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## Armed Conflicts in Outer Space: Which Law Applies?

Frans G. von der Dunk

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## Armed Conflicts in Outer Space: Which Law Applies?

*Frans G. von der Dunk\**

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The thoughts and opinions expressed are those of the author and not necessarily those of the U.S. government, the U.S. Department of the Navy, or the U.S. Naval War College.

## I. INTRODUCTION

In November 2019, the North Atlantic Treaty Organization (NATO) declared “outer space” to be its fifth operational domain,<sup>1</sup> next to those of the land, sea, airspace, and cyberspace. While space assets and services have played a major role in military and security-related operations for decades,<sup>2</sup> they have remained confined to an ancillary and supportive role to the actual conflict fought on Earth. NATO’s announcement, by suggesting that the pivotal Article 5 of the North Atlantic Treaty<sup>3</sup> on collective self-defense of individual member States could now legitimize joint military actions in outer space, heralded a paradigm change, as the use of force *in* or at least *from* outer space is now considered a distinct possibility.

Would that mean that *Star Wars* is about to become a reality? NATO’s announcement followed developments over the last few years that, taken

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1. See Jens Stoltenberg, NATO Secretary General, Press Conference (Nov. 19, 2019), [https://www.nato.int/cps/en/natohq/opinions\\_170972.htm?selectedLocale=en](https://www.nato.int/cps/en/natohq/opinions_170972.htm?selectedLocale=en); see also Martin Banks, *NATO Names Space as an ‘Operational Domain,’ But without Plans to Weaponize It*, DEFENSENEWS (Nov. 20, 2019), <https://www.defensenews.com/smr/nato-2020-defined/2019/11/20/nato-names-space-as-an-operational-domain-but-without-plans-to-weaponize-it/>; Kestutis Palauskas, *Space: NATO’s Latest Frontier*, NATO REVIEW (Mar. 13, 2020), <https://www.nato.int/docu/review/articles/2020/03/13/space-natos-latest-frontier/index.html>.

2. The 1991 Gulf War, where U.S.-led U.N. coalition forces drove Iraqi forces out of Kuwait and deep back into Iraq, is often hailed as the “first space war,” given the massive and decisive use of satellite navigation by the coalition forces. See, e.g., Larry Greenemeier, *GPS and the World’s First “Space War,”* SCIENTIFIC AMERICAN (Feb. 8, 2016), <https://www.scientificamerican.com/article/gps-and-the-world-s-first-space-war/>.

3. North Atlantic Treaty art. 5, Apr. 4, 1949, 63 Stat. 2241, 34 U.N.T.S. 243, provides in relevant part:

[A]n armed attack against one or more of them [the parties] in Europe or North America shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them, in exercise of the right of individual or collective self-defence recognised by Article 51 of the Charter of the United Nations, will assist the Party or Parties so attacked by taking forthwith, individually and in concert with the other Parties, such action as it deems necessary, including the use of armed force.

The reference to “in Europe or North America,” strictly speaking, excludes attacks on member-State assets in outer space but includes attacks from outer space to either continent, as well as any use of armed force in defense or retaliation directed at or through outer space. *But see infra* text accompanying notes 88–89.

together, make the likelihood of armed conflicts in outer space at least less remote. Russian satellites have undertaken unfriendly rendezvous maneuvers with Western satellites,<sup>4</sup> India flexed its military space muscle by undertaking its first anti-satellite test,<sup>5</sup> Chinese-U.S. political relations have soured considerably over the last few years with outer space being one of the key interests at stake,<sup>6</sup> and in setting up a ‘Space Force’, the United States made it clearly understood that outer space is coming into its own as another operational warfighting domain.<sup>7</sup>

If armed conflicts conducted in or from outer space were to materialize, the overarching legal question concerns the limitations that would apply. Or, put the other way around, what rights would States have to use force (or related instruments to cause damage or destruction) in or from outer space against opponents in an armed conflict? Put more simply, what does “the law” have to say about a real-world version of *Star Wars*?

## II. SPACE LAW VERSUS THE LAW OF ARMED CONFLICT

Unfortunately, there is no single coherent body of law answering these overarching questions. Rather, as outer space is an inherently international realm and armed conflicts are an equally global phenomenon (even if not always extending across national borders), two different legal regimes, each of comprehensive scope, could legitimately lay claim to providing the legal framework within which to answer them.

On the one hand, “space law,” a distinct body of law encompassing “every legal or regulatory regime having a significant impact, even if implicitly or indirectly, on at least one type of space activity or major space

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4. See, e.g., Chelsea Gohd, *2 Russian Satellites Are Stalking a US Spysat in Orbit: The Space Force is Watching (Report)*, SPACE.COM (Feb. 11, 2020), <https://www.space.com/russian-spacecraft-stalking-us-spy-satellite-space-force.html>.

5. See, e.g., Dipanjan Roy Chaudhury, *Explained: What’s Mission Shakti and How Was It Executed?*, ECONOMIC TIMES (Mar. 28, 2019), <https://economictimes.indiatimes.com/news/politics-and-nation/explained-whats-mission-shakti-and-how-was-it-executed/articleshow/68607473.cms>.

6. See, e.g., Jacqueline Feldscher & Liu Zhen, *Are the U.S. and China on a War Footing in Space?*, POLITICO (June 16, 2019), <https://www.politico.com/story/2019/06/16/war-in-space-trump-china-1365842>.

