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Star Wars: Attack of the Anti-Satellite Weapons in Anticipatory Self-Defense

Joshua La Bella*

I. INTRODUCTION.....	733
II. CHINA AND RUSSIA’S SPACE WEAPON CAPABILITIES.....	736
III. TREATIES RELEVANT TO THE PLACEMENT OF ASAT WEAPONS IN SPACE .	737
A. <i>The Outer Space Treaty of 1967</i>	738
B. <i>UN Charter</i>	739
1. <i>UN Charter Article 2(4)—Prohibition on the Use of Force</i>	739
2. <i>UN Charter Article 51—The Right to Self-Defense</i>	740
a. <i>Traditional Approach to Interpreting Article 51 of the UN Charter</i>	741
b. <i>Customary International Law Approach to Interpreting Article 51 of the UN Charter</i>	741
i. <i>Opinio Juris</i>	743
ii. <i>Examples of State-Sponsored Anticipatory Self-Defense</i>	743
IV. TESTING U.S. ASAT WEAPONS AGAINST ANTICIPATORY SELF-DEFENSE.....	749
A. <i>Kinetic Kill Vehicles</i>	750
B. <i>Radiofrequency Jammers</i>	751
C. <i>Chemical Sprayers</i>	752
D. <i>High-Power Microwaves</i>	753
E. <i>Robotic Mechanisms</i>	754
V. RECOMMENDING THE U.S. PLACE CERTAIN ASAT WEAPONS IN SPACE.....	756
VI. CONCLUSION.....	758

I. INTRODUCTION

The fabled Star Wars films portray space warfare as an epic battlefield where hundreds of fighter jets shoot lasers at adversarial jets and spaceships.¹ An example

* J.D. Candidate, University of the Pacific, McGeorge School of Law, to be conferred May 2021; B.A., Political Science, University of California, Los Angeles, 2018. First, I would like to thank my family for their unwavering support throughout my academic career. Second, I would like to thank the *University of the Pacific Law Review* editors and board for their amazing assistance with this article. Last, I would like to thank Professor Sprankling for his incredible insight in international and space law. Your guidance helped transform my general ideas into a published article.

1. Aaron Edwards, *The 17 Best Space Battles Ever Put on Screen*, RANKER (June 15, 2018), <https://www.ranker.com/list/best-space-battles-in-film/aaron-edwards> (on file with the *University of the Pacific*)

is the Death Star scene where X-wing Starfighters shoot lasers at mounted turrets that are protecting a weapon capable of destroying planets.² However, today's technology does not meet these expectations.³

Amidst the arms race of the Cold War, President Ronald Reagan proposed the Strategic Defense Initiative—nicknamed Star Wars—to defend against the Soviet Union's intercontinental ballistic missiles (“ICBM”).⁴ President Reagan told the world the Star Wars program, using land-based and space-based laser weapons, could intercept Soviet ICBMs at various phases of the missiles' flight.⁵ To the layman in the Cold War era, the possibility of space-based lasers seemed fictional—something only possible in the Star Wars films.⁶ However, the Soviet Union wholeheartedly believed the United States (“U.S.”) possessed space weaponry and intensified the arms race until its economy collapsed.⁷ In December 1987, the Soviet Union and the U.S. signed the Intermediate-Range Nuclear Forces (“INF”) Treaty, which required the destruction of all medium-range nuclear and conventional missiles.⁸

The INF Treaty served as a mutual disarmament between the Soviet Union and the U.S. until Secretary of State Mike Pompeo suspended it on February 1, 2019.⁹ The suspension of the INF Treaty and Russia's reemergence as an international superpower reignited an arms race—this time, for weapons in space.¹⁰ Currently, China and Russia indicate in their respective military doctrines that space is vital to modern warfare and necessary to cripple western powers.¹¹ Additionally, Iran and North Korea have showcased their ability to jam satellites, a counterspace

Law Review).

2. *Id.*

3. See generally Morris Jones, *Star Wars: 'Spoofing', Anti-Satellite Weapons and Conflict in Space*, THE INTERPRETER (May 11, 2016, 10:27 AM), <https://www.lowyinstitute.org/the-interpreter/star-wars-spoofing-anti-satellite-weapons-and-conflict-space> (on file with the *University of the Pacific Law Review*) (articulating that space weaponry available today is spoofing and cyberattacks).

4. *Strategic Defense Initiative*, ENCYCLOPEDIA BRITANNICA, <https://www.britannica.com/topic/Strategic-Defense-Initiative> (last visited Oct. 26, 2019) (on file with the *University of the Pacific Law Review*).

5. *Id.*

6. See generally *id.* (explaining that President Reagan nicknamed the Strategic Defense Initiative “Star Wars” to show the world that the U.S. would develop weapons in space that previously only existed in fiction movies).

7. *The Arms Race and 'Star Wars'*, CVCE, <https://www.cvce.eu/en/education/unit-content/-/unit/55c09dcc-a9f2-45e9-b240-eaef64452cae/aeef1b65-8332-4c9c-9819-1d21617d8a8d> (last visited Oct. 25, 2019) (on file with the *University of the Pacific Law Review*).

8. *Id.*

9. Nicole Gaouette & Jennifer Hansler, *Pompeo Announces Suspension of Nuclear Arms Treaty with Russia*, CNN (Feb. 1, 2019), <https://www.cnn.com/2019/02/01/politics/us-russia-nuclear-arms-treaty-pompeo/index.html> (on file with the *University of the Pacific Law Review*).

10. DEF. INTELLIGENCE AGENCY, CHALLENGES TO SECURITY IN SPACE (2019); see generally Power, U.S. NEWS, <https://www.usnews.com/news/best-countries/power-rankings> (last visited Mar. 31, 2020) (on file with the *University of the Pacific Law Review*) (noting Russia's high rank in the global power ranking, signifying Russia's status as an international superpower).

11. DEF. INTELLIGENCE AGENCY, *supra* note 10 (emphasizing that Russia and China “view space as important to modern warfare and view counterspace capabilities as a means to reduce U.S. and allied military effectiveness”).

capability.¹² The race to dominate outer space militarily, like naval dominance, is a real and current issue.¹³

Recently, the U.S. joined China and Russia's adherence to incorporating space into its military dogma.¹⁴ On December 20, 2019, the U.S. Space Force became the newest branch of the military service.¹⁵ President Donald Trump arranged the Space Force to ensure the U.S. remains a dominant international player in space.¹⁶

Although various nations wish to militarily dominate outer space, there are some barriers preventing this.¹⁷ First, the Outer Space Treaty of 1967 ("OST") prohibits placing weapons of mass destruction or nuclear weapons in outer space.¹⁸ Second, the United Nations ("UN") Charter forbids the use of force or threat of use of force by one state against another.¹⁹ However, a nation claiming self-defense under Article 51 of the UN Charter can supersede the prohibitions of Article 2(4).²⁰

This Comment argues the various anti-satellite ("ASAT") weapons the U.S. plans to place in outer space are valid under anticipatory self-defense inherent in Article 51 of the UN Charter.²¹ Part II outlines Russia and China's alleged space weapon capabilities and their military plans for the future of space.²² Part III discusses two treaties relevant to the placement of weapons in space: the UN Charter and the OST.²³ Part IV analyzes various developing ASAT weapons against a hypothetical scenario to determine the limits of anticipatory self-defense under Article 51.²⁴ Part V recommends whether the U.S. should utilize ASAT

12. See TODD HARRISON, KAITLYN JOHNSON & THOMAS G. ROBERTS, CTR. FOR STRATEGIC & INT'L STUD., SPACE THREAT ASSESSMENT 2018, at 4 (2018) (explaining that jamming refers to "electronic attacks [that] target the means by which space systems transmit and receive data"); DEF. INTELLIGENCE AGENCY, *supra* note 10.

13. DEF. INTELLIGENCE AGENCY, *supra* note 10.

14. *United States Space Force*, MILITARY.COM, <https://www.military.com/space-force> (last visited Jan. 11, 2020) (on file with the *University of the Pacific Law Review*).

15. *Id.*

16. See Memorandum on Establishment of the United States Space Force, 2019 DAILY COMP. PRES. DOCS. 1 (Feb. 19, 2019), <https://trumpwhitehouse.archives.gov/presidential-actions/text-space-policy-directive-4-establishment-united-states-space-force/> (on file with the *University of the Pacific Law Review*) (quoting President Trump's mission for the Space Force is to "organize, train, and equip military space forces of the United States to ensure unfettered access to, and freedom to operate in, space, and to provide vital capabilities to joint and coalition forces in peacetime and across the spectrum of conflict").

17. DEF. INTELLIGENCE AGENCY, *supra* note 10.

18. See Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies art. 4, Dec. 19, 1966, 18 U.S.T. 2410, 610 U.N.T.S. 119 (highlighting that the general principle in the OST is peaceful purposes of outer space).

19. U.N. Charter art. 2, ¶ 4.

20. *Id.* at art. 51.

21. See Lucy Martinez, *September 11th, Iraq and the Doctrine of Anticipatory Self-Defense*, 72 UMKC L. REV. 123, 125 (2004) (explaining that anticipatory self-defense is a nation's right to use force against another nation in anticipation of the latter's use of force against the former); *infra* Part IV.

22. *Infra* Part II.

23. *Infra* Part III.

24. *Infra* Part IV.

weapons in anticipatory self-defense today.²⁵

II. CHINA AND RUSSIA'S SPACE WEAPON CAPABILITIES

The U.S. has enjoyed more than twenty-five years of dominant military successes, due in large part to space capabilities.²⁶ However, China and Russia are quickly developing counterspace weapons to combat and overtake the U.S.²⁷ China and Russia's increased placement of ASAT weapons on the ground and in orbit poses a threat to the safety of the U.S.²⁸

Around 2015, during China's military reforms, the government integrated space and counterspace capabilities into joint military operations—signaling its desire to transform into a space power.²⁹ China's Space White Paper in 2016 expressed the nation's goal to “explore the vast cosmos, develop the space industry, and build China into a space power.”³⁰ Currently, China employs a number of ASAT weapons in space.³¹ Additionally, the government is developing directed energy weapons, utilizing lasers to disrupt and damage satellites.³² China's current and future weapons solidify it as a major space power that threatens the U.S.³³

Unlike China, which has newly emerged as a space power, Russia is reemerging as a dominant space power in the twenty-first century.³⁴ In 2018, the Russian Defense Minister emphasized Russia's need to meet the military requirements of the future and explicitly referenced the need for military

25. *Infra* Part V.

26. DEF. INTELLIGENCE AGENCY, *supra* note 10.

27. *See id.* (showing that Russia and China aspire to overcome the U.S. militarily in space).

