colleges and universities such as Howard, Morehouse, and Spelman: Wealthy philanthropists like Mackenzie Scott, the ex-wife of Jeff Bezos, making massive donations to HBCU's so that Black universities can offer more scholarships to deserving Black students. Robert Smith, the wealthiest black man in the United States, promised to pay off the debts of the Morehouse College class of 2019. Therefore, enabling black students to afford college and allowing them to face fewer obstacles to graduating college are worthwhile, positive aspects of the HBCUs. The best solution to the black-white wealth gap is targeted debt relief, as opposed to blanket debt relief. Scholars argue for increasing Pell Grants so that they cover tuition, room, board and course materials to help more Blacks graduate debt-free.[6] Black students have less access to generational wealth and are the most likely to rely on debt to finance their educations. In this way, targeted debt relief would dramatically help Black students and college graduates. Another solution is more favorable representation of Blacks in the media. Stuart Hall argued that the solution to negative representations of Blacks were favorable portrayals of Blacks.

Keywords: African-American Wealth; Black-White Wealth Gap; Celebrity Financial Gurus; Black Representation; Media Effects

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[1] Peggy McIntosh details a list of 25 points of white privilege, which I choose to paraphrase.

[2] Ibid.

[3] https://www.minneapolisfed.org/article/2022/how-the-racial-wealth-gap-has-evolved-and-why-it-persists

[4] Ibid., 19.

[5] Ibid., 19.

[6] Ibid., 126.

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INTRODUCTION: WHITE PRIVILEGE

"White privilege is like an invisible weightless knapsack of special provisions, maps, passports, codebooks, visas, clothes, tools and blank checks," said Wellesley Centers for Women scholar Peggy McIntosh.[1] Peggy McIntosh details "white privilege" as including: being in the company of people of her own race; renting or purchasing affordable housing in a desirable area; having pleasant neighbors; shopping alone without being harassed or followed; and turning on the TV or opening the newspaper to see heavy representation of people of her own race.[2] The history of slavery is one major source of wealth disparity: four generations ago, African-Americans were a form of wealth as slaves and even before that, Africans in Africa were seen as primitive. The socioeconomic disadvantages to African-Americans and finding solutions to this problem, especially solutions through funding HBCU's, targeted debt relief, and increased Black representation in the media, are the aims of this paper on the black-white wealth gap.

I. HISTORY OF THE BLACK-WHITE WEALTH GAP

African-American wealth disparities have roots in international development as well, especially in South Africa. In A Burst of Light, Audre Lorde discusses segregation (apartheid) in South Africa. White South Africa has the highest standard of living in the world but half the black children die before age 5.[3] 13% of the people, the whites, own 85% of the land. The District Six museum in Cape Town had as a relic a bench saying "whites only." South Africa's history of apartheid commenced the consciousness of white privilege and black inferiority. Africa, especially South Africa, has a lot of mineral wealth and year-round crops, according to the Survey of Economic Conditions in Africa.[4] But most of Africa's wealth go to non-Africans.[5] Because capitalism began in Europe, Europeans understood science, tools and labor better than other parts of the world. European ships were better-developed than African canoes. Europeans had cannons and pots and pans. The argument had also been made that colonialism advanced Africa because it built schools, hospitals, and infrastructure. African prisoners of war succumbed to the slave trade.[6]

The slave trade was justified by the colonial imperialists because slavery is scriptural. Actually, slavery is encouraged in certain passages of the Bible's Old and New Testaments. Abraham had a bond-servant and the bond-servant's child was a bond-servant. Abraham told Sarah to punish Hagar as she pleased, and when Hagar fled, the angel of the Lord appeared and told her to submit herself to her mistress. The Holiness Code of Leviticus explicitly allows participation in the slave trade.[7] Philemon's book described another slave, Onesimus, who returned to his master.[8] Saint Peter writes "Slaves, be subject to your masters with all reverence, not only to those who are good and equitable but also to those who are perverse."[9] This passage is a nod to the fact that Scripture affirms and upholds slavery.