7. See, e.g., Matthew Cox, *Pentagon Activates Space Command to Prepare for War in the Final Frontier*, MILITARY.COM (Aug. 29, 2019), <https://www.military.com/daily-news/2019/08/29/pentagon-activates-space-command-prepare-war-final-frontier.html>.

application,”<sup>8</sup> addresses essentially *ratione geographiae*<sup>9</sup> (presumably all) major questions involving the use of an area called “outer space.” The cornerstone of this legal regime is the 1967 Outer Space Treaty,<sup>10</sup> currently ratified by 110 States, including all major spacefaring nations, with twenty-three more States having signed the treaty.<sup>11</sup> The treaty is generally considered to represent customary international law, whereby it provides the legal framework for all activities in or directed at, the realm of outer space.<sup>12</sup>

On the other hand, the law of armed conflict, another distinct body of law, addresses, *ratione materiae*,<sup>13</sup> (presumably all) major questions on activities, events, scenarios, and developments having to do with armed conflict. It may be daunting to try and define the law of armed conflict, given that it goes back (to some extent) to the dawn of human civilization,<sup>14</sup> that

8. Frans G. von der Dunk, *Preface* to HANDBOOK OF SPACE LAW xxvi (Frans G. von der Dunk & Fabio Tronchetti eds., 2015).

9. The term that would habitually be used to indicate that the location where something happens is the legally decisive criterion is *ratione loci*. *Ratione loci*, however, is usually presumed to refer to a particular State’s territorial jurisdiction and such territorial jurisdiction is absent in outer space. *Cf. infra* text accompanying note 28. It is more precise therefore to use the somewhat broader term *ratione geographiae* here. It may be noted that while a number of space law rules are phrased in a more functionally oriented context than *ratione geographiae*, for instance when using the key concept of “space object” as the trigger of many relevant rights and obligations, the definitions of such key concepts ultimately trace back to the *area* of outer space. In the case of a space object, this concerns the area of operation where that object is intended to be sent. *See, e.g.*, Frans G. von der Dunk, *International Space Law*, in *id.* at 29, 62–63 (and literature cited there).

10. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

11. United Nations Office for Outer Space Affairs, *Status of International Agreements Relating to Activities in Outer Space as at 1 January 2020*, <https://www.unoosa.org/documents/pdf/spacelaw/treatystatus/TreatiesStatus-2020E.pdf>.

12. On the Outer Space Treaty in general, *see, e.g.*, von der Dunk, *International Space Law*, *supra* note 9, at 49–78; 1 COLOGNE COMMENTARY ON SPACE LAW (Stephan Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl eds., 2009); Paul G. Dembling & Daniel M. Arons, *The Evolution of the Outer Space Treaty*, 33 JOURNAL OF AIR LAW AND COMMERCE 419 (1967); BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW 215–64 (1997).

13. While, as will be seen further below, the locations where armed conflicts are fought, or certain activities, events, scenarios or developments play out, is relevant to the application of the law of armed conflict, the primary trigger of its applicability rests in the existence of an armed conflict, or the threat, consequences, or aftermath thereof.

14. For a brief history of the law on armed conflict, *see, e.g.*, Robert A. Ramey, *Armed Conflict on the Final Frontier: The Law of War in Space*, 48 AIR FORCE LAW REVIEW 1, 44–63

definitions abound,<sup>15</sup> and that there is no single treaty providing a generally accepted overarching framework.<sup>16</sup> Also, in contrast to space law having its origins in a single treaty, the law of armed conflict consists of a multitude of treaties, often supreme in their own right, as well as an extended and ever-growing body of customary international law. Nevertheless, to ensure a proper analysis along the same broad lines as space law, it is appropriate to define the law of armed conflict succinctly as “all law of major and direct relevance to armed conflicts,” focusing on when and how they are fought and anything else of direct impact on them.

The question of what rules apply to armed conflicts occurring in or conducted primarily from outer space would have been fairly easy to answer to the extent that the two bodies of law do not conflict in the results of their application to specific activities, events, scenarios, or developments. Even beyond that, in instances where the bodies of law conflicted, if there was a single tool of prioritization to determine where one overrides the other, the

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(2000); ANTONIO CASSESE, INTERNATIONAL LAW 325–48 (2001); REBECCA M. M. WALLACE, INTERNATIONAL LAW 247–79 (3d ed. 1997); GIDEON BOAS, PUBLIC INTERNATIONAL LAW 307–16 (2012); MICHAEL AKEHURST, A MODERN INTRODUCTION TO INTERNATIONAL LAW 216–39 (5th ed. 1984) (still referring to “international wars”); Elizabeth S. Waldrop, *Integration of Military and Civilian Space Assets: Legal and National Security Implications*, 55 AIR FORCE LAW REVIEW 157, 217–26 (2004) (focused on outer space and U.S. views on use of force therein).

15. For examples *see, e.g.*, CASSESE, *supra* note 14, at 325 (“to *mitigate* at least some of the most frightful manifestations of the clash of arms” (emphasis added)); AKEHURST, *supra* note 14, at 229 (“the laws of war were designed mainly to prevent *unnecessary* suffering” (emphasis added)); WALLACE, *supra* note 14, at 247–79, 247 (“aims to control the use of force”); BOAS, *supra* note 14, at 309 (“to regulate the use of force”); Michael N. Schmitt, *Bellum Americanum: The U.S. View of Twenty-First-Century War and Its Possible Implications for the Law of Armed Conflict*, 71 INTERNATIONAL LAW STUDIES 299, 412 (1998) (“designed primarily to minimize suffering and prevent unnecessary destruction”).