28. *See Worldwide Threat Assessment of the U.S. Intelligence Community, Hearing Before the S. Select Comm. on Intelligence*, 116th Cong. 16 (2019) (statement of Daniel R. Coats, Director of National Intelligence) (on file with the *University of the Pacific Law Review*) (observing that “China and Russia will field new counterspace weapons intended to target US and allied space capabilities”), and Rachel S. Cohen, *Russia Flexes Space Muscle with Anti-Satellite Weapon Test*, AIR FORCE MAG. (Apr. 15, 2020), <https://www.airforcemag.com/russia-flexes-space-muscle-with-anti-satellite-weapon-test/> (on file with the *University of the Pacific Law Review*) (showing that Russia is not afraid to use its ASAT weapons today).

29. DEF. INTELLIGENCE AGENCY, *supra* note 10.

30. *Id.*

31. *See id.* (illustrating the various weapons China employs, such as: electronic warfare to jam communication and GPS satellites; kinetic energy threats, which exist on the ground and launch missiles at Low Earth Orbit satellites; and cyberwarfare to shut down network-based computers and intelligence).

32. Elsa B. Kania, *The PLA's Potential Breakthrough in High Power Microwave Weapons*, THE DIPLOMAT (Mar. 11, 2017), <https://thediplomat.com/2017/03/the-plas-potential-breakthrough-in-high-power-microwave-weapons/> (on file with the *University of the Pacific Law Review*); DEF. INTELLIGENCE AGENCY, *supra* note 10.

33. *See* Sandra Erwin, *U.S. Intelligence: Russia and China Will Have 'Operational' Anti-Satellite Weapons in a Few Years*, SPACENEWS (Feb. 14, 2018), <https://spaceneews.com/u-s-intelligence-russia-and-china-will-have-operational-anti-satellite-weapons-in-a-few-years/> (on file with the *University of the Pacific Law Review*) (showing that China actively researches and develops ASAT weapons to use); HARRISON, JOHNSON & ROBERTS, *supra* note 12.

34. *See* HARRISON, JOHNSON & ROBERTS, *supra* note 12 (noting that Russia reemerged in the space industry after their bankruptcy following the Cold War).

satellites.³⁵ Additionally, Russia views the U.S. as dependent on space capabilities to carry out military operations, deeming space America's "Achilles heel."³⁶ Therefore, Russia's goal of meeting the military requirements of the future includes the ability to neutralize U.S. space capabilities to gain military advantages.³⁷

Similar to China, Russia also possesses electronic warfare ("EW") capabilities, kinetic energy threats, and cyberwarfare weapons.³⁸ However, Russia actively utilizes its space power capabilities.³⁹ Between 2014 and 2017, Russia jammed GPS signals in Ukraine, which neutralized GPS for radios, cell phones, and some piloted aircrafts.⁴⁰ Moreover, Russia regularly employs cyberwarfare; in 2007, Russia paralyzed Estonian online banking services, government communications, and media outlets.⁴¹ Furthermore, in 2016, Russia—confirmed by four U.S. intelligence agencies in high confidence—utilized cyberwarfare and social engineering schemes to disrupt the U.S. presidential election.⁴² Russia's possession of space capabilities establishes it as a dominant space power once again.⁴³

III. TREATIES RELEVANT TO THE PLACEMENT OF ASAT WEAPONS IN SPACE

Two treaties are directly relevant to the placement of ASAT weapons in space: the OST and the UN Charter.⁴⁴ The OST regulates activities in outer space, such as exploration and placement of objects.⁴⁵ The UN Charter, alternatively, governs relations between international signatories.⁴⁶ Section A examines various interpretations of the OST, which contemplate a nation's ability to place ASAT weapons in space.⁴⁷ Section B explores the UN Charter's provisions on the prohibition against the use of force and the right to self-defense.⁴⁸

35. See DEF. INTELLIGENCE AGENCY, *supra* note 10 ("The solution of this problem doubtlessly depends directly on the availability of a modern orbital constellation of military satellites.").

36. *Id.*

37. *Id.*

38. *Id.*

39. See generally HARRISON, JOHNSON & ROBERTS, *supra* note 12 (listing the times Russia used its space power capabilities).

40. *Id.*

41. *Id.*

42. *Id.*

43. *Id.*

44. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *supra* note 18, at pmb1.; U.N. Charter art. 2, ¶ 4.

45. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *supra* note 18, at pmb1.

46. U.N. Charter pmb1.

47. *Infra* Section III.A.

48. *Infra* Section III.B.

A. *The Outer Space Treaty of 1967*

The OST is the governing international treaty for the use and exploration of outer space.⁴⁹ Generally, the OST provides for cooperation among nations to utilize outer space for peaceful purposes, including scientific and economic development.⁵⁰ To accomplish this purpose, the OST forbids the placement of weapons of mass destruction and nuclear weapons into earth's orbit, on celestial bodies, or in any other manner.⁵¹ However, the treaty is silent on all other types of weapons.⁵²

Scholars have hotly debated the meaning of the phrase “peaceful purposes” in the OST.⁵³ The U.S.—by definition and through its actions—takes the position that “peaceful purposes” translates to non-aggression, rather than non-militarization.⁵⁴ Therefore, under the U.S.’ position, violating a peaceful purpose under the OST means violating Article 2(4) of the UN Charter.⁵⁵ In support of the U.S.’ interpretation, scholars argue that military uses of satellites are not inherently non-peaceful.⁵⁶ Opponents of the non-aggressive position contend the subjective nature of the non-aggressive definition allows determinations based on intended use, rather than actual capabilities of the satellites.⁵⁷ This gives nations adhering to the non-aggressive theory free reign to place military satellites in space if the nation articulates a non-aggressive intention for its satellite.⁵⁸

Modern technology supports the U.S.’ position.⁵⁹ Today, many satellites in outer space employed for peaceful civilian uses—like GPS and telecommunications—would fail the non-militarization definition because these

49. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *supra* note 18, at pmb1.

50. *Id.*

51. *Id.* at art. 4.

52. *See generally id.* (noting that the treaty only explicitly forbids nuclear weapons and weapons of mass destruction in space). *See also* INGRID DETTER, *THE LAW OF WAR* 173 (2000) (showing that the OST only deals with certain types of weapons).

53. DETTER, *supra* note 52, at 173. *Compare* Bin Cheng, *The Legal Status of Outer Space and Relevant Issues: Delimitation of Outer Space and Definition of Peaceful Use*, 11 J. SPACE L. 89, 103 (2018) (arguing that the U.S.’ interpretation is needless, wrong, and potentially noxious), *with* Patrick Gleeson, *Legal Aspects of the Use of Force in Space* (Aug. 2005) (unpublished LL.M. thesis, McGill University) (on file with the *University of the Pacific Law Review*) (“The American position was rooted in the argument that military uses are not, by definition, non-peaceful purposes.” e.g., military satellites that are not themselves weapon systems).

54. *See* Gleeson, *supra* note 53 (clarifying that non-aggression means not in violation of Article 2(4) whereas non-militarization means without military capabilities, e.g., banning GPS satellites).

55. *See* U.N. Charter art. 2, ¶ 4 (noting that article 2(4) of the UN Charter generally forbids nations from the use of force against another nation); *see also* Gleeson, *supra* note 53 (showing that the U.S. interpretation begins at the interpretation of the OST).

56. Gleeson, *supra* note 53.

57. *Id.*

58. *See generally id.* (articulating the absurdity that even nuclear weapons are peaceful if “not used for aggressive purposes”).

59. DETTER, *supra* note 52, at 176.

satellites possess military capabilities.⁶⁰ In addition, proponents of the non-militarization definition—like the former Soviet Union—continuously launched military-viable satellites in space, beginning in the late 1950s with Sputnik.⁶¹ Thus, the non-militarization definition reveals itself as an opportunity to gain an edge in the space race, rather than a practical and cooperative effort for peace.⁶² Therefore, the OST allows the U.S. to launch ASAT weapons into space, unless the launch directly conflicts with Article 2(4) of the UN Charter.⁶³

B. UN Charter

Regarding the placement of ASAT weapons in space, the UN Charter contains two relevant articles: 2(4) and 51.⁶⁴ Subsection 1 discusses UN Charter Article 2(4)'s prohibition on the use of force.⁶⁵ Subsection 2 discusses a state's international right to self-defense under UN Charter Article 51.⁶⁶

1. UN Charter Article 2(4)—Prohibition on the Use of Force

Article 2(4) precludes nations from using force or threatening to use force.⁶⁷ Although the UN Charter generally prohibits the threat or use of force, the treaty does not define what constitutes a use of force.⁶⁸

Some scholars argue that demonstrations of force fall into the threat of force restriction under Article 2(4).⁶⁹ An example of a demonstration of force that violated Article 2(4) occurred in the 1994 Iraq–Kuwait tensions.⁷⁰ In early October 1994, Iraq sent an estimated 70,000 troops and 700 tanks to its southern border in close proximity to Kuwait.⁷¹ Further, Iraq denied Kuwait's sovereignty and

60. See Elizabeth Howell, *Navstar: GPS Satellite Network*, SPACE.COM (Apr. 27, 2018), <https://www.space.com/19794-navstar.html#targetText=Navstar%20is%20a%20network%20of,signal%20from%20each%20individual%20satellite> (on file with the *University of the Pacific Law Review*) (demonstrating that GPS possesses uses for military and civilian purposes); DETTER, *supra* note 52, at 176.

61. Gleeson, *supra* note 53.

62. See *generally id.* (arguing that Russia is trying to capitalize on the vague non-militarization definition).

63. *Id.*

64. U.N. Charter art. 2, ¶ 4, art. 51.

65. *Id.* at art. 2, ¶ 4; *infra* Subsection III.A.1.

66. U.N. Charter art. 51; *infra* Subsection III.B.2.

67. See U.N. Charter art. 2, ¶ 4 (“All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations.”).

68. See *generally id.* (noting the lack of a definition for the use of force).

69. See NIKOLAS STURCHLER, *THE THREAT OF FORCE IN INTERNATIONAL LAW* 209 (2007) (classifying demonstrations of force as a threat of force; S.C. Res. 949, ¶¶ 1–2 (Oct. 15, 1994) (characterizing Iraq's military deployments as a threat of force, even though they are demonstrations of force).

70. STURCHLER, *supra* note 69, at 206, 209.

71. *Id.*

continually referred to Kuwait as Iraq's nineteenth province.⁷² Although Iraq insisted it had no intention to invade Kuwait, many countries around the world had no faith in Iraq.⁷³ On October 15th, approximately one week after Kuwait notified the UN Security Council of Iraq's troop deployment, the Security Council passed Resolution 949.⁷⁴ The Resolution asserted that "the presence of Iraqi troops amounted to a threat of force in violation of the UN Charter."⁷⁵

The UN's passage and ratification of Resolution 949 solidified the classification of demonstrations of force as potential threats of force.⁷⁶ In other words, demonstrations of force may constitute a breach of Article 2(4) and potentially allow a nation to retaliate in self-defense under Article 51.⁷⁷ However, a nation's ability to respond to a demonstration of force in self-defense under Article 51 depends on the interpretation of Article 51.⁷⁸

2. UN Charter Article 51—The Right to Self-Defense

Article 51 of the UN Charter allows State A to engage in self-defense against State B if State B initiated an armed attack against State A.⁷⁹ However, customary international law takes a different approach to a state's inherent right to self-defense.⁸⁰ Subsection a discusses the traditional approach to interpreting Article 51.⁸¹ Subsection b explores the customary international law approach to interpreting Article 51.⁸²

72. *Id.* at 207.