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[1] Peggy McIntosh. White privilege: Unpacking the invisible knapsack. (1990).
[2] Id.
[3] Audre Lorde, A Burst of Light, 29. (2017).
[4] Walter Rodney. How Europe Underdeveloped Africa, 20. (2018).
[5] Id.
[6] Id. at 77-79.
[7] Leviticus 25:44-46, The King James Bible, (2022).
[8] Philemon, The King James Bible, (2022).
[9] 1 Peter 2:18, The King James Bible, (2022).

In an article in The Atlantic entitled *The Case for Reparations* (2014), journalist Ta-Nehisi Coates described redlining housing as a form of homeownership that excluded African-Americans. The Federal Housing Administration adopted a system of maps that rated neighborhoods according to their perceived stability. On the maps, green areas, rated "A," designated "in demand" neighborhoods that had no foreigners or Blacks. These neighborhoods got insurance. Neighborhoods where Blacks lived were rated "D" and were usually considered ineligible for FHA mortgage backing. They were colored in red. This was the process of redlining. In this way, Black people were viewed as a contagion because redlining rendered irrelevant how many of them lived in a neighborhood and what their incomes were. The bottom line was that because there was "black blood" in a neighborhood, the houses were devalued. Redlining spread to the entire mortgage industry, which was already entrenched in racism, excluding black people from most legitimate means of obtaining a mortgage.

This story of Clyde Ross, as detailed by Ta-Nehisi Coates in his article The Case for Reparations, provides an example of the socioeconomic injustice that Blacks in 1920's Jim Crow Mississippi faced. Coates also talks about 1920's Jim Crow Mississippi being a "kleptocracy" in which Blacks were lynched and robbed of the right to the vote.[10] Many of Mississippi's black farmers lived in debt peonage, being overpowered by "cotton kings" who simultaneously served as their landlords, their employers, and their primary merchants.[11] When farmers were deemed to be in debt—and they often were—the negative balance was then carried over to the next season. Refusing to work meant being arrested under vagrancy laws and being forced to work under the state's penal system:[12]

> *When Clyde Ross was still a child, Mississippi authorities claimed his father owed $3,000 in back taxes. The elder Ross could not read. He did not have a lawyer. He did not know anyone at the local courthouse. He could not expect the police to be impartial. Effectively, the Ross family had no way to contest the claim and no protection under the law. The authorities seized the land. They seized the buggy. They took the cows, hogs, and mules. And so for the upkeep of separate but equal, the entire Ross family was reduced to sharecropping.*

The story of Clyde Ross, as detailed by Coates, describes the economic inferiority that Blacks faced every day in Mississippi. "Separate but equal" was a court doctrine found in the landmark Supreme Court decision of Plessy v. Ferguson, in which black and white people were told to attend separate schools and drink at separate water fountains. Sharecropping is the process by which Blacks had to work for their rent. It is a system in which the landlord allows a tenant to use the land in exchange for a share of the crop. This encouraged tenants to work to produce the biggest harvest that they could, and ensured they would remain tied to the land and be unlikely to leave for other opportunities.[13] This passage explains why Coates argued that Blacks need economic reparations.

Dorothy Brown writes The Whiteness of Wealth as an educated Black tax lawyer who, nevertheless, suffered racial discrimination and economic prejudice.[14] Brown found that marriage is making Black couples poorer, because when they combine their incomes and file

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[10] Coates, T. N. The case for reparations. (2015). In *The Best American Magazine Writing 2015*, 1-50. (2015).
[11] Id.
[12] Id.
[13] PBS, Slavery by Another Name. (2021). https://www.pbs.org/tpt/slavery-by-another-name/themes/sharecropping/#:~:text=Sharecropping%20is%20a%20system%20where,to%20leave%20for%20other%20opportunities.
[14] Id. at 6.

taxes jointly, they get taxed extra.[15] This is contrary to the conventional notion of marriage making couples wealthier through tax breaks. Under the principle of horizontal equity, tax breaks are more generous for single-earner couples than for dual-earning couples.[16] But most Black couples are dual-earning couples.[17] By 1948, when the joint return was accessible to everyone, 85% of white families were in single-wage-earner households.[18] The reason most black couples were dual-earning is that most jobs for Black people simply didn't pay enough to support two spouses, so both spouses ended up having to labor. Furthermore, when the Revenue Act of 1913 was passed by Congress and signed into law by President Woodrow Wilson – there was zero black input.[19] In other words, Congress was entirely white. Brown makes it personal in the next chapter: "When Mommy and Daddy got married in 1956, they didn't have money for a fancy wedding reception or a honeymoon; my mother made the potato salad they served to their guests, and they wouldn't take a vacation until decades later."[20] This personal vignette describes the financial struggles that Brown felt as an African-American citizen growing up in a typical Black family that was middle-class.