16. While the U.N. Charter is seen by many as coming close at least in a number of respects, there are many parts of the law of armed conflict that have developed independently from, and remain formally outside the Charter’s remit. *See infra* Parts II–C, II–D. On the Charter in general, *see, e.g.*, Jean-Pierre Cot, *United Nations Charter*, MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (Apr. 2011), <https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e539?rskey=rL9wDs&result=2&prd=OPIL>; THE CHARTER OF THE UNITED NATIONS – A COMMENTARY (Bruno Simma et al. eds., 2d ed. 2002).

differences would be easy to reconcile. Unfortunately, neither will be seen to be the case.<sup>17</sup>

Thus, the next Part provides an overview of space law, then scrutinizes in Part II–B to what extent and how that law specifically addresses the threat or use of force in outer space. Part II–C provides a similar overview of the law of armed conflict, followed in Part II–D by scrutiny of the extent to which and how it addresses outer space. Part III, through six examples, illustrates where the application of the two regimes would give rise to conflicting outcomes. Having thus analyzed the fundamental problems, various legal concepts and principles will be critically assessed as potential analytical legal tools for prioritization in Parts III–A to C, permitting a fairly succinct yet coherent, comprehensive, and feasible approach to solving such problems by way of a matrix on prioritization in Part IV. This is followed by brief concluding remarks.

#### *A. The Essentials of Space Law*

From the beginning of the space age, the military and security implications of space activities were not lost on those involved or observing them.<sup>18</sup> The development of space law was, to a large extent, premised on the desire—even hope—of maintaining outer space as a sanctuary for peace. By consensus, the underlying approach to the Outer Space Treaty and space law at large consisted of “[r]ecognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes” and “[b]elieving that . . . cooperation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples.”<sup>19</sup> So far, the hope that armed conflict in outer space could be avoided has proven successful, with space assets and services only involved in an ancillary capacity in “terrestrial” armed conflicts. Now that this hope is diminishing, the question arises as to what extent space law

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17. The ongoing Woomera Manual project represents the first coherent and comprehensive effort to address those questions. See *The Woomera Manual*, UNIVERSITY OF ADELAIDE, <https://law.adelaide.edu.au/woomera/> (last visited Jan. 10, 2021).

18. For a good overview of potential military applications of space technology and assets, see Waldrop, *supra* note 14, at 157–74; more succinctly, Fabio Tronchetti, *Legal Aspects of the Military Uses of Outer Space*, in HANDBOOK OF SPACE LAW, *supra* note 8, at 331, 331–34.

19. Outer Space Treaty, *supra* note 10, pmbl. Of course, this provision, as part of the preamble and not of the operative part of the treaty, is not itself legally binding.

effectively and appropriately addresses the possibility of armed conflicts in outer space, as many of its principles and rules, based on the hope of peace, might not sufficiently address such conflicts.

The main elements of the principles and rules of outer space law stem from the Outer Space Treaty, and three further treaties elaborating specific important aspects of that Treaty. These are the 1968 Rescue Agreement,<sup>20</sup> 1972 Liability Convention,<sup>21</sup> and 1975 Registration Convention.<sup>22</sup> As with the Outer Space Treaty, these conventions are widely ratified.

Two other treaty regimes address outer space from a different perspective. The first regime developed under the aegis of the International Telecommunication Union (ITU). It is currently based on the 1992 ITU Constitution<sup>23</sup> and the 1992 ITU Convention<sup>24</sup> (both amended several times) and the 2016 Radio Regulations,<sup>25</sup> whose relevance is found in the fact that to date space activities without the use of radio frequencies are virtually impossible. This body of law has been recognized since the 1959 meeting of the World Administrative Radio Conference as including space communications within its regime on the coordination of the international use and effects of

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20. Agreement on the Rescue of Astronauts and the Return of Objects Launched in Outer Space, Apr. 22, 1968, 19 U.S.T. 7570, T.I.A.S. 6599, 672 U.N.T.S. 119 [hereinafter Rescue Agreement]. *See also generally, e.g.,* von der Dunk, *International Space Law*, *supra* note 9, at 78–81; Irmgard Marboe, Julia Neumann & Kai-Uwe Schrogl, *The 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space*, in 2 COLOGNE COMMENTARY ON SPACE LAW 1 (Stephan Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl eds., 2013).

21. Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, T.I.A.S. 7762, 961 U.N.T.S. 187 [hereinafter Liability Convention]. *See also generally, e.g.,* von der Dunk, *International Space Law*, *supra* note 9, at 82–94; L. J. Smith, A. Kerrest de Rozavel & Fabio Tronchetti, *The 1972 Convention on International Liability for Damage Caused by Space Objects*, in 2 COLOGNE COMMENTARY ON SPACE LAW, *supra* note 20, at 83.

22. Convention on Registration of Objects Launched into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, T.I.A.S. 8480 1023 U.N.T.S. 15 [hereinafter Registration Convention]. *See also generally, e.g.,* von der Dunk, *International Space Law*, *supra* note 9, at 94–99; Bernhard Schmidt-Tedd et al., *The 1975 Convention on Registration of Objects Launched into Outer Space*, in 2 COLOGNE COMMENTARY ON SPACE LAW, *supra* note 21, at 227.

23. Constitution of the International Telecommunication Union, Dec. 22, 1992, 1825 U.N.T.S. 331 [hereinafter ITU Constitution].

24. Convention of the International Telecommunication Union, Dec. 22, 1992, 1825 U.N.T.S. 390.

25. Radio Regulations (2016), ITU, <https://www.itu.int/en/publications/ITU-R/pages/publications.aspx?parent=R-REG-RR-2016&media=electronic>.



radio frequencies.<sup>26</sup> The second regime is based on the 1963 Partial Test Ban Treaty,<sup>27</sup> which addresses nuclear weapons testing and includes outer space within its scope. For that reason, many authors effectively considered it the first space treaty<sup>28</sup> since it preceded the Outer Space Treaty by four years, even if outer space was only one realm it addressed.