73. *Id.* at 207–08.

74. S.C. Res. 949, *supra* note 69, at ¶ 4; *see also* STURCHLER, *supra* note 69, at 208 (clarifying that Resolution 949 was "sponsored by Argentina, France, Oman, Rwanda, the UK, and the USA").

75. STURCHLER, *supra* note 69, at 209.

76. *See* S.C. Res. 949, *supra* note 69, at ¶ 3 (declaring that a demonstration of force can violate U.N. Charter Article 2(4)'s prohibition on the use of force); *see also* STURCHLER, *supra* note 69, at 209 (explaining why demonstrations of force may breach the U.N. Charter's prohibition on the use of force).

77. U.N. Charter art. 51.

78. DETTER, *supra* note 52, at 173.

79. *See* U.N. Charter art. 51 ("Nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security. Measures taken by Members in the exercise of this right of self-defense shall be immediately reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present Charter to take at any time such action as it deems necessary in order to maintain or restore international peace and security."). *See also* G.A. Res. 3314 (XXIX), art. 3 (Dec. 14, 1974) (delineating concrete examples of armed attacks).

80. Martinez, *supra* note 21, at 134–35.

81. *Infra* Subsection III.B.2.a.

82. *Infra* Subsection III.B.2.b.

a. *Traditional Approach to Interpreting Article 51 of the UN Charter*

The traditional approach to interpreting Article 51 of the UN Charter involves a plain meaning reading of the Article—allowing self-defense only after an armed attack occurs.⁸³ This approach adheres to the Vienna Convention on the Law of Treaties because the UN Charter’s purpose is to prevent war and promote peace.⁸⁴ Adherents to this view argue the necessity of an armed attack to claim self-defense is a narrow, yet logical, reading of the Article.⁸⁵ Additionally, proponents worry a broader reading of Article 51 would allow states to abuse their discretion in invoking self-defense.⁸⁶ Moreover, the traditional approach furthers the UN Charter’s peace objective because it prevents states from claiming small-scale infractions that trigger Article 51’s right to self-defense.⁸⁷ Despite the support for a strict interpretation of Article 51, other scholars view the narrow approach as too restrictive and in conflict with prior customary law.⁸⁸

b. *Customary International Law Approach to Interpreting Article 51 of the UN Charter*

The customary international law approach to interpreting Article 51 recognizes a nation’s preexisting right to anticipatory self-defense—expanding the traditional view of self-defense.⁸⁹ Anticipatory self-defense is Nation A’s use of force against Nation B before Nation B used force against Nation A.⁹⁰ The justification for anticipatory self-defense lies in the holding of the *Caroline* affair.⁹¹

During a Canadian uprising against the British government in 1837, rebels looted a U.S. arsenal to steal arms and ammunition.⁹² However, the U.S. took measures to ensure its army did not breach any duty to the British for the rebels stealing arms.⁹³ Throughout the insurrection, *Caroline*—an American ship—supplied rebels in Canada with provisions and reinforcements from ports within

83. See U.N. Charter art. 51 (noting the requirement of an armed attack to occur before responding with self-defense).

84. See *id.* at pmb1. (stressing the importance of international peace); see also Vienna Convention on the Law of Treaties art. 31, May 23, 1969, 1155 U.N.T.S. 331 (explaining that article 31 requires interpreting treaties according to their ordinary meaning).

85. CHRISTINE GRAY, INTERNATIONAL LAW AND THE USE OF FORCE 118 (3d ed. 2008).

86. *Id.*

87. *Id.*

88. *Id.*

89. Leo Van den hole, *Anticipatory Self-Defense Under International Law*, 19 AM. U. INT’L L. REV. 69, 75, 78 (2003).

90. See *id.* at 72 (defining anticipatory self-defense as “the use of force by a state to repel an attacker before an actual attack has taken place, before the army of the enemy has crossed the border, and before the bombs of the enemy fall upon its territory”).

91. *Id.* at 95.

92. *Id.*

93. *Id.*

the U.S.⁹⁴ When the British found the *Caroline* on U.S. soil, a British band destroyed the *Caroline* by cutting its anchor so the boat floated over the Niagara Falls.⁹⁵ The British responded to ensuing American protests by citing self-defense as justification for destroying the *Caroline*.⁹⁶ Secretary of State Daniel Webster exchanged diplomatic letters with the British government regarding the *Caroline* incident and explained the elements required for Britain to justify their actions.⁹⁷ His letter contained three elements for anticipatory self-defense: imminence, necessity, and proportionality.⁹⁸ This definition created a right to self-defense of preventive action without the requirement of an actual armed attack.⁹⁹ Despite the three requirements set out in *Caroline*, there is disagreement among scholars regarding each definition.¹⁰⁰

Caroline sets out that an *imminent* anticipatory self-defense act requires a nation to act in an instant, “leaving no choice of means, and no moment for deliberation.”¹⁰¹ Yet a mere mobilization of troops does not trigger an imminent response—a nation must mobilize its troops or arms and have hostile intent.¹⁰² Thus, prior to Nation A acting preemptively, it must show that Nation B subjectively intends to strike and objectively possesses the means to do so.¹⁰³

The *necessity* and imminence factors overlap significantly, as necessity often relies on the imminence of an attack.¹⁰⁴ Specifically, necessity looks towards the intention of the adversarial nation and that nation’s probability of attacking.¹⁰⁵ Moreover, similar to imminence, evaluating necessity begins at the start of the conflict.¹⁰⁶ Therefore, a nation’s act in anticipatory self-defense is necessary when it protects against an imminent threat of attack from an adversarial nation.¹⁰⁷

Under anticipatory self-defense, “an action is proportional when it is necessary to end and to repulse an attack, not just when it corresponds exactly to the acts of

94. *Id.*

95. Van den hole, *supra* note 89, at 95.

96. *Id.* at 96.

97. *See id.* (“It will be for that Government to show a necessity of self-defence, instant, overwhelming, leaving no choice of means, and no moment for deliberation.”).

98. *Id.* at 96–97.

99. *Id.* at 97.

100. *See* Robert J. Beck & Anthony Clark Arend, “Don’t Tread on Us”: *International Law and Forcible State Responses to Terrorism*, 12 WIS. INT’L L.J. 153, 196–200 (1994) (illustrating the multitude of differing scholarly views on each of the *Caroline* elements), and Leah M. Campbell, *Defending Against Terrorism: A Legal Analysis of the Decision to Strike Sudan and Afghanistan*, 74 TUL. L. REV. 1067, 1083–85 (2004) (highlighting that no formal definitions exist for the *Caroline* elements).

101. Van den hole, *supra* note 89, at 96.

102. *See* Martinez, *supra* note 21, at 170 (showing that Nation A can infer hostile intent from Nation B through previous acts of aggression).

103. *Id.*

104. *Id.* at 169–70.

105. Oscar Schachter, *The Right of States to Use Armed Force*, 82 MICH. L. REV. 1620, 1635 (1984).

106. Gina Heathcote, *Article 51 Self-Defense as a Narrative: Spectators and Heroes in International Law*, 12 TEX. WESLEYAN L. REV. 131, 137 (2006).

107. Martinez, *supra* note 21, at 169–70.

aggression.”¹⁰⁸ Further, the anticipatory action must not exceed in scope the action prompting the anticipatory action.¹⁰⁹ Consequently, the *proportionality* of an anticipatory act relies on the reasonableness of the action.¹¹⁰

This Comment uses the three elements of anticipatory self-defense to test the legality of the U.S. placing certain ASAT weapons in space today.¹¹¹ However, for customary international law to become binding legal precedent, a nation claiming the international custom must show two requirements: *opinio juris* and state practice.¹¹² Subsection i defines *opinio juris*' requirements.¹¹³ Subsection ii provides examples of nations utilizing anticipatory self-defense to justify their use of force.¹¹⁴

i. *Opinio Juris*

Opinio juris is the subjective element inherent in international customary law.¹¹⁵ It is the belief that a nation can legally conduct a particular act or practice.¹¹⁶ Without the subjective belief that a nation adheres to *opinio juris* when carrying out an act, any claims of customary international law fail.¹¹⁷ Yet if a nation successfully articulates *opinio juris*, it still must show state practice that confirms its *opinio juris*.¹¹⁸

ii. *Examples of State-Sponsored Anticipatory Self-Defense*

The second requirement to show an action conforms to customary international law is state practice of similar conduct.¹¹⁹ Although the theory of anticipatory self-defense has existed since the 1800s, nations have not routinely invoked it to justify their actions.¹²⁰ However, there are a few key events where nations have invoked

108. Abraham D. Sofaer, *The Sixth Annual Waldemar A. Solf Lecture in International Law: Terrorism, the Law, and the National Defense*, 126 MIL. L. REV. 89, 97 (1991).

109. Schachter, *supra* note 105, at 1637.

110. Michael C. Bonafede, Note, *Here, There, and Everywhere: Assessing the Proportionality Doctrine and U.S. Uses of Force in Response to Terrorism After the September 11 Attacks*, 88 CORNELL L. REV. 155, 170 n.78 (2002).

111. *Infra* Part IV.

112. Vienna Convention on the Law of Treaties, *supra* note 84, at art. 38; Statute of the International Court of Justice art. 38, ¶ 1, June 26, 1945, 59 Stat. 1055, 33 U.N.T.S. 933.

113. *Infra* Subsection III.B.2.a.i.

114. *Infra* Subsection III.B.2.a.ii.

115. Jo Lynn Slama, Note, *Opinio Juris in Customary International Law*, 15 OKLA. CITY U. L. REV. 603, 648 (1991).

116. *Id.* at 649.

117. Michael N. Schmitt & Sean Watts, *The Decline of International Humanitarian Law Opinio Juris and the Law of Cyber Warfare*, 50 TEX. INT'L L.J. 189, 194 (2015).