The average per capita wealth of White Americans was $338,093 in 2019 but only $60,126 for Black Americans.[21] On average between 1950 and 2010, Black households held about 7 percent of their wealth in stock equity; among White households, it was 18 percent. The portfolios of White households are also more diversified than Black households, which are concentrated in housing wealth. Housing has appreciated since the 1950s, but stock equity has appreciated five times as much.[22] According to the 2016 General Social Survey, a 55% majority of white Republicans agree with the statement that black Americans are worse off financially "because most just don't have the motivation or willpower to pull themselves up out of poverty."[23] 42% of white Republicans thought black Americans were lazier than white Americans and 26% rated black Americans as less intelligent.[24]

The questions of intelligence, work ethic, motivation and willpower all come heavily into play in the affirmative action debate, which is being decided by the Supreme Court in a case called Students for Fair Admissions v. Harvard right now. With affirmative action, universities usually admit Black students with lower scores, grades, and credentials than Asian or white students have for slots in the same academic programs. The New York City magnet high school system requires by law that in 8th grade, middle school students must take the Specialized High School Admissions Test if they desire to be admitted to the prestigious, selective high schools like Bronx High School of Science or Stuyvesant High School. These magnet high schools are full of Ivy-bound overachievers, but these high schools are disproportionately Jewish and Asian-American in their composition. Another recent Supreme Court ruling allowed Thomas Jefferson High School, a similarly selective magnet school on the outskirts of DC, to remove standardized tests as a metric for high school admissions. Race is a complex issue and people of every race feel they are being treated

[15] Id. at 10.
[16] Id. at 12.
[17] Id. at 12.
[18] Id. at 37.
[19] Id. at 12-13.
[20] Id. at 29.
[21] Lisa Camner McKay, How the Racial Wealth Gap Has Evolved- And Why It Persists, *Federal Reserve Bank of Minneapolis, October 3, 2022,* https://www.minneapolisfed.org/article/2022/how-the-racial-wealth-gap-has-evolved-and-why-it-persists
[22] Id.
[23] Id.
[24] Id.

unequally, whether they are Asian-Americans who say they are being unfairly stereotyped as the "model minority" or whether they are African-Americans who say they are suffering from socioeconomic problems and the after-effects of slavery.

In July 2023, the Supreme Court handed down a major decision overturning race-based affirmative action in university-level admissions. The court majority made clear that it agreed with Students For Fair Admissions, which sued Harvard and UNC, claiming, among other things, that the schools discriminated against Asian American students who had SAT and grade scores higher than any other racial group, including whites, and who made up, at Harvard, for instance, 29% of the entering class last year. SFFA asserted that the number should have been higher than that, though Asians are just 7.2% of the U.S. population. The Supreme Court held that both programs violate the Equal Protection Clause of the Constitution and are therefore unlawful. The vote was 6-3 in the UNC case and 6-2 in the Harvard case, in which Justice Ketanji Brown Jackson was recused. The court effectively overturned the 2003 ruling Grutter v. Bollinger, in which it said race could be considered as a factor in the admissions process because universities had a compelling interest in maintaining diverse campuses. With the 2023 decision, the Supreme Court ended decades of precedents that upheld a limited consideration of race in university admissions to combat historic discrimination against Blacks and other minority groups.

The history of the black-white wealth gap is entrenched in slavery and its after-effects. These effects include the Jim Crow rules, the sharecropping landownership system, discrimination, Congress passing unfair tax laws, the tenfold wealth gap, and attempts to fix it with affirmative action.