Together, these core treaties provide the major legal principles, concepts, and rules applicable to nearly all activities conducted in, or fundamentally concerning, outer space. The most important of these are those addressing outer space as an area where territorial sovereignty or any other form of “national appropriation”<sup>29</sup> is prohibited, making it a *res communis*, a kind of “global commons,” not unlike the high seas.<sup>30</sup> The exploration and use of

26. It effectively became part of the requirements of the Outer Space Treaty through Article III. Outer Space Treaty, *supra* note 10, art. III (“States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law.”). For further discussion of the ITU and its workings, see, e.g., Frans G. von der Dunk, *Legal Aspects of Satellite Communications*, in HANDBOOK OF SPACE LAW, *supra* note 8, at 456, 458–93; FRANCIS LYALL, INTERNATIONAL COMMUNICATIONS – THE INTERNATIONAL TELECOMMUNICATION UNION AND UNIVERSAL POSTAL UNION 17–212 (2011); Jens Hinricher, *The Law-Making of the International Telecommunication Union (ITU) – Providing a New Source of International Law?*, 64 ZEITSCHRIFT FÜR LUFT- UND WELTRAUMRECHT 489, 489–501 (2004).

27. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, Aug. 5, 1963, 14 U.S.T. 1313, T.I.A.S. No. 5433, 480 U.N.T.S. 43 [hereinafter Partial Test Ban Treaty]. See also, e.g., Tronchetti, *supra* note 18, at 343–44; Stefan Kadelbach, *Nuclear Weapons and Warfare*, MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (Oct. 2015), <https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e355?rkey=I9GvEB&result=1&prd=OPIL>.

28. See, e.g., Ram Jakhu, *Evolution of the Outer Space Treaty*, in 50 YEARS OF THE OUTER SPACE TREATY 13 (2017) (“the 1967 Outer Space Treaty . . . was the second international agreement, after the adoption of the 1963 Partial Test Ban Treaty, adopted specifically to regulate outer space”); cf. also Peter Jankowitsch, *The Background and History of Space Law*, in HANDBOOK OF SPACE LAW 14 (Frans G. von der Dunk & Fabio Tronchetti eds., 2015) (“The . . . Partial Test Ban Treaty . . . was the first legally binding international instrument that clearly acknowledged the fact that outer space constitutes a new dimension”); Nina-Luisa Remuss, *Space and Security*, in OUTER SPACE IN SOCIETY, POLITICS AND LAW 520 (Christian Brünner & Alexander Soucek eds., 2011); Fabio Tronchetti, *Legal Aspects of the Military Uses of Outer Space*, in HANDBOOK OF SPACE LAW 343 (Frans G. von der Dunk & Fabio Tronchetti eds., 2015) (“The 1963 Partial Test Ban Treaty is chronologically speaking the first international treaty on arms limitation in outer space”).

29. Outer Space Treaty, *supra* note 10, art. II.

30. See United Nations Convention on the Law of the Sea art. 87, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS].

outer space are qualified as “the province of all mankind”<sup>31</sup> and freedom of activity in outer space for States is the default baseline. Through these provisions, the Outer Space Treaty effectively inserted the Lotus principle into space law as that had been stated by the Permanent Court of International Justice:

International law governs relations between independent States. The rules of law binding upon States therefor emanate from their own free will as expressed in conventions or by usages generally accepted as expressing principles of law and established in order to regulate the relations between these co-existing independent communities or with a view to the achievement of common aims. Restrictions upon the independence of States cannot therefore be presumed.<sup>32</sup>

Consequently, limitations to a State’s general freedoms can only be imposed by international law, notably by treaties and customary international law, the two principal sources of international law.<sup>33</sup>

One of those limitations is found in Article V of the Outer Space Treaty, which requires States to “regard astronauts as envoys of mankind in outer space” and accord them the maximum of supportive and respectful treatment, such as “render[ing] to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas” and to ensure they are “safely and promptly returned to the State of registry of their space vehicle.”<sup>34</sup> These obligations were further elaborated upon by the Rescue Agreement.<sup>35</sup>

Quite uniquely, the twin principles of Articles VI and VII of the Outer Space Treaty provide for State responsibility for national space activities conducted by private entities (including obligations to authorize and continuously supervise such activities) and State liability for damage caused by space objects owned, launched, or operated by private entities.<sup>36</sup> Many countries

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31. Outer Space Treaty, *supra* note 10, art. I.

32. S.S. Lotus (Fr. v. Turk.), Judgment, 1927 P.C.I.J. (ser. A) No. 10, at 44 (Sept. 7).

33. Treaties and customary international law are generally recognized as representing the two major sources of public international law. *See* Statute of the International Court of Justice art. 38(1)(a)–(b), June 26, 1945, 59 Stat. 1055, 33 U.N.T.S. 993; *see also, e.g.*, CASSESE, *supra* note 14, at 119–138; BOAS, *supra* note 14, at 52–95.

34. Outer Space Treaty, *supra* note 10, art. V.

35. *See* Rescue Agreement, *supra* note 20, arts. 1–4.

36. *See* Outer Space Treaty, *supra* note 10, arts. VI, VII.

adopted national space legislation to implement Article VI's obligation to authorize and continuously supervise relevant categories of private space activities.<sup>37</sup> The Liability Convention then fleshed out Article VII's liability regime, providing, *inter alia*, for a fundamental distinction between damage caused on Earth, which is subject to absolute liability, and damage caused to space objects, which is subject to fault liability, as well as calling, in principle, for unlimited compensation.<sup>38</sup>

Partly developed as an ancillary tool to help identify space objects causing damage for the purpose of liability claims, there is a registration system for objects launched into outer space. Article VIII of the Outer Space Treaty provided only that by registering a space object, a State "shall retain jurisdiction and control over such object, and over any personnel thereof."<sup>39</sup> The Registration Convention then established an actual registration regime, requiring both domestic and international registration of space objects.<sup>40</sup>

Finally, States are to conduct space activities in a manner to avoid harmful contamination to celestial objects and with due regard for potentially harmful interference with other States' activities in outer space, imposing corresponding duties and rights of consultation.<sup>41</sup> As the risks of space debris and harmful interference with other legitimate activities became a matter of growing concern, these principles gave rise to international guidelines of

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37. For national space legislation in general and its role in implementing international space law, see, e.g., Irmgard Marboe, *National Space Law*, in HANDBOOK OF SPACE LAW, *supra* note 8, at 127.