118. Slama, *supra* note 115, at 656.

119. Statute of the International Court of Justice, *supra* note 112, at art. 38, ¶ 1.

120. See generally Martinez, *supra* note 21, at 127, 131 (noting that many nations do not rely on anticipatory self-defense to justify their actions).

anticipatory self-defense with varying acceptance by the international community.¹²¹

The Cuban Missile Crisis in 1962 was a momentous event where the U.S. relied on anticipatory self-defense to justify its actions.¹²² To stop the transfer of Soviet missiles to Cuba, the U.S. instituted a “defensive quarantine” against Cuba, violating Article 2(4) of the UN Charter.¹²³ To justify the quarantine, the U.S. argued its actions were necessary to preempt an attack by Cuba.¹²⁴ Further, the U.S. articulated the potential imminence of a Cuban attack with the transported weapons due to Cuba’s allies, threatening statements, and proximity to the U.S.¹²⁵ Last, the quarantine was proportional to the transportation of nuclear weapons because the quarantine repulsed Cuba’s attack without exceeding the scope of Cuba’s intentions.¹²⁶ Despite the U.S.’ arguments, the international community did not reach a conclusion on whether the U.S. met the requirements for anticipatory self-defense.¹²⁷

Another famous example of anticipatory self-defense is the Six-Day War, which began in 1967.¹²⁸ Before the war started, Egyptian President Gamal Abdel Nasser failed to aid Syria and Jordan against Israel—which sparked criticism of his actions.¹²⁹ In addition, Nasser hid behind the United Nations Emergency Force (“UNEF”), which protected the Egyptian–Israeli border.¹³⁰ In spite of the previous lack of support for Syria, Nasser began to fully support Syria through multiple acts in May 1967.¹³¹ He moved Egyptian troops to the Sinai, formally requested the UN to remove their UNEF, and closed the Gulf of Aqaba to Israelis.¹³² Subsequently, Nasser signed a joint defense pact with Jordan and Iraq that allowed Nasser to control Jordanian and Iraqi troops.¹³³

121. *See generally id.* at 136–41 (highlighting the times nations relied on anticipatory self-defense to justify their preemptive actions).

122. Alex Potcovaru, *The International Law of Anticipatory Self-Defense and U.S. Options in North Korea*, LAWFARE (Aug. 8, 2017, 1:56 PM), <https://www.lawfareblog.com/international-law-anticipatory-self-defense-and-us-options-north-korea> (on file with the *University of the Pacific Law Review*).

123. *See generally* Sean D. Murphy, *The Doctrine of Preemptive Self-Defense*, 50 VIL. L. REV. 699, 713 (2005) (noting that a defensive quarantine constitutes a use of force and is in violation of 2(4), prompting a self-defense justification for using the force); Potcovaru, *supra* note 122.

124. Potcovaru, *supra* note 122.

125. Paul Halsall, *Modern History Sourcebook: United Nations: Cuban Missile Crisis Debate, 1962*, FORDHAM U. (July 1998), <https://sourcebooks.fordham.edu/mod/1962-cuba-un1.asp> (on file with the *University of the Pacific Law Review*).

126. *See generally id.* (noting that a quarantine of arms is less dangerous than utilizing nuclear weapons).

127. *See* Potcovaru, *supra* note 122 (clarifying that the U.N. never reached a formal conclusion regarding the Cuban Missile Crisis because the U.S. resolved the issue through diplomatic channels).

128. *Six-Day War*, ENCYCLOPAEDIA BRITANNICA, <https://www.britannica.com/event/Six-Day-War> (last visited Mar. 6, 2020) (on file with the *University of the Pacific Law Review*).

129. *Id.*

130. *Id.*

131. *Id.*

132. *Id.*

133. *Id.*

In response to the sudden mobilization of Egypt, Israel launched a preemptive attack on June 5, 1967, that destroyed more than 90% of Egypt's Air Force.¹³⁴ Citing their actions as defensive and legally justified, Israel argued the preemptive strike was necessary to defeat the Egyptian coalition before it attacked first.¹³⁵ Additionally, Israel emphasized the imminence element of anticipatory self-defense because Egypt encircled Israel, which led to a disruption of the decade-long status quo of stability.¹³⁶ Further, Israel's preemptive attack that destroyed Egypt's Air Force was proportional because Egypt's previous actions indicated it wished to destroy Israel's army.¹³⁷ Although scholars differed on Israel's anticipatory self-defense justification, the UN Security Council did not expressly condemn Israel for its preemptive attack in self-defense.¹³⁸

An example where a nation relied entirely on anticipatory self-defense is Israel's bombing of an Iraqi nuclear reactor in 1981.¹³⁹ Israel bombed a partially constructed Iraqi nuclear reactor because Israel claimed Iraq built the reactor to construct nuclear weapons, which endangered Israeli citizens.¹⁴⁰ Israel's justification for bombing the nuclear reactor relied on the necessity of a potentially lost opportunity—if Iraq completed the construction, destroying a live reactor would emit nuclear fallout.¹⁴¹ Ultimately, the international community unanimously condemned Israel's actions because Israel did not meet the *Caroline* requirements.¹⁴² First, Israel's anticipatory self-defense claim lacks the proportionality element because its destruction of the nuclear reactor did not repulse an attack.¹⁴³ Rather, Israel claimed Iraq planned on attacking Israel without any definitive proof, and subsequent findings showed Iraq fully complied with the Non-Proliferation Treaty.¹⁴⁴ Next, Israel conceded that it spent months planning the bombing of Iraq's nuclear reactor.¹⁴⁵ Based on this timeframe, Israel's claim must fail.¹⁴⁶ Anticipatory self-defense's element of imminence requires a nation to

134. *Id.*

135. Potcovaru, *supra* note 122; U.N. SCOR, 22d Sess., 1348th mtg. at 155, U.N. Doc. S/PV.1348 (June 6, 1967).

136. U.N. SCOR, 22d Sess., 1348th mtg., *supra* note 135, at 155.

137. *Id.*; *see also supra* Subsection III.B.2. (reiterating that demonstrations of force can violate Article 2(4)).

138. Martinez, *supra* note 21, at 138.

139. *Id.* at 139.

140. *On This Day, June 7, 1981: Israel Bombs Baghdad Nuclear Reactor*, BBC, http://news.bbc.co.uk/onthisday/hi/dates/stories/june/7/newsid_3014000/3014623.stm (last visited Mar. 3, 2020) (on file with the *University of the Pacific Law Review*).

141. Potcovaru, *supra* note 122.

142. S.C. Res 487, ¶ 1 (June 19, 1981); Martinez, *supra* note 21, at 139–40.

143. U.N. SCOR, 36th Sess., 2282d mtg. at 48–53, U.N. Doc. S/PV.2282 (June 15, 1981).

144. *See* Treaty on the Non-Proliferation of Nuclear Weapons pmbl., Dec. 11, 1969, 33 U.S.T. 1792, 634 U.N.T.S. 362 (showing that the treaty prevents the construction of nuclear weapons); *see also* U.N. SCOR, 36th Sess., 2282d mtg., *supra* note 143, at 48–53 (highlighting Israel's allegations).

145. U.N. SCOR, 36th Sess., 2282d mtg., *supra* note 143, at 16.

146. *See id.* (stressing that the multiplicity of months that went into Israel's plan of bombing Iraq's nuclear reactor are inconsistent with the elements of anticipatory self-defense).

act without a “moment for deliberation.”¹⁴⁷ Thus, the months of advanced planning negated Israel’s anticipatory self-defense claim.¹⁴⁸

Another example of the U.S. justifying its actions through anticipatory self-defense occurred in 1986 when President Reagan ordered airstrikes on Libyan military targets.¹⁴⁹ President Reagan relied primarily on a traditional Article 51 self-defense theory because Libya bombed airports in Rome and Vienna in December 1985.¹⁵⁰ However, he also cited anticipatory self-defense as a means to prevent future Libyan terrorist attacks.¹⁵¹ The White House released a memorandum regarding its concern about future Libyan attacks and explained the U.S.’ justification for its bombing.¹⁵² Similar to the previous examples, the international community was upset about the application of the doctrine of anticipatory self-defense rather than the existence of it.¹⁵³ The UN General Assembly’s resolution contained seventy-nine votes that censured the U.S.’ action.¹⁵⁴ Scholars criticized the U.S.’ airstrike as failing to meet the proportionality and imminence requirements of anticipatory self-defense.¹⁵⁵ To meet the proportionality element, the U.S. needed to have evidence that Libya was intending to conduct a grievous airstrike that intended to cause mass casualties.¹⁵⁶ Moreover, the U.S. did not articulate any concrete imminent attacks from Libya; rather, it relied on unknown, potential attacks in the future.¹⁵⁷ Due to the U.S.’ failure to establish the required elements of anticipatory self-defense, its claim was unsuccessful.¹⁵⁸

The U.S. again cited anticipatory self-defense for its actions in a terrorist matter when the military launched twenty-three missiles on Iraqi intelligence forces in 1993.¹⁵⁹ President Clinton claimed the missiles were necessary to

147. Van den hole, *supra* note 89, at 96 (2003).

148. U.N. SCOR, 36th Sess., 2282d mtg., *supra* note 143, at 16.

149. Martinez, *supra* note 21, at 140; *see also* Seymour M. Hersh, *Target Qaddafi*, N.Y. TIMES MAG. (Feb. 22, 1987), <https://www.nytimes.com/1987/02/22/magazine/target-qaddafi.html> (on file with the *University of the Pacific Law Review*) (highlighting that the U.S. airstrike killed more than 100 people).

150. Martinez, *supra* note 21, at 140.

151. *Id.*

152. *See id.* at 140–41 (“[I]n light of this reprehensible [Libyan] act of violence and clear evidence that Libya is planning future attacks, the United States has chosen to exercise its right of self-defense. It is our hope that [U.S.] action will preempt and discourage Libyan attacks on innocent civilians in the future.”).

153. *Id.* at 141.

154. *Id.*

155. *See* Bonafede, *supra* note 110, at 175 (denouncing the U.S.’ anticipatory self-defense claim based on a lack of proportionality); *see also* John Quigley, *The New World Order and the Rule of Law*, 18 SYRACUSE J. INT’L L. & COMM. 75, 106 (1992) (failing to find the imminence requirement for the U.S.’ airstrike against Libya).

156. Bonafede, *supra* note 110, at 175.

157. Quigley, *supra* note 155, at 106; Hersh, *supra* note 149 (noting that President Reagan relied on unknown future attacks without any specific examples).