II. SOLUTIONS

One solution is the benefit of educating Black students at historically black colleges and universities such as Howard, Morehouse, and Spelman: "At HBCUs black students don't have to be in the minority, an experience that many say has been critical to their well-being and personal development."[25] She recounts a story of a black young female student not wanting to be seen as "the smart black girl" at a predominantly white institution, so she enrolled at an HBCU and meets other black political science majors. HBCUs allow upward socioeconomic mobility because 2/3 of low-income students at HBCUs end up in at least the middle class.[26] However, even at HBCUs, graduation rates do not match other elite schools because HBCUs have graduation rates of only 38%.[27] Wealthy philanthropists like Mackenzie Scott, the ex-wife of Jeff Bezos, have made massive donations to HBCU's so that Black universities can offer more scholarships to deserving Black students. Robert Smith, the wealthiest black man in the United States, promised to pay off the debts of the Morehouse College class of 2019. He also launched the Student Freedom Initiative, offering black juniors and seniors in STEM less burdensome student loans. Therefore, enabling black students to afford college and allowing them to face fewer obstacles to graduating from college are worthwhile, positive aspects of the HBCUs.

The best solution to the black-white wealth gap is targeted debt relief, as opposed to blanket debt relief. Scholars argue for increasing Pell Grants so that they cover tuition, room, board and course materials to help more Blacks graduate debt-free.[28] Brown specifically

[25] Brown, 110.
[26] Id. at 111.
[27] Id. at 111.
[28] Id. at 126.

proposes that universities who sit on a lot of tax-exempt money use these resources to pay for it.[29] This proposal would help black or very poor students, who do not have their parents or grandparents springing for their tuition. Black students have less access to generational wealth and are the most likely to rely on debt to finance their educations. In this way, targeted debt relief would dramatically help Black students and college graduates.

Another solution is more favorable representation of Blacks in the media. Stuart Hall argued that the solution to negative representations and stereotypes of Blacks were favorable representations and portrayals of Blacks. He also argued,

> "The new politics of representation therefore also sets in motion an ideological contestation around the term 'ethnicity'. But in order to pursue that movement further, we will have to re-theorize the concept of difference. It seems to me that, in the various practices and discourses of black cultural production, we are beginning to see constructions of just such a new conception of ethnicity: a new cultural politics which engages rather than suppresses difference and which depends, in part, on the cultural construction of new identities."[30]

With this quote, Hall wanted media producers to construct "new identities" for people of different ethnicities, especially Blacks.

Other scholars took this idea even further: "The history of the black liberation movements in the United States could be characterized as a struggle over images as much as it has been a struggle for rights, for equal access," said Bell Hooks.[31] Visual representation is a field in itself that can be seen in public relations, photojournalism, movies, newsreels, billboards, window displays and print advertising.[32] In Chapter 1 of Represented: The Black Imagemakers Who Reimagined African-American Citizenship, Brenna Greer mentions the 1937 Life magazine photo taken by Margaret Bourke-White. The image shows black men, women, and children lined up at a relief agency during the Great Depression, appearing needy but full of life.

New Deal legislation tied eligibility for relief to whiteness by making it an entitlement based on breadwinning status rather than welfare.[33] For example, the Social Security Act excluded agricultural and domestic workers, the majority of whom were Black.[34] White activists marched in Atlanta during the Great Depression with signs that read "Niggers back to the cotton field. City jobs are for white men."[35] Langston Hughes wrote the 1934 poem "Ballad of Roosevelt," which had a stanza saying "And a lot o' other folks / What's hungry and cold/ Done stopped believin' / What they been told / Cause the pot's still empty, / And the cupboard's still bare, / Mr. Roosevelt, listen! / What's the matter here?"[36] All of this rhetoric demonstrates that Blacks found themselves in an intolerable condition during World War II and the Great Depression.

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[29] Id., 127.
[30] J. Stratton, I. Ang, D. Morley, & K. H. Chen, Stuart Hall: Critical dialogues in cultural studies. (1996).
[31] Hooks, In Our Glory, 48.
[32] Brenna Greer, *Represented: The Black Imagemakers Who Reimagined African American Citizenship.* 10. (2019).
[33] Id. at 25.
[34] Id. at 25.
[35] Id. at 26.
[36] Hughes, "Ballad of Roosevelt" in Id. at 25.

Greer follows the activist-artist Gordon Parks, who took a series of photos that explored the living conditions of African-Americans in urban spaces during the 1940's.[37] His photos represented Blacks as industrious Americans and patriotic citizens.[38] Stuart Hall would consider this representation as a form of positive stereotypes that counteract negative ones.