38. See Liability Convention, *supra* note 21, arts. II, III, XII.

39. Outer Space Treaty, *supra* note 10, art. VIII.

40. See Registration Convention, *supra* note 22, art. II (domestic registration), arts. III–V (international registration). The decision not to use the word "nationality" to refer to registered space objects was a conscious deviation from the practice with regard to registered ships and aircraft, with the result that formally/legally speaking the concept of "flag States" does not apply to space objects. Cf., e.g., Bernhard Schmidt-Tedd & Stephan Mick, *Article VIII*, in 1 COLOGNE COMMENTARY ON SPACE LAW, *supra* note 12, at 151, 156–59; Bin Cheng, *Space Objects and Their Various Connecting Factors*, in OUTLOOK ON SPACE LAW OVER THE NEXT 30 YEARS 203, 211, 214–15 (Gabriel Lafferranderie & Daphné Crowther eds., 1997).

41. See Outer Space Treaty, *supra* note 10, art. IX.

increasing legal effect and importance<sup>42</sup> that may soon rise to the status of customary international law.<sup>43</sup>

Importantly, the Outer Space Treaty, in addition to its *substantive* principles and rules, as often further elaborated by other treaties (status of astronauts, requirements to pay for damage caused and act with due diligence, obligations to register space objects, respect the ITU radio frequency coordination process, and abstain from nuclear explosions in outer space), also provides a limited set of *structural* principles, notably concerning the legal status of outer space (Article II), the comprehensive attribution of private activities to States (Articles VI and VII), and the possibility of exercising quasi-territorial jurisdiction over space objects (Article VIII).

#### B. *Space Law and the Threat or Use of Force in Outer Space*

The next question is then how and to what extent space law applies more specifically to potential or actual armed conflicts. More precisely, the question turns to the application of space law if space activities are undertaken for strategic, security, or military purposes, either in support of terrestrial operations or as self-standing activities aimed at achieving specific results in outer space itself.

To start with, the previously discussed core principles of space law apply (and this generally holds true for the rest of space law as well) to military space activities. The major exception concerns the international telecommunications regime, as “Member States retain their entire freedom with regard to military radio installations”<sup>44</sup> under the ITU regime on the coordination of the use of radio frequencies.

The main substantive provision of the Outer Space Treaty in the security realm that still echoes the hope that outer space remains a sanctuary of peace is the Article III obligation that space activities comply with international law

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42. Notably, IADC Space Debris Mitigation Guidelines, Doc. No. IADC-02-01, Rev. 1 (Sept. 2007); *Report of the Committee on the Peaceful Uses of Outer Space*, 62 U.N. GAOR Supp. No. 20, annex, Space Debris Mitigation Guidelines of the United Nations Committee on the Peaceful Uses of Outer Space, U.N. Doc. A/62/20 (2007). The report was subsequently endorsed by the U.N. General Assembly. G.A. Res. 62/217, ¶ 26 (Feb. 1, 2008).

43. *Cf. also* Carsten Wiedemann, *Space Debris Mitigation*, in *SOFT LAW IN OUTER SPACE* 315 (Imgard Marboe ed., 2012); LOTTI VIKARI, *THE ENVIRONMENTAL ELEMENT IN SPACE LAW: ASSESSING THE PRESENT AND CHARTING THE FUTURE* 246–56 (2008).

44. ITU Constitution, *supra* note 23, art. 48(1). No comparable clause can be found in any of the other major space law treaties.

(at least to the extent that such general international law would not be superseded by the specifics of space law itself dictating otherwise).<sup>45</sup> It explicitly refers to “the Charter of the United Nations, in the interest of *maintaining* international peace and security”<sup>46</sup> in that context.

In that regard, both the U.N. Charter’s baseline prohibition on the use of force (at least in interstate conflicts) that threaten “the territorial integrity or political independence of any state”<sup>47</sup> and the two fundamental categories of exceptions to it—the right of self-defense in U.N.-ordered<sup>48</sup> or U.N.-mandated military sanctions<sup>49</sup>—have become applicable to outer space as well. As will be seen, however, its precise ramifications may be even more complicated, legally speaking, than on Earth. Beyond the above, space law contains only four relevant substantive rules addressing military activities.

45. *See also infra* text accompanying notes 112–14.

46. Outer Space Treaty, *supra* note 10, art. III (emphasis added).

47. While also addressing the “the threat or use of force . . . in any other manner inconsistent with the Purposes of the United Nations,” U.N. Charter Article 2(4) focuses on the use of such force between sovereign States *that threatens* “the territorial integrity or political independence of any state.” U.N. Charter art. 2, ¶ 4. Other State-to-State conflicts involving the use of force may likely be largely covered by the former phrase as well, since the United Nations “is based on the principle of the sovereign equality of all its Members.” U.N. Charter art. 2, ¶ 1. By the same token, non-State-to-State conflicts are hardly addressed in the Charter. These conflicts may concern (1) purely “internal” conflicts where a State (or at least its ruling government) is fighting with insurgents that do not qualify as a State (though in a number of cases more or less indirectly supported by (an) other State(s)); (2) conflicts within a State where there is nothing like a “ruling government” between various powers vying for such authority (and again often more or less indirectly supported by other States); or (3) conflicts between one or more States on the one hand and non-State actors from outside such States on the other (which again may well be directly or indirectly supported by other States). The references to U.N. “Members” and “their international relations” in Article 2(4) may not be easily applicable to these conflicts. Additionally, the prohibition for “the United Nations to intervene in matters which are essentially within the domestic jurisdiction of any state” and the absence of a requirement for “the Members to submit such matters to settlement under the present Charter” further stand in the way of straightforward application of the Charter and its regime in this context. U.N. Charter art. 2 ¶ 7. *See also*, e.g., BOAS, *supra* note 14, at 316–26; AKEHURST, *supra* note 14, at 240–47; WALLACE, *supra* note 14, at 255–56; CASSESE, *supra* note 14, at 332–33.