158. G.A. Res. 41/38, ¶ 1 (Nov. 20, 1986).

159. Martinez, *supra* note 21, at 142; *see also* Robert F. Teplitz, Note, *Taking Assassination Attempts Seriously: Did the United States Violate International Law in Forcefully Responding to the Iraqi Plot to Kill George Bush?*, 28 CORNELL INT’L L.J. 569, 604–05 (1995) (highlighting that the missiles “kill[ed] eight people,

neutralize an Iraqi attempt to assassinate former President George H. W. Bush while he visited Kuwait.¹⁶⁰ In essence, President Clinton attempted to “reduce [Iraq’s] ability to promote terrorism [and] deter further acts of aggression against the U.S.”¹⁶¹ In the aftermath, neither the UN Security Council nor the General Assembly passed a resolution condemning the U.S.’ actions.¹⁶² In this matter, the U.S. likely asserted a successful anticipatory self-defense claim.¹⁶³ Although Iraq already conducted an unsuccessful assassination attempt on President H. W. Bush, the agency responsible (i.e., the Iraqi Intelligence Service) remained free; therefore, Iraq could have imminently attempted another assassination.¹⁶⁴ The missile strike was necessary because it targeted the Iraqi Intelligence Service responsible for the assassination attempt, eliminating the possibility of a future assassination attempt.¹⁶⁵ Finally, the U.S. satisfied the proportionality requirement because it narrowly focused on the agency responsible for the assassination attempt and limited its response to military targets.¹⁶⁶

For the third time, the U.S. responded to a terrorist attack by justifying its actions through Article 51 self-defense and anticipatory self-defense.¹⁶⁷ In 1998, bombs exploded outside of U.S. embassies in two African countries.¹⁶⁸ These attacks killed more than 300 people and injured over 4,500 others.¹⁶⁹ Thereafter, the U.S. military launched seventy-nine missiles against Osama bin Laden’s outposts in Sudan and Afghanistan.¹⁷⁰ The imminence of an attack against the U.S. was high because the targets of the airstrike were a terrorist training camp and a pharmaceutical plant—dangerous locations warranting an immediate response.¹⁷¹ This situation is unlike Israel’s failed imminence claim because Israel had time to

and wound[ed] at least twelve people”).

160. Martinez, *supra* note 21, at 142.

161. *Id.*

162. *Id.*

163. See Teplitz, *supra* note 159, at 612 (finding that the U.S. met the elements of anticipatory self-defense); see also Martinez, *supra* note 21, at 142 (finding that China was the only nation to publicly criticize the 1993 U.S. missile strikes in Iraq).

164. Teplitz, *supra* note 159, at 610. *But see* Martinez, *supra* note 21, at 142 (arguing there was no imminent attack).

165. Teplitz, *supra* note 159, at 611.

166. See *id.* at 597–99, 612 (postulating that although assassinating Saddam Hussein would have been equally proportional, such attempts on individual lives are in violation of domestic and international law).

167. Martinez, *supra* note 21, at 143.

168. See *id.* (noting that the embassies were in Nairobi, Kenya and Dar es Salaam, Tanzania).

169. *Id.*

170. See Bonafede, *supra* note 110, at 178 (clarifying that the U.S. launched missiles at “[Osama] bin Laden’s terrorist training camp in Afghanistan and a Sudanese pharmaceutical plant”); Martinez, *supra* note 21, at 143; see also James Risen, *Question of Evidence: A Special Report; To Bomb Sudan Plant, or Not: A Year Later*, *Debates Rankle*, N.Y. TIMES (Oct. 27, 1999), <https://www.nytimes.com/1999/10/27/world/question-evidence-special-report-bomb-sudan-plant-not-year-later-debates-rankle.html> (on file with the *University of the Pacific Law Review*) (observing that the pharmaceutical plant was likely producing nerve gas).

171. See Campbell, *supra* note 100, at 1085, 1093 (describing the three elements of modern anticipatory self-defense claims).

deliberate and had no evidence of an imminent attack.¹⁷² Bombing the two locations was necessary because the U.S. had evidence that future attacks were probable from the two facilities, necessitating an anticipatory attack to protect Americans.¹⁷³ The U.S.’ response was proportionate because the strike resulted in only twenty-one deaths—much less than the over 250 deaths from the embassy bombings.¹⁷⁴ However, this time the UN Security Council never evaluated the U.S.’ action.¹⁷⁵ Further, the international reaction was generally supportive of the U.S. strike, unlike previous attempts by the U.S. to use anticipatory self-defense.¹⁷⁶

In September 2002, President George W. Bush delivered a speech to the UN suggesting the U.S. would rely on the doctrine of anticipatory self-defense against Iraq.¹⁷⁷ Additionally, the common theme in President Bush speeches was the threat of Saddam Hussein, solidifying Iraq as a potentially imminent threat.¹⁷⁸ Finally, the U.S. cemented its stance on anticipatory self-defense in a document titled “The National Security Strategy of the United States of America.”¹⁷⁹ This document reinforced the U.S.’ position that it will “exercise [the] right of self-defense by acting preemptively” on terrorist organizations.¹⁸⁰ The sentiment of relying on anticipatory self-defense did not waver in future administrations.¹⁸¹ Even the Trump administration—almost sixty years after the Cuban Missile Crisis—embodied the notion that anticipatory self-defense is a valid and accepted rule in international law.¹⁸²

Through the U.S.’ actions and beliefs, it likely satisfies the requirements to ensure the customary international law of anticipatory self-defense becomes binding.¹⁸³ First, the U.S. possesses *opinio juris* because it subjectively believes

172. Cf. Permanent Rep. of the U.S. to the U.N., Letter dated Aug. 20, 1998 from the Permanent Rep. of the United States to the United Nations addressed to the President of the Security Council, S.C. Doc S/1998/780 (Aug. 20, 1998) (showing the U.S. had knowledge that future attacks were imminent).

173. *Id.*

174. James McIntyre & Andrea Koppel, *U.S. Missiles Pound Targets in Afghanistan, Sudan*, CNN (Aug. 21, 1998), <http://www.cnn.com/US/9808/20/us.strikes.02/> (on file with the *University of the Pacific Law Review*).

175. Martinez, *supra* note 21, at 143.

176. *Id.*

177. *See id.* at 149–51 (showing the multiplicity of statements President George W. Bush made regarding anticipatory self-defense or its elements).

178. *See id.* (highlighting President Bush’s language regarding Iraq and Saddam Hussein).

179. *See Prevent Our Enemies from Threatening Us, Our Allies, and Our Friends with Weapons of Mass Destruction*, WHITE HOUSE, <https://georgewbush-whitehouse.archives.gov/nsc/nss/2002/nss5.html> (last visited Apr. 5, 2020) (on file with the *University of the Pacific Law Review*) (explaining that President Bush willingly advocated for the use of anticipatory self-defense); Martinez, *supra* note 21, at 149–51.

180. Martinez, *supra* note 21, at 152.

181. *See* Jack Goldsmith, *Obama Has Officially Adopted Bush’s Iraq Doctrine*, TIME (Apr. 6, 2016, 1:20 PM), <https://time.com/4283865/obama-adopted-bushs-iraq-doctrine/> (on file with the *University of the Pacific Law Review*) (showing President Obama relied on anticipatory self-defense).

182. *See* Louis Rene Beres, *America, Iran, and “Anticipatory Self-Defense”: International Legal Standards of Presidential War-Making Decision*, JURIST (July 5, 2019), <https://www.jurist.org/commentary/2019/07/louis-beres-anticipatory-self-defense/> (on file with the *University of the Pacific Law Review*) (showing President Trump relied on anticipatory self-defense).

183. Statute of the International Court of Justice, *supra* note 112, at art. 38, ¶ 1; *see* Martinez, *supra* note

anticipatory self-defense is valid law and follows it as such.¹⁸⁴ Moreover, the U.S. repeatedly justifies its state practice with citations to anticipatory self-defense, showing its adherence to the customary international law.¹⁸⁵ Finally, other nations also adhere to the *opinio juris* and state practice of anticipatory self-defense, lending credit towards its acceptance as binding, customary international law.¹⁸⁶

IV. TESTING U.S. ASAT WEAPONS AGAINST ANTICIPATORY SELF-DEFENSE

Using the elements of anticipatory self-defense, this Comment poses a hypothetical situation to analyze the legality of various U.S. ASAT weapons.¹⁸⁷ Hypothetical nation “Alliance” currently employs a four-person inhabited base camp in space, located on the moon.¹⁸⁸ The inhabited base camp contains an antenna protruding from its roof with the capability to shoot a laser that permanently destroys adversarial GPS satellites.¹⁸⁹ The U.S. received credible information that Alliance planned to destroy an American GPS satellite tomorrow morning to antagonize American citizens.¹⁹⁰ Relying on this information, the U.S. intends to take preemptive actions in anticipatory self-defense to protect its citizens.¹⁹¹

Based on the hypothetical scenario above, this Comment tests the legality of various ASAT weapons against anticipatory self-defense under international customary law.¹⁹² Because the hypothetical’s facts show that the U.S. possesses credible information of Alliance’s imminent attack, most of the weapon analysis

21, at 157 (highlighting examples where the U.S. satisfies the requirements for customary international law of anticipatory self-defense).

184. Slama, *supra* note 115, at 649.

185. *See* Martinez, *supra* note 21, at 136–53 (noting that the U.S. justifies their actions with anticipatory self-defense often).

186. *See generally id.* at 136 (observing examples of other nations justifying actions with anticipatory self-defense).

187. *See generally supra* Subsection III.B.2.b (explaining that the hypothetical will utilize the *Caroline* elements to test whether certain weapons are applicable in a fictitious situation).

188. *See generally* Meghan Bartels, *NASA Unveils Plan for Artemis ‘Base Camp’ on the Moon Beyond 2024*, SPACE.COM (Apr. 3, 2020), <https://www.space.com/nasa-plans-artemis-moon-base-beyond-2024.html#xenforo-comments-30351> (on file with the *University of the Pacific Law Review*) (explaining that NASA plans to build a lunar base camp within the next decade which this Comment will use as a model for the hypothetical).

189. *See generally* *China May Deploy Anti-Satellite Laser Weapons Next Year Able to Destroy U.S. Military Satellites*, MIL. & AEROSPACE ELECTRONICS (Feb. 18, 2019), <https://www.militaryaerospace.com/trusted-computing/article/16711585/china-may-deploy-antisatellite-laser-weapons-next-year-able-to-destroy-us-military-satellites> (on file with the *University of the Pacific Law Review*) (describing a laser weapon that China allegedly possesses which this Comment will use as part of its hypothetical).

190. *See generally supra* Subsection III.B.2.b (utilizing the date of the attack as “tomorrow” to allow for an imminence and necessity analysis).

191. *See generally* Subsection III.B.2.b (debating whether the U.S.’ preemptive action will satisfy the *Caroline* elements depending on the ASAT weapon employed).