John H. Johnson, the owner of Johnson Publishing Company, launched Negro Digest in November 1942 after spending the war years on Chicago's South Side.[39] When the war ended, he launched Ebony magazine. He highlighted pinup images of attractive black women, such as the actress Lena Horne.[40] "Historians have been kind enough to say that I invented a new journalism that made it possible for Black media to weather the storms of change. This is a flattering assessment, but I wasn't trying to make history – I was trying to make money."[41] In this way, positive portrayals and representations of Black people, especially attractive Black women, help media moguls out to make a buck while also addressing negative stereotypes that contribute to the black-white wealth gap.

The capitalist idea that Black culture has a market and can earn a lot of consumer dollars is one that changed the way that Black people were represented in the media. Initially, they were seen as poor and struggling, but eventually they were seen as beautiful, law-abiding, and patriotic. These images changed the meaning of what it meant to be an African-American citizen, especially in the period after World War II. Positive stereotypes of Blacks allowed Blacks to be seen as industrious and hardworking, and therefore employable at a living wage. Blacks in favorable positions were also seen as worthy of assimilation into white culture, which would imply that Blacks deserve better-paying jobs, which would decrease the black-white wealth gap.

III. SOLUTIONS THROUGH THE FINANCIAL ADVISING MEDIA

Another solution to the black-white wealth gap involves representation but not just in the media but in the financial advising media. Specifically, the one-and-a-half-hour Netflix documentary Get Smart with Money has two financial advisors who are African-American as well as one client who is an African-American football player. This groundbreaking representation of black gurus in the media means that black clients can relate to advisors who seem to understand their financial struggles. In one scene in the documentary Get Smart with Money, a black financial advisor named Ro$$ Mac tells his client, athlete Jalen "Teez" Tabor: "You could have put $60,000 in the S&P Index Fund and made twice as much." Tabor is fascinated by what the S&P Index Fund can do and by the fact that a coach who looks like him, Mac, understands how money works. Similarly, Tiffany Aliche is another African-American financial coach with a Hispanic client. Aliche says she understands the value of money because she has been broke. The representation of black financial coaches are some of Hall's argued favorable stereotypes of African-Americans, and black financial coaches improve the financial literacy of their minority clients. However, Get Smart with Money is more of a practical show than an ideological one, so the show does not include any reference to the long history of discrimination that Blacks have faced.

Therefore, another show, the very short Netflix miniseries Banking On Us is geared at addressing the black-white wealth gap in a more ideological than exclusively practical way. By

[37] Greer, 12.
[38] Id. at 12.
[39] Id. at 142.
[40] Id. at 144.
[41] Id. at 142.

this, we mean that discrimination and racism are specifically addressed on the show. The three five-minute episodes include investing in the black community, bridging the gap in black business, and investing in black homeownership. In Episode 3 of 3, the show addresses black mortgages and how black wealth will dramatically be improved by homeownership because rental rates are high. This show specifically addresses how appraisers often give Black clients a lower estimate of their home's net worth. This is the modern version of redlining, and African-American's long history of discrimination (especially in housing) is taken into account in this Netflix show. The show incorporates the ideological replica of Ta-Nehisi Coates' The Case for Reparations by demonstrating forms of structural racism that must be addressed with regulations and interventions. Legal systems, like checks and balances, must regulate the way that African-Americans are treated.

Another area relating to financial literacy in which we see disparities between Blacks and whites includes the genre of self-help literature. In the 1920's, according to Bakhtin, the novelistic prose word began to win a place for itself in stylistics.[42] "Systematic attempts were made to recognize and define the stylistic uniqueness of artistic prose as distinct from poetry," Bakhtin said. In this way, the rhetoric of self-help literature contrasts against the rhetoric of novels: self-help books are prose that use rhetorical maneuvers like alliteration, short sentences, and imagery to buttress their hyperbole. Who Moved My Cheese?, The Seven Habits of Highly Effective People, and How to Win Friends and Influence People are all largely color-blind books written by white people. Who Moved My Cheese has as its overarching message, "You can believe that a change will harm you and resist it. Or you can believe that finding New Cheese will help you, and embrace the change. It all depends on what you choose to believe."[43] This quote implies that any and all change is good and the only thing one needs to do in response is adapt.