48. U.N. Charter art. 42

49. *Id.* art. 53. For the sake of convenience, Security Council mandates to regional arrangements to address “where appropriate” threats to international peace and security are throughout taken as a corollary to addressing such threats by the Council’s own actions under Article 42. Thus, they are addressed together under the heading of “UN-ordered or -mandated” military sanctions.

First, the orbiting or stationing of weapons of mass destruction, encompassing (at least) biological, chemical, and nuclear weapons, anywhere in outer space is prohibited.<sup>50</sup> Here, the “negative” is more telling than the prohibition itself, as the clause neither prohibits sending weapons of mass destruction through outer space nor the stationing of weapons in space other than those of mass destruction.<sup>51</sup> That the *existence* of weapons in outer space under the Outer Space Treaty is thus limited to the stationing or orbiting of weapons of mass destruction only, however, does not negate the applicability of specific limitations to the *possession* or *use* of any categories of weapons or of force in general under Article III, as this in principle causes relevant general public international law to also apply in outer space.<sup>52</sup>

Second, all military activities, notably, “[t]he establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden” and all celestial bodies “shall be used by all States Parties to the Treaty exclusively for peaceful purposes.”<sup>53</sup> Thus, the moon and other celestial bodies were—in contrast to the vacuum of outer space itself—effectively transformed into demilitarized zones.

Third, Article IX’s limitations on harmful interference with the activities of other States<sup>54</sup> may also present a legal obstacle to unfettered discretion in

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50. See Outer Space Treaty, *supra* note 10, art. IV (“States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.”). This is essentially a type of arms control clause.

51. Considering the extent to which they were relying on intercontinental ballistic missiles in the context of their strategic defenses, neither the United States nor the Soviet Union at the time would have accepted a ban on sending weapons of mass destruction through outer space. As for non-mass destruction weapons, in 1967 their presence in outer space was not considered even remotely realistic thus the issue was not addressed.

52. A salient example would be the ENMOD Convention. Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques, May 18, 1977, 31 U.S.T. 333, T.I.A.S. No. 9614, 1108 U.N.T.S. 151 [hereinafter ENMOD Convention].

53. Outer Space Treaty, *supra* note 10, art. IV. This is the most forceful clause in the treaty in terms of limiting security-related activities in outer space. It is confined in its application, however, to celestial bodies. On the issue of “peaceful purposes,” see, e.g., Ramey, *supra* note 14, at 77–82; Tronchetti, *supra* note 18, at 338–41; Waldrop, *supra* note 14, at 222–24.

54. See *supra* text accompanying note 38.

using force in outer space, in particular in view of the growing awareness that the creation of space debris, whether wanton or not, puts *all* States' space assets at risk.

And fourth, there is the clear-cut provision for States party to the aforementioned Partial Test Ban Treaty “to prohibit, to prevent, and not to carry out any nuclear weapon test explosion, or any other nuclear explosion, at any place under its jurisdiction or control: (a) in the atmosphere; beyond its limits, *including outer space.*”<sup>55</sup>

To date, the closest that space law on military uses of outer space has come to being tested was in the 1980s, when the United States was contemplating deployment of laser weapons in outer space as part of its Strategic Defense Initiative (SDI).<sup>56</sup> The issue that arose was whether laser weapons would qualify as “weapons of mass destruction,” in which case their deployment would be prohibited by Article IV of the Outer Space Treaty. The question was never resolved, principally because SDI never got beyond the drawing board.

More generally, this brief overview of space law, which sprang from the hope that outer space would remain free from the use of force, has only addressed the surrounding legal issues in a concise and somewhat fragmented manner. But, at the same time, it lays a credible claim to space law being a regime of law that does and should address *all* matters pertinent to space activities, including when, against all hope, the threat or use of force might become a reality—or at least a realistic possibility.

### C. *The Essentials of the Law of Armed Conflict*

As for the law of armed conflict, its legal point of departure was almost exactly the opposite of that of space law. With armed conflict being as old as human civilization, the underlying assumption is that, no matter how regrettable, intense conflicts between States or peoples are an inevitable fact of life and will continue to occur. The overarching aim of the law of armed conflict, thus, is not to outlaw the use of force, essentially seen as utopian, but rather to limit its occurrence to the extent feasible and, when armed conflicts nevertheless occur, to limit their disastrous effects as much as possible. In that

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55. Partial Test Ban Treaty, *supra* note 27, art. I(1) (emphasis added). As indicated, Article III of the Outer Space Treaty, *supra* note 10, effectively integrates this provision more formally into space law.

56. See *Strategic Defense Initiative (SDI)*, ATOMIC HERITAGE FOUNDATION (July 18, 2018), <https://www.atomicheritage.org/history/strategic-defense-initiative-sdi>.

regard, the U.N. Charter, while recognizing the need “to save succeeding generations from the scourge of war” and wishing “to unite our strength to maintain international peace and security,” also calls for the establishment of “conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained” and endeavors “to ensure by the acceptance of principles and the institution of methods, that force shall not be used, *save in the common interest*.”<sup>57</sup>

Again, in contrast to space law, which emerged within a relatively short timeframe and, as indicated earlier, did so largely based on a single framework treaty of global applicability, the law of armed conflict represents a conglomerate of principles, rules, rights, and obligations that have developed over many centuries and that are enshrined in a multitude of treaties and customary international law regimes. Hence, efforts abound to bring some order into this bewildering variety of legal regimes by grouping many of them under broader headings. While for convenience’s sake these headings will also be used here, in many cases, the borders between various regimes are difficult to determine. In any event, no discussion on their precise contents should be allowed to cloud the ultimate overriding aim of the law of armed conflict as defined earlier.<sup>58</sup>

As for the *jus ad bellum*, with its roots in such ancient concepts as “just war,” it essentially limits the *contexts* in which *any* substantial use of force would be legitimate.<sup>59</sup> Passing a first major psychological threshold with the fundamental condemnation of war by a treaty tellingly entitled the General Treaty for the Renunciation of War as an Instrument of National Policy,<sup>60</sup> it culminated in the U.N. Charter, seen by some as the final seal on the *jus ad bellum* by imposing a baseline prohibition on the use of force between States with just two exceptions.<sup>61</sup>

57. U.N. Charter pmbl. (emphasis added). Again, these provisions, as part of the preamble and not of the operative portion of the treaty, are not themselves legally binding.