192. *Supra* Part II.

will focus on the fact-specific inquiry of proportionality.¹⁹³ Section A discusses the legality of kinetic kill vehicles.¹⁹⁴ Section B explores the legality of radiofrequency jammers.¹⁹⁵ Section C examines the legality of chemical sprayers.¹⁹⁶ Section D analyzes the legality of high-power microwaves.¹⁹⁷ Section E reviews the legality of robotic mechanisms.¹⁹⁸

A. *Kinetic Kill Vehicles*

Kinetic kill vehicles seek and destroy long-range ballistic missiles while the missiles are still in space.¹⁹⁹ The vehicles use the force of the collision to destroy satellites and missiles, rather than warheads or explosives.²⁰⁰ However, these vehicles also have the potential to destroy satellites if the operator chooses to do so.²⁰¹ In essence, kinetic kill vehicles permanently destroy adversarial missiles and satellites.²⁰²

If the U.S. acted preemptively and utilized a kinetic kill vehicle to thwart Alliance's plan, it would satisfy the imminence requirement because Alliance intends to attack tomorrow.²⁰³ Additionally, Alliance objectively possesses the means to carry out the attack with its laser antenna.²⁰⁴ Alliance's plan also necessitates a preemptive action from the U.S. because it is necessary for the U.S. to protect its citizens from hostile attacks.²⁰⁵ However, the permanent and destructive nature of a kinetic kill vehicle's damage requires a high degree of proportionality.²⁰⁶ If the U.S. deployed a kinetic kill vehicle towards Alliance's base camp, the collision would destroy the base camp and result in the death of any inhabitants.²⁰⁷ On the other hand, if Alliance succeeded in its mission to

193. See generally Subsection III.B.2.b (highlighting the examples of state practice where meeting proportionality depended on specific facts).

194. *Infra* Section IV.A.

195. *Infra* Section IV.B.

196. *Infra* Section IV.C.

197. *Infra* Section IV.D.

198. *Infra* Section IV.E.

199. *First Line of Defense Against Ballistic Missiles*, RAYTHEON MISSILES & DEF., <https://www.raytheon.com/capabilities/products/ekv> (last visited Jan. 11, 2020) (on file with the *University of the Pacific Law Review*).

200. *Id.*

201. See *id.* (clarifying that colliding a kill vehicle into a satellite will destroy the satellite).

202. *Id.*

203. See *supra* Subsection III.B.2.b (arguing that Alliance's plan to attack the satellite tomorrow leaves the U.S. no choice but to preemptively attack).

204. See *supra* Subsection III.B.2.b (arguing that Alliance's possession of the laser antenna helps satisfy the imminence requirement).

205. See *supra* Subsection III.B.2.b (determining that the U.S. satisfies the necessity requirement because its preemptive action will deter Alliance's attack).

206. *First Line of Defense Against Ballistic Missiles*, *supra* note 199; see also *supra* Subsection III.B.2 (noting that proportionality requires the preemptive attack not to exceed the scope of the threatened attack).

207. See Rob Ludacer & David Anderson, *Here's How Long Humans Could Survive in Space Without a*

destroy a U.S. GPS satellite, no American citizens would immediately die.²⁰⁸ However, emergency services—without the access to GPS—may arrive late to a time sensitive life-or-death situation and result in an individual's death.²⁰⁹ This proportionality situation is similar to Israel's bombing of Iraq's nuclear reactor: It relies on the unforeseen potential of future deaths, which the UN rejected.²¹⁰ Like Israel, the U.S.' proportionality claim for the kinetic kill vehicle must fail.²¹¹ Thus, although the U.S. meets the imminence and necessity elements of *Caroline*, the kinetic kill vehicle's lack of proportionality in this situation forbids its use.²¹²

B. Radiofrequency Jammers

Radiofrequency jammers interfere with the communications to and from satellites.²¹³ Unlike kinetic kill vehicles, jamming does not permanently or physically alter adversarial satellites.²¹⁴ When a radiofrequency jammer cuts off satellite communication, the functions of the satellite are unavailable (e.g., a phone will not receive GPS signals to use Google Maps).²¹⁵ Due to the non-permanent nature of radiofrequency jammers, the anticipatory self-defense elements will require less intense facts than kinetic kill vehicles.²¹⁶

Jamming Alliance's laser antenna capabilities satisfies the imminence requirement because the U.S. must act without hesitation to prevent a large-scale GPS shutdown.²¹⁷ Further, it would be necessary to jam Alliance's laser antenna because without the GPS satellites, the U.S. would be vulnerable to Alliance's

Spacesuit, BUS. INSIDER (May 17, 2017, 9:44 AM), <https://www.businessinsider.com/how-long-human-survive-outer-space-without-spacesuit-2017-5> (on file with the *University of the Pacific Law Review*) (explaining that a human will only survive for 90 seconds in space without adequate protection).

208. See generally *Top Time-Sensitive Medical Emergencies*, ALTUS EMERGENCY CTRS., <https://www.altusemergency.com/top-time-sensitive-medical-emergencies/> (last visited Apr. 15, 2020) (on file with the *University of the Pacific Law Review*) (detailing examples of time-sensitive emergencies that, although serious, are nonetheless not immediately fatal).

209. See *id.* (providing examples of time-sensitive medical emergencies such as "heart attacks, strokes, and severe trauma").

210. See generally Martinez, *supra* note 21, at 139–40 (arguing that Israel's failed attempt to invoke anticipatory self-defense was due to the reliance on unforeseen events).

211. See *supra* Subsection III.B.2 (demonstrating that neither country met the *Caroline* requirement of proportionality).

212. See *supra* Subsection III.B.2 (requiring that a country justifying its action through anticipatory self-defense must meet all the *Caroline* requirements).

213. Pavel Velkovsky, Janani Mohan & Maxwell Simon, *Satellite Jamming*, ON THE RADAR (April 3, 2019), <https://ontheradar.csis.org/issue-briefs/satellite-jamming/> (on file with the *University of the Pacific Law Review*).

214. *Id.*

215. *Id.*

216. *Id.*; see also *supra* Subsection III.B.2 (noting that proportionality without the loss of lives simplifies the equation).

217. See generally Velkovsky, Mohan & Simon, *supra* note 213 (explaining how a radiofrequency jammer disrupts satellites).

planned attack.²¹⁸ Next, jamming the antenna is proportional because it repulses Alliance's attack without exceeding the scope of Alliance's plan.²¹⁹ Utilizing the radiofrequency jammer against Alliance's laser antenna targeting mechanism is the preferable choice of all the weapons because it prevents Alliance from acting at the least cost to Alliance.²²⁰ Although Alliance's base camp may lose radio signals or power during the jamming, this loss will not result in any imminent harm to the inhabitants.²²¹ Repelling an attack on a GPS satellite is a situation where the U.S. could use a radiofrequency jammer in anticipatory self-defense since the weapon complies with *Caroline's* elements.²²²

C. Chemical Sprayers

Although nations have not revealed specifics about chemical sprayer ASAT weapons, many authors speculate that space powers possess the technology already.²²³ Since engineers commonly use aluminum to build satellites, chemical sprayers probably utilize chemicals like gallium to severely weaken the aluminum's structure.²²⁴ Once the satellite's structure breaks down, it likely cannot survive the extreme conditions of outer space and will disintegrate.²²⁵

If the U.S. chemically sprayed Alliance's laser antenna, a problem may arise with the imminence element because the antenna will take time to break down

218. See generally Thuy Mai, *Global Positioning System History*, NASA (Aug. 7, 2017), https://www.nasa.gov/directorates/heo/scan/communications/policy/GPS_History.html (on file with the *University of the Pacific Law Review*) (demonstrating that GPS is essential for national defense).

219. See generally Velkovsky, Mohan & Simon, *supra* note 213 (explaining the effects of radiofrequency jamming).

220. See generally *id.* (illustrating how radiofrequency jammers can disrupt adversarial technology without physically destroying anything).

221. See Loren Grush, *NASA is Working on a Partial Power Outage on the Space Station That's Delaying a SpaceX Launch*, THE VERGE (Apr. 30, 2019), <https://www.theverge.com/2019/4/30/18523864/nasa-international-space-station-spacex-power-channel> (on file with the *University of the Pacific Law Review*) (showing that the International Space Station can operate without power for a limited time).

222. See Van den hole, *supra* note 89, at 96–97 (exploring the *Caroline* elements for anticipatory self-defense); see also Velkovsky, Mohan & Simon, *supra* note 213 (showing the minimal permanent effects of radiofrequency jamming).

223. Bill Gertz, *Pentagon: Chinese Military Units Training With ASAT Missiles*, WASH. FREE BEACON (Jan. 23, 2019, 5:00 AM), <https://freebeacon.com/national-security/pentagon-chinese-military-units-training-with-asat-missiles/> (on file with the *University of the Pacific Law Review*); Brett Tingley, *Pentagon Report Says China's Cleaner Satellites Are Actually Killer Satellites*, MYSTERIOUS UNIVERSE (Feb. 14, 2019), <https://mysteriousuniverse.org/2019/02/pentagon-report-says-chinas-cleaner-satellites-are-actually-killer-satellites/> (on file with the *University of the Pacific Law Review*).

224. See *Gallium v Aluminum*, ROYAL INSTITUTION, <https://www.rigb.org/ri-videos/gallium-v-aluminium> (last visited Jan. 12, 2020) (on file with the *University of the Pacific Law Review*) (explaining that the chemical reaction between gallium and aluminum results in the aluminum becoming brittle).

225. See generally *id.* (showing that brittle aluminum cannot withstand normal manufacturing wear and tear). See also MIRIA M. FINCKENOR & KIM K. DE GROH, NASA, SPACE ENVIRONMENTAL EFFECTS, https://www.nasa.gov/sites/default/files/files/NP-2015-03-015-JSC_Space_Environment-ISS-Mini-Book-2015-508.pdf (last visited Jan. 12, 2020) (on file with the *University of the Pacific Law Review*) (detailing the extreme conditions in space).

from the gallium.²²⁶ Nevertheless, President Kennedy's quarantine of Soviet arms during the Cuban Missile Crisis satisfied the imminence requirement even though the affair lasted thirteen days.²²⁷ Since the chemical sprayer is a similar timeframe to the quarantine, it would likely meet the imminence requirement.²²⁸ Spraying Alliance's laser antenna is necessary because it would thwart Alliance's plan to destroy a U.S. GPS satellite.²²⁹ Further, weakening the structure of Alliance's antenna is proportionate because the destruction of the laser antenna repulses the attack and does not go beyond Alliance's scope of attack.²³⁰ However, if the U.S. decided to use the chemical sprayer, it would need to exercise caution to ensure the gallium only attached to the antenna.²³¹ If the sprayer missed and sprayed gallium on the inhabited base, the gallium could wither away the base's structure and cause the inhabitants to die.²³² If the inhabitants died, the U.S. would not satisfy the proportionality element because killing four people goes beyond the scope of destroying a GPS satellite.²³³ Accordingly, the U.S. should either exercise extreme caution if it decides to use a chemical sprayer or opt for utilizing a radiofrequency jammer instead.²³⁴

D. High-Power Microwaves

High-power microwave ("HPM") ASAT weapons emit small-range, short pulses of microwave radiation at their target.²³⁵ The effects of an HPM range from temporary disablement of computers to permanent burnout of systems not equipped with shields to protect against high electromagnetic fields.²³⁶ Therefore,

226. See *Gallium v Aluminum*, *supra* note 224 (demonstrating that gallium-infused aluminum breaks down over time); see also Finckenor & de Groh, *supra* note 225 (reiterating the extreme conditions in space that may expedite the process of the aluminum deteriorating).