Dale Carnegie's How to Win Friends and Influence People discusses effective interpersonal communication. In one vignette early in the book, Carnegie discusses a criminal: "Crowley was sentenced to the electric chair. When he arrived at the death house in Sing Sing, did he say 'This is what I get for killing people?' No. He said, 'this is what I get for defending myself.' The point of the story is this. Two Gun Crowley didn't blame himself for anything."[44] The rhetoric Carnegie uses blames the criminal for the crime, rather than blaming society or poverty or mental illness. Nowadays, journalists often treat crime through the lens of race and do not blame individual criminals for their crimes but rather the gang mentality or socioeconomic circumstances or the readily available access of guns. But Carnegie ignores all of this nuance, as is typical for a journalist or writer in 1937 before awareness of crime became a racial issue. In another chapter on how to use diplomacy rather than to argue, Carnegie glorifies the Confederate general. "In a similar way, General Robert E. Lee once spoke to the president of the Confederacy, Jefferson Davis, in the most glowing terms about a certain officer under his command. Another officer in attendance was astonished. 'General,' he said, 'do you not know that the man of whom you speak so highly is one of your bitterest enemies who misses no opportunity to malign you?' 'Yes,' replied General Lee, 'but the president asked my opinion of him; he did not ask for his opinion of me.'"[45] Even though Carnegie presents Jefferson Davis as an adversary, he praises the other side's General Lee for agreeing with him. But anyone familiar with the history of slavery would object to agreeing with Jefferson Davis because he upheld slavery and the exploitation of Black labor on the cotton plantations. In this

[42] Mikhail Bakhtin Discourse in the Novel. *Literary theory: An anthology*, *2*, 674-685. (1935).
[43] Spencer Johnson. *Who moved my cheese*. (2015).
[44] Dale Carnegie. How to win friends and influence people, 4. (1936).
[45] Id. at 126.

way, the clever rhetoric of Dale Carnegie's classic book gives general advice without acknowledging the nuance of race.

These books make prescriptions for how to improve one's socioeconomic status and to succeed in business (without really trying) without addressing the educational barriers that Black people face in terms of lacking the generational wealth to pay for college or having a minimum-wage job or issues that could face collective action like overly high rents or exploitative interest rates on student loans. These books on how to improve one's public speaking and charisma do not address the fact that white people are seen as more beautiful: beauty pageant contestants in Miss Universe and Miss World competitions are either Caucasian or ethnic but with Caucasian features such as light skin and a defined nose. Race is a discursive void in these books, which do not touch upon the subject at all.

The relevance of these self-help books is a lot of modern media self-help shows, including The Suze Orman Show, The Ramsey Show, and Mad Money with Jim Cramer, which are giving self-help advice in a 21st century medium. In the 20th century, print was the medium of choice for self-help, but in modern times, television and streaming are the medium of choice for self-help. Suze Orman, Jim Cramer, and Dave Ramsey are celebrities that build upon this brand of self-help literature, but also include podcasts and shows to improve their marketing and reach. Though these three gurus do not specifically address race, Orman addresses gender and Ramsey addresses religion as impediments to building wealth intelligently. Sometimes, they give solid financial advice, like paying off your student loans or not buying a new car but rather get a used car instead. However, sometimes, as during the 2008 financial crisis, the gurus had given bad advice: Jim Cramer on Mad Money advised people to buy subprime mortgages at usurious interest rates and thereby inspired people to make bad financial decisions.

These gurus are not exactly pure journalists but rather resemble Rabelais-like characters with their styles, as Bakhtin mentions in Rabelais and His World. Bakhtin talked of a Renaissance system making fun of the feudal economy with a discourse of success influenced by excess. "Debasement and interment are reflected in carnival uncrownings, related to blows and abuse. The king's attributes are turned upside down in the clown; he is king of a world 'turned inside out.'"[46] On their shows, these gurus jump around and shout while giving financial advice. For example, in a December 5, 2013 clip of The Suze Orman Show, there is a five-minute "Can I Afford It?" segment on whether a 29-year-old military veteran with a large amount of savings should buy a Tesla, Suze Orman initially reprimands him for wanting to have a car to show off in 2013 right after buying a brand-new Prius the previous year in 2012, but Orman then decides he has the funds and the liquidity to afford a new Tesla purchase anyway. So Orman yells, "Boyfriend, you're approved!"