58. That is, to limit the occurrence of armed conflicts to the extent feasible and when armed conflicts occur, to limit their disastrous effects as much as possible.

59. *See, e.g.*, CASSESE, *supra* note 14, at 325–28; BOAS, *supra* note 14, at 308–9; Ramey, *supra* note 14, at 59–63.

60. General Treaty for Renunciation of War as an Instrument of National Policy, Aug. 27, 1928, 46 Stat. 2343, 94 L.N.T.S. 57 (also known as the Kellogg-Briand Pact). *See also, e.g.*, BOAS, *supra* note 14, at 312; WALLACE, *supra* note 14, at 248–49.

61. As discussed earlier (*supra* text accompanying notes 46–48), the two exceptions concerned self-defense and U.N. Security Council-sanctioned use of force. *See* U.N. Charter arts. 2, ¶ 4, 51, 42, 53; *see also, e.g.*, Michael Bothe, *Neutrality, Concept and General Rules*, MAX



As for its traditional counterpart, the *jus in bello*, now often called international humanitarian law, it focuses on limiting the *more specific extent* to which force could legitimately be used.<sup>62</sup> In particular, there is the “Geneva system,” originating from initial efforts to alleviate human suffering on battlefields and then more broadly in the context of armed conflicts, is found in four 1949 conventions and three additional protocols (two in 1977 and one 2007). The Geneva system has been seen as the core of the *jus in bello*.<sup>63</sup>

The border between the *jus ad bellum* and the *jus in bello* often became blurred. This blurring occurred for several reasons, such as addressing both

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PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (last updated Oct. 2015), <https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e349?rskey=vFQsjQ&result=5&prd=MPIL>; Adam Roberts & Richard Guelff, *Prefatory Note*, in DOCUMENTS ON THE LAWS OF WAR 85 (Adam Roberts & Richard Guelff eds., 3d ed. 2000); CASSESE, *supra* note 14, at 296–69, 305–13; BOAS, *supra* note 14, at 313–15, 326–40.

62. See, e.g., CASSESE, *supra* note 14, at 326–28; Ramey, *supra* note 14, at 48–59.

63. The Geneva system comprises the four 1949 Geneva Conventions and three additional protocols. Convention (I) for the Amelioration of the Condition of the Wounded and Sick in the Armed Forces in the Field, Aug. 12, 1949, 6 U.S.T. 3114, T.I.A.S. No. 3362, 75 U.N.T.S. 31 [hereinafter Geneva Convention I]; Convention (II) for the Amelioration of the Condition of the Wounded, Sick, and Shipwrecked Members of Armed Forces at Sea, Aug. 12, 1949, 6 U.S.T. 3217, T.I.A.S. No. 3363; Convention (III) Relative to the Treatment of Prisoners of War, Aug. 12, 1949, 6 U.S.T. 3316, T.I.A.S. No. 3364, 75 U.N.T.S. 135; Convention (IV) Relative to the Protection of Civilian Persons in Time of War, Aug. 12, 1949, 6 U.S.T. 3516, T.I.A.S. No. 3365, 75 U.N.T.S. 287; Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, June 8, 1977, 1125 U.N.T.S. 3 [hereinafter Additional Protocol I]; Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts, June 8, 1977, 1125 U.N.T.S. 609; Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Adoption of an Additional Distinctive Emblem, Dec. 8, 2005, 2404 U.N.T.S. 261. See also, e.g., *The Geneva Conventions and their Commentaries*, ICRC, <https://www.icrc.org/en/war-and-law/treaties-customary-law/geneva-conventions> (last visited Jan. 10, 2021); Hans-Peter Gasser, *Geneva Conventions I–IV (1949)*, MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (last updated Dec. 2015), <https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e300?rskey=ynKcD4&result=1&prd=OPIL>; Emily Crawford, *Geneva Conventions Additional Protocol I (1977)*, MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (last updated June 2015), <https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1804?rskey=vYEoi3&result=1&prd=OPIL>; Emily Crawford, *Geneva Conventions Additional Protocol II (1977)*, MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (last updated June 2015), <https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1805?rskey=uPLIFF&result=3&prd=OPIL>.

legal fields in the same treaties.<sup>64</sup> Here, an important example is the “Hague system” of conventions originating in the Hague Peace Conferences of 1899 and 1907,<sup>65</sup> which addressed both *jus in bello* limitations on the use of force against civilians and neutral States during armed conflicts, and the *jus ad bellum* aims of disarmament and peaceful settlement of disputes.<sup>66</sup>

In addition to the *jus ad bellum* and *jus in bello*, legal regimes on arms control and arms limitation treaties form part of the law of armed conflict *lato sensu*. Based on the reasoning that “what you don’t have, you cannot use, not even inadvertently,” many treaties address the overarching aims of the law of armed conflict by limiting the right to possess certain categories of arms.<sup>67</sup>

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64. *Cf.* also WALLACE, *supra* note 14, at 272, who includes the two strands within a comprehensive *jus ad bellum*:

[T]wo categories – those relating to the actual conduct of hostilities, and those which afford a minimum of protection to the individual (humanitarian law). The former are to be found principally in the 1899 and 1907 Hague Conventions 1899 and 1907 while the 1949 Four Geneva Conventions (“Red Cross”) and two additional protocols adopted 1977 comprise the latter.