227. See *supra* Subsection III.B.2.b (arguing that the thirteen-day quarantine satisfied the imminence requirement because of the transfer time of the arms).

228. See *Gallium v Aluminum*, *supra* note 224 (showing the speed at which gallium deteriorates aluminum); see also *supra* Subsection III.B.2. (highlighting the similarity in time between the previously discussed quarantine and the deteriorated aluminum).

229. See generally *Gallium v Aluminum*, *supra* note 224 (maintaining that a gallium-infused aluminum antenna will not function because of the chemical reaction between gallium and aluminum).

230. See *supra* Part III.B.2 (determining that destroying an antenna is equivalent to destroying a satellite).

231. See generally *Gallium v Aluminum*, *supra* note 224 (demonstrating that liquid gallium can drip down the aluminum target).

232. See Ludacer & Anderson, *supra* note 207 (reiterating that humans cannot last long in space without protection).

233. See Bonafede, *supra* note 110, at 175 (analyzing the proportionality element, which requires more than property damage to justify taking a human life).

234. See Subsection III.B.2 (arguing that the safer option is to utilize a radiofrequency jammer because its likelihood to meet the proportionality requirement is greater).

235. See ANDREW FEICKERT, CONG. RESEARCH SERV., R45098, U.S. ARMY WEAPONS-RELATED DIRECTED ENERGY (DE) PROGRAMS: BACKGROUND AND POTENTIAL ISSUES FOR CONGRESS 26 (2018) (explaining that equipping a satellite with certain materials can form a shield to protect it from HPM ASAT weapons).

236. *Id.*

the viability of HPMs relies on the protection of the adversarial satellite.²³⁷ Although U.S. researchers are skeptical about the viability of HPM ASAT weapons, Chinese scientists allegedly achieved success in developing this type of weapon.²³⁸

The U.S.' use of an HPM ASAT weapon on Alliance's laser antenna meets the imminence requirement because without an imminent U.S. action, Alliance could carry out the attack on the U.S. satellite.²³⁹ Furthermore, using an HPM ASAT is necessary because temporarily disarming Alliance's antenna neutralizes Alliance's means to attack the U.S. satellite.²⁴⁰ Disabling Alliance's laser antenna with an HPM ASAT weapon is proportionate because it matches the scope of Alliance's attack—destroying hardware.²⁴¹ Further, even if the HPM permanently destroyed Alliance's antenna, the action would still be proportionate because it repulses Alliance's attack without injuring the inhabitants of the base.²⁴² Thus, the use of an HPM ASAT weapon satisfies all of *Caroline's* requirements and constitutes a viable option for the U.S. to use in this situation.²⁴³

E. Robotic Mechanisms

Robotic mechanisms are extendable arms on a satellite that can push an adversarial satellite out of orbit or break a specific portion off another object.²⁴⁴ Once a satellite is out of orbit, it cannot conduct its original function anymore and becomes useless.²⁴⁵ So, robotic mechanism ASATs could permanently destroy adversarial satellites but to a different degree.²⁴⁶ Instead of instant destruction, the robotic mechanism pushes the satellite into a different orbit where it could crash into other satellites, create space debris, or fade away into space.²⁴⁷ If the operator

237. *Id.*

238. *Id.* at 15–16; Kania, *supra* note 32.

239. *See generally* China May Deploy Anti-Satellite Laser Weapons Next Year Able to Destroy U.S. Military Satellites, *supra* note 189 (explaining that a laser antenna has the capability to destroy satellites).

240. *See generally* Kania, *supra* note 32 (articulating how an HPM can disable ASAT weapons).

241. *See id.* (explaining how an HPM can disable ASAT weapons).

242. *See supra* Part IV (clarifying that even permanently destroying the antenna does not exceed the scope of Alliance's planned attack).

243. *See generally* Kania, *supra* note 32 (noting that an HPM can disable ASAT weapons without harming individuals); *see also* Martinez, *supra* note 21, at 138 (arguing that destroying weapons to counter an attack satisfies the proportionality element).

244. *See generally* NASIC, COMPETING IN SPACE (2019), <https://media.defense.gov/2019/Jan/16/2002080386/-1/-1/1/190115-F-NV711-0002.PDF> (on file with the *University of the Pacific Law Review*) (explaining that a robotic mechanism can break a portion off another object by initiating a collision between the robotic mechanism and the object a nation wishes to destroy).

245. *See Where Do Old Satellites Go When They Die?*, NASA SCI. (June 28, 2019), <https://spaceplace.nasa.gov/spacecraft-graveyard/en/> (on file with the *University of the Pacific Law Review*) (noting that out-of-orbit satellites are dead and useless).

246. *See generally* COMPETING IN SPACE, *supra* note 244 (explaining that a robotic mechanism can push a satellite out of orbit, which differs from instantly destroying the satellite like a kinetic kill vehicle).

247. *Where Do Old Satellites Go When They Die?*, *supra* note 245.

uses the robotic mechanism to break off a portion of an adversarial satellite, it would cause instant destruction similar to a kinetic kill vehicle.²⁴⁸ However, the main difference from the previous ASAT weapons is that robotic mechanisms are not necessarily designed to be weapons.²⁴⁹ Rather, robotic mechanisms on satellites are versatile and can accomplish a number of tasks.²⁵⁰

Destroying Alliance's laser antenna with a robotic mechanism satisfies the imminence requirement because the laser antenna poses an imminent threat to the U.S.²⁵¹ Additionally, destroying the laser antenna is necessary because when the robotic mechanism destroys the antenna, Alliance cannot attack the U.S.' GPS satellite.²⁵² To effectively satisfy *Caroline's* proportionality element, the U.S. must ensure the robotic mechanism only destroys the laser antenna of Alliance's base.²⁵³ If the robotic mechanism accidentally destroys more than the antenna, there is a possibility that the structural damage may expose the inhabitants to the hostile conditions of space.²⁵⁴ If Alliance's roof breaks because the robotic mechanism missed the antenna, the inhabitants will die from the extreme conditions of space.²⁵⁵ Killing the four inhabitants—even accidentally—negates an anticipatory self-defense claim because the death of the four inhabitants is not proportional to the loss of the GPS satellite.²⁵⁶ Therefore, if the U.S. decides to preemptively strike using a robotic mechanism, it must exercise extreme caution.²⁵⁷

Based on the specific facts of the hypothetical, the U.S. should utilize either a radiofrequency jammer or HPM to effectively neutralize Alliance's plan to attack the GPS satellite.²⁵⁸ While the chemical sprayer meets the *Caroline* requirements, the potential for error in spraying the base instead of the antenna poses too much

248. See generally *First Line of Defense Against Ballistic Missiles*, *supra* note 199 (explaining that kinetic kill vehicles collide with their intended targets—similar to an elongated robotic mechanism colliding with its intended target).

249. See generally *COMPETING IN SPACE*, *supra* note 244 (noting that the robotic mechanism is an attachment to a satellite and utilized for any number of purposes).

250. See *Robotic Gripper for Satellite Capture and Servicing*, NASA TECH. TRANSFER PROGRAM, <https://technology.nasa.gov/patent/GSC-TOPS-190> (last visited Jan. 9, 2020) (on file with the *University of the Pacific Law Review*) (showing that a robotic mechanism on a satellite can capture dead or out of fuel satellites).

251. See generally *China May Deploy Anti-Satellite Laser Weapons Next Year Able to Destroy U.S. Military Satellites*, *supra* note 189 (explaining that a laser antenna has the capability to destroy satellites).

252. See generally *COMPETING IN SPACE*, *supra* note 244 (explaining that collisions can destroy ASAT weapons).

253. See *supra* Subsection III.B.2 (arguing that if the robotic mechanism destroys Alliance's base, the preemptive action may not satisfy the proportionality element).

254. See Ludacer & Anderson, *supra* note 207 (elaborating again that humans cannot survive in space without specific protective equipment).

255. See *id.* (maintaining that humans cannot survive in space without protective equipment).

256. See generally Bonafede, *supra* note 110, at 175 (showing that the proportionality element requires more than property damage to justify taking a human life).

257. See *supra* Subsection III.B.2 (advocating that the U.S. exercise caution because if the U.S. accidentally kills the four inhabitants, its anticipatory self-defense claim will fail, and the U.N. will condemn the U.S.' actions).

258. See generally *China May Deploy Anti-Satellite Laser Weapons Next Year Able to Destroy U.S. Military Satellites*, *supra* note 189 (explaining that a laser antenna can destroy satellites in space).

of a risk in this situation.²⁵⁹ Finally, the kinetic kill vehicle and robotic mechanism are too destructive and therefore unproportionate means of repulsing Alliance's attack.²⁶⁰ Accordingly, different situations will require different ASAT weapons due to the fact-sensitive inquiry into each of the *Caroline* elements.²⁶¹ Although the U.S. should place ASAT weapons in space, the examination of which weapons are best will change with each arising situation.²⁶² Thus, the U.S. must ensure the Space Force is dynamic in its approach to weaponizing space.²⁶³

V. RECOMMENDING THE U.S. PLACE CERTAIN ASAT WEAPONS IN SPACE

The U.S. should place ASAT weapons in space and justify it through anticipatory self-defense.²⁶⁴ Spacefaring nations—such as China and Russia—already boast a pro-militarized space in their current military dogma.²⁶⁵ The new Space Force will ensure the U.S. does not fall behind these spacefaring nations, which could leave the U.S. vulnerable to unprecedented attacks.²⁶⁶ However, opponents to the pro-weaponization of space ground their argument into two main categories: cost to taxpayers and creating a new frontier for war.²⁶⁷

The Trump administration estimated the Space Force would require two billion dollars over the period of five years.²⁶⁸ This estimate is separate from the ten billion dollars the U.S. already spends on unclassified space programs.²⁶⁹ Yet these figures represent “less than 0.05 percent of the Pentagon's expected budget”

259. See generally *Gallium v Aluminum*, *supra* note 224 (showing that liquid gallium can trickle down the aluminum target).

260. See *First Line of Defense Against Ballistic Missiles*, *supra* note 199 (demonstrating the destructive nature of kinetic kill vehicles); see also *COMPETING IN SPACE*, *supra* note 244 (depicting how a robotic mechanism could destroy a satellite).

261. See generally *supra* Subsection III.B.2.b (highlighting the intricacies of a nation's argument when it justifies its actions through anticipatory self-defense).

262. Van den hole, *supra* note 89, at 96.

263. See generally *supra* Subsection III.B.2.b (noticing that the *Caroline* elements require nations to be careful when preemptively acting).