Similarly, Dave Ramsey encourages squeals and so do his employees on The Ramsey Show whenever a young person or couple pays off his or her or their debt, as evidenced by the nine-minute Debt-Free Scream segment of the show that appears on the September 8, 2022 episode of the show. Some version of the Debt-Free Scream segment actually appears in every single episode of The Ramsey Show. These gurus encourage a performance rather than acting like objective reporters or anchors telling us serious news.

As for race, the gurus' shows do not address the subject head-on but none of the shows outright address the fact that culturally diverse clients and guests have different and complicated relationships with their finances. Dave Ramsey's show tries to address differences

[46] Mikhail Bakhtin. Rabelais and his World. (1984).

in culture to the greatest extent. He frames culture from a religious perspective by encouraging tithing and other charitable giving as reflective of the fact that generous people are happier and that one reaps what one sows. Bakhtin addressed ideological discourse in the novel in Discourse and the Novel: "The social and historical voices populating language, all its words and all its forms, which provide language with its particular concrete conceptualizations are organized in the novel into a structured stylistic system that expresses the differentiated socio-ideological position of the author amid the heteroglossia of his epoch." In this way, Bakhtin expresses that novels, and by logical extension TV shows and self-help literature, convey a certain ideology. Though Bakhtin could be read as a Marxist, the TV shows and self-help literature are unapologetically capitalist. In this way, the celebrity financial gurus amid the "heteroglossia" express capitalist views.

These gurus have a certain level of privilege and liberty to act like Rabelais characters. Jim Cramer in particular is so high-profile that he can influence investors and get face-to-face, one-on-one interviews with the Chief Executive Officers of top companies like Starbucks, Howard Schultz, and Costco, W. Craig Jelinek, which he does in a September 13, 2022 episode of Mad Money. These CEO's are celebrities themselves, but they are happy to publicize their companies and allow Jim Cramer to research them on-the-air. Eventually, after hearing good things about their corporate strategies in the interviews, Jim Cramer encourages his followers and fans to invest in their companies.

By contrast, Tiffany Aliche and Ro$$ Mac are contained characters, acting relatable, calm (meaning not moody or emotional), and down-to-earth in the Netflix documentary Get Smart with Money to the point at which Aliche says she has had her bad days with money and Ro$$ Mac teaches Tabor an elementary version of the S&P Index Fund "for dummies" and how to buy stocks in it. Because Get Smart with Money has black gurus and is partly aimed at a minority audience, minority gurus do not act like Rabelaisian characters because they are not at liberty to do so, for fear their reputations may suffer and the jumping around may alienate their audiences as well as their black or minority guests.

The financial self-help shows, both the ones dominated by white gurus (The Ramsey Show, Mad Money, and The Suze Orman Show) as well as the programs dominated by black gurus (Banking On Us and Get Smart with Money) offer strategies of engaging with audiences that are portable to other kinds of programs on TV. For example, The Oprah Winfrey Show is a program dominated by a high-profile African-American host. Rather than being calm and contained like the gurus in Banking On Us and Get Smart with Money, Oprah jumps up and down when she is excited just like a Rabelais character. Specifically, there is one particular December 22, 2010 episode in which there is a car giveaway. On this show, Oprah shouts, "You all get a car!" in an excited manner, as if she is a small child. One hypothesis is that as a TV host becomes more high-profile, Black or white, the host is allowed to be "true to character" rather than being forced to cater to audience expectations about being calm and contained, like the hosts on the less high-profile Black shows must do.

CONCLUSION

The history of the black-white wealth gap lies in both slavery and international underdevelopment in Africa, especially South Africa. However, the after-effects of slavery are still pernicious when it comes to property ownership, redlining in housing or modern-day appraisals, affirmative action, and racist images and representations of African-Americans. It takes a village to raise a socially aware child. We argue that positive representations of the Black gurus who are not as famous as Suze Orman, Dave Ramsey, or Jim Cramer are absolutely

critical because Black gurus can understand Black clients in a way that white gurus may not be able to. Therefore, Black gurus may help financially empower their minority clients in a way that white gurus as Rabelaisian characters on self-help shows have not accomplished and in a way that white authors of self-help books have not yet successfully done. As Stuart Hall argued so clearly, favorable representations of Black people can change society's perceptions of them.

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