264. See DEF. INTELLIGENCE AGENCY, *supra* note 10 (identifying the hostility of China and Russia towards the U.S. in today's political and economic climate).

265. *Id.*

266. OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, *A BUDGET FOR AMERICA'S FUTURE* 9 (2021).

267. See Justin Wise, *Ex-Astronaut Slams Trump's 'Space Force' Proposal: Let's Deal with Our Current 'Cyber War'*, THE HILL (Aug. 3, 2018), <https://thehill.com/homenews/administration/400301-ex-nasa-astronaut-slams-trumps-space-force-proposal-lets-deal-with> (on file with the *University of the Pacific Law Review*) (outlining critics' arguments regarding the pro-weaponization of space).

268. See Mike Gruss & Aaron Mehta, *Space Force to Cost \$2 Billion, Include 15,000 Personnel in First Five Years*, DEF. NEWS (Mar. 1, 2019), <https://www.defensenews.com/space/2019/03/01/space-force-to-cost-2-billion-include-15000-personnel-in-first-five-years/> (on file with the *University of the Pacific Law Review*) (explaining that the two-billion-dollar startup cost is for creating a headquarters, paying personnel, and adding new units or organizations).

269. See PATRICIA MOLONEY FIGLIOLA, CARL E. BEHRENS & DANIEL MORGAN, CONG. RESEARCH SERV., IB92011, *U.S. SPACE PROGRAMS: CIVILIAN, MILITARY, AND COMMERCIAL* (2006) (addressing some of the U.S.' unclassified space programs); Gruss & Mehta, *supra* note 268.

between 2020–2025.²⁷⁰ Furthermore, the administration planned to transfer money from other Department of Defense budgets to fund more than 95% of the Space Force.²⁷¹ Thus, for the foreseeable future, the federal government’s creation and employment of the Space Force will not significantly impact the national defense budget or taxpayers.²⁷²

Critics worry that weaponizing space will produce a new frontier for war, rather than simply deterring conflict on Earth.²⁷³ This argument reigns true.²⁷⁴ Nations like Russia and China are actively developing ASAT weapons and plan to weaponize space with these new weapons.²⁷⁵ Russia and China’s pro-weaponization stance threatens the safety of U.S. assets in space because the U.S. currently employs 1,327 satellites, which are left vulnerable without adequate protection.²⁷⁶ Moreover, Russia is not hesitating to flex its space capabilities.²⁷⁷ On April 15, 2020, Russia tested a ground-based ASAT weapon; however, the U.S. will not state what Russia’s target was.²⁷⁸ Russia’s conduct demonstrates it is capable of space-warfare, necessitating action from the remaining spacefaring nations.²⁷⁹ Unfortunately, the time to deter the placement of weapons in space through treaties has passed.²⁸⁰ The U.S. must prepare for the inevitable—the new frontier of war in space.²⁸¹

Despite the need to place weapons in space, limits on which weapons nations use should exist.²⁸² Due to the excessive debris in orbit, nations should—if possible—limit their ASAT weapons to radiofrequency jammers, chemical sprayers, and HPMs.²⁸³ These types of weapons disable adversarial satellites, but

270. Gruss & Mehta, *supra* note 268.

271. *Id.*

272. *See generally id.* (inferring that the Space Force costing only 0.05 percent of the Pentagon’s budget is not an impactful amount of money to the Department of Defense or taxpayers).

273. *See generally* Thomas Gonzáles Roberts, *Why We Should Be Worried About a War in Space*, THE ATLANTIC (Dec. 15, 2017), <https://www.theatlantic.com/science/archive/2017/12/why-we-should-be-worried-about-a-war-in-space/548507/> (on file with the *University of the Pacific Law Review*) (opining that the world should avoid a war in space).

274. *See generally* OFFICE OF MGMT. & BUDGET, *supra* note 266, at 9 (arguing that the Space Force is necessary due to emerging threats in space from adversarial nations).

275. DEF. INTELLIGENCE AGENCY, *supra* note 10.

276. OFFICE OF MGMT. & BUDGET, *supra* note 266, at 9; Cohen, *supra* note 28; *UCS Satellite Database*, UNION CONCERNED SCIENTISTS (Jan. 1, 2021), <https://www.ucsusa.org/resources/satellite-database> (on file with the *University of the Pacific Law Review*).

277. Cohen, *supra* note 28.

278. *Id.*

279. OFFICE OF MGMT. & BUDGET, *supra* note 266, at 9; Cohen, *supra* note 28.

280. *See* OFFICE OF MGMT. & BUDGET, *supra* note 266, at 9 (announcing the U.S. plan to invest in “emerging warfighting domains such as space” indicating an implicit understanding that force has become necessary); *see also* Cohen, *supra* note 28 (demonstrating that nations already employ ASAT weapons).

281. OFFICE OF MGMT. & BUDGET, *supra* note 266, at 9.

282. *See generally* Mark Garcia, *Space Debris and Human Spacecraft*, NASA (Sept. 26, 2013), https://www.nasa.gov/mission_pages/station/news/orbital_debris.html (on file with the *University of the Pacific Law Review*) (explaining that debris litters Earth’s orbit and nations should limit the creation of more debris).

283. *Id.*; *supra* Sections IV.B–IV.D.

leave the satellite mainly intact.²⁸⁴ Bigger objects, even disabled ones, are easier to track and avoid due to their large size.²⁸⁵ If a nation destroyed adversarial satellites with a kinetic kill vehicle or robotic mechanism, the collision between the weapon and satellite would create an enormous amount of debris.²⁸⁶ Further, since the collision would break the satellite into many pieces, a high possibility exists that the collision would create microscopic debris that nations could not track.²⁸⁷ Untraceable debris creates problems for all spacefaring nations because a microscopic particle traveling at 21,600 miles per hour can destroy satellites.²⁸⁸ Therefore, to limit the creation of space debris, spacefaring nations should favor ASAT weapons like radiofrequency jammers, HPMS, and chemical sprayers.²⁸⁹

VI. CONCLUSION

Although the Cold War officially ended, the space race between the U.S. and Russia still occurs today.²⁹⁰ With nations like Russia and China officially stating their desire to further militarize space, the U.S. must prepare itself for war in space.²⁹¹ Two treaties attempted to prevent a weaponized space—the OST and the UN Charter.²⁹² However, vague descriptions in the OST and the customary international law of anticipatory self-defense allows nations to actively place ASAT weapons in space.²⁹³ To protect itself, the U.S. should rely on Article 51 of the UN Charter (i.e., anticipatory self-defense) to preemptively strike if information reveals three elements: necessity, proportionality, and imminence.²⁹⁴

Spacefaring nations are developing ASAT weapons, which they can use by invoking anticipatory self-defense.²⁹⁵ The most probable ASAT weapons that

284. See generally DEF. INTELLIGENCE AGENCY, *supra* note 10 (highlighting the capabilities of a variety of ASAT weapons).

285. See Garcia, *supra* note 282 (arguing that the size of debris makes a difference in tracking).

286. *Danger: Orbital Debris*, AEROSPACE (May 4, 2018), <https://aerospace.org/article/danger-orbital-debris> (on file with the *University of the Pacific Law Review*).

287. See *id.* (explaining that some collision-created debris is so microscopic that it cannot be tracked).

288. *Id.*

289. See generally *id.* (arguing that destruction of satellites creates space debris).

290. See DEF. INTELLIGENCE AGENCY, *supra* note 10 (noting that the U.S. and Russia still routinely develop ASAT weapons for use in space).

291. *Id.*

292. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *supra* note 18, at art. 4; see U.N. Charter art. 2, ¶ 4 (noting the treaty's ban on the threat or use of force).

293. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *supra* note 18, at art. 4; see U.N. Charter pmb., art. 2, ¶ 4 (reiterating that the U.N. Charter incorporates customary international law); *supra* Subsection III.B.2.b.

294. See U.N. Charter art. 51 (noting that the U.N. Charter allows for a nation to attack in self-defense); Van den hole, *supra* note 89, at 96; *supra* Subsection III.B.2.b.

295. See DEF. INTELLIGENCE AGENCY, *supra* note 10 (showing the types of ASAT weapons different nations are building); see also *supra* Subsection III.B.2.b (highlighting the customary international law's interpretation of anticipatory self-defense).

nations employ today are: kinetic kill vehicles, radiofrequency jammers, chemical sprayers, HPMs, and robotic mechanisms.²⁹⁶ The hypothetical in this Comment provided a situation which tested a potential scenario where the U.S. could deploy some ASAT weapons, but not others.²⁹⁷ Satisfying the *Caroline* elements to invoke anticipatory self-defense requires a dynamic, fact-specific inquiry that will change with each situation.²⁹⁸ Consequently, some situations will necessitate the destructive nature of kinetic kill vehicles, while others will require the temporary solutions from radiofrequency jammers.²⁹⁹

Based on China and Russia's pro-weaponization stance, the U.S. should employ ASAT weapons in space.³⁰⁰ Further—when possible—the U.S. should avoid the collision-based ASAT weapons because the collision in space will create space debris, which already overcrowds Earth's orbit.³⁰¹ The Space Force will ensure the U.S. remains a dominant nation in space.³⁰²

Space is an extremely dangerous yet prosperous area of the universe.³⁰³ The prosperity, unfortunately, leads to conflicts among nations that sparks a race for dominance.³⁰⁴ Today's technology, although advanced, is still decades away from the weapons imagined in *Star Wars*.³⁰⁵ While X-wing Starfighters are not flying through space destroying Death Stars, today's technology is advancing in that direction.³⁰⁶

296. COMPETING IN SPACE, *supra* note 244.

297. *See supra* Part IV (postulating that in the hypothetical scenario where the U.S. was threatened by Alliance, the U.S. could deploy certain weapons like radiofrequency jammers, HPMs, and chemical sprayers).

298. Van den hole, *supra* note 89, at 96.

299. *See generally id.* (arguing that the fact-specific nature of proving necessity, proportionality, and imminence will allow some ASAT weapons to pass the test while others will fail).

300. DEF. INTELLIGENCE AGENCY, *supra* note 10.

301. *See Garcia, supra* note 282 (“The greatest risk to space missions comes from non-trackable debris.”).

302. OFFICE OF MGMT. & BUDGET, *supra* note 266, at 9.

303. *See Kashyap Vyas, Mining in Space: What It Means for the Economy?*, INTERESTING ENGINEERING (Jan. 2, 2019), <https://interestingengineering.com/mining-in-space-what-it-means-for-the-economy> (on file with the *University of the Pacific Law Review*) (explaining that space mining is a lucrative future business).

304. *Id.*

305. *US Creates Space Force, with Eye on Star Wars-like Future*, STRAITS TIMES (Dec. 22, 2019), <https://www.straitstimes.com/world/united-states/us-creates-space-force-with-eye-on-star-wars-like-future> (on file with the *University of the Pacific Law Review*).

306. *Id.*

* * *