Waldrop, *supra* note 14, at 221 takes a yet different approach in discerning “two main areas” as follows: “In general terms, the Hague treaties deal with the behaviour of belligerents and the methods and means of war (for example, lawful and unlawful weapons and targets), while the Geneva agreements address the protection of personnel involved in conflicts (e.g., Prisoners of War, civilians, the wounded).” *See also, e.g.*, AKEHURST, *supra* note 14, at 230–31.

65. The Hague system comprises three conventions resulting from the 1899 Peace Conference and thirteen resulting from the 1907 Conference, plus attendant declarations and regulations, many of them widely ratified. Collectively, they have had a major impact on the development of the *jus in bello* and *jus ad bellum*. *See* Betsy Baker, *Hague Peace Conferences (1899 and 1907)*, MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (last updated Nov. 2009), <https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e305?rskey=p19Wat&result=1&prd=OPIL>.

66. *Cf., e.g.*, Ramey, *supra* note 14, at 32–34, 45–50; CASSESE, *supra* note 14, at 326–28.

67. Examples include the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, June 17, 1925, 26 U.S.T. 571, 94 L.N.T.S. 65, *reprinted in* 14 INTERNATIONAL LEGAL MATERIALS 49 (1975); Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, Apr. 10, 1972, 26 U.S.T. 583, 1015 U.N.T.S. 163; Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, Jan. 13, 1993, 1974 U.N.T.S. 45; and various U.S.-Soviet treaties limiting the delivery systems of strategic nuclear warheads. An example of the latter is Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic

Finally, such fluid and partly overlapping concepts as the law of targeting,<sup>68</sup> the law of neutrality,<sup>69</sup> and the law of prize<sup>70</sup> are also part of the law of armed conflict. The essence of the law of targeting is to limit the infliction of harm in specific cases by calling for a balance between such criteria as military necessity and the potential for the use of force to cause harm to non-combatants, neutrals, and protected places, such as hospitals and schools.<sup>71</sup> The ultimate aim of the law of neutrality and law of prize is to determine the extent of the legitimate force belligerents may use against neutral States, persons, and goods relative to that which may be used against enemy States, persons, and goods.<sup>72</sup> To that end, the law of neutrality (properly understood it is not a body of law entirely separate from either the *jus ad bellum* or *jus in bello*) creates fundamental distinctions between belligerents and neutral States and outlines their mutual rights and obligations. It focuses on the protection and use of neutral *territory* (that is, of States not engaged in the conflict), neutral *persons* (for example, citizens of neutral States), and neutral *assets* such as

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Offensive Arms, U.S.-Russ., Apr. 8, 2010, T.I.A.S. No. 11,205 [hereinafter New START Treaty]. *See also, e.g.*, CASSESE, *supra* note 14, at 333–40; Waldrop, *supra* note 14, at 225–26.

68. *See, e.g.*, Wolff Heintschel von Heinegg, *Neutrality and Outer Space*, 93 INTERNATIONAL LAW STUDIES 526, 531 (2017) (The law of targeting governs “[a]ttacks against neutral space objects and assets” when they become “lawful military objectives.” They “may be attacked if . . . precautions in attack and the prohibition of indiscriminate attack are observed.”); *cf. also* Ramey, *supra* note 14, at 34–44; Waldrop, *supra* note 14, at 221–22.

69. *See, e.g.*, Von Heinegg, *supra* note 68, at 528 (“The overall object and purpose of the law of neutrality is to prevent escalation of an international armed conflict.”); *see also, e.g.*, CASSESE, *supra* note 14, at 327–28.

70. *See, e.g.*, Von Heinegg, *supra* note 68, at 529 (the law of prize essentially deals with neutral merchant vessels and civil aircraft and their cargoes, as well as enemy merchant vessels and civil aircraft in the context of armed conflicts).

71. This balance first appeared in the broad provisions of Article 22 of the Regulations annexed to 1899 Hague Convention II. Regulations Respecting the Laws and Customs of War on Land art. 22, annexed to Convention No. II with Respect to the Laws and Customs of War on Land, July 29, 1899, 32 Stat. 1803, T.S. No. 403 [hereinafter Hague Convention II] (“[t]he right of belligerents to adopt means of injuring the enemy is not unlimited”). This provision was further detailed in the Regulations, such as in Article 25, which prohibited the “attack or bombardment of towns, villages, habitations or buildings which are not defended.” *Id.* art. 25.

72. *Cf., e.g.*, for the law of prize, Declaration Respecting Maritime Law, Apr. 16, 1856, 115 Consol. T.S. No. 1, 15 MARTENS NOUVEAU RECUEIL (ser. 1) 791, *reprinted in* 1 AMERICAN JOURNAL OF INTERNATIONAL LAW SUPPLEMENT 89 (1907) [hereinafter Paris Declaration]; Declaration Concerning the Laws of Maritime War arts. 16, 18, 22–25, Feb. 26, 1909, *reprinted in* THE DECLARATION OF LONDON, FEBRUARY 26, 1909, at 112 (James B. Scott ed., 1919) [hereinafter London Declaration] (never entered into force).

involved in commerce.<sup>73</sup> Elements of that law of neutrality are often found or reflected in treaties such as the Hague V<sup>74</sup> and Hague XIII<sup>75</sup> Conventions.

*D. The Law of Armed Conflict and the Threat or Use of Force in Outer Space*

The next question is the extent to, and the manner in which, the whole body of the law of armed conflict *lato sensu* applies to outer space, given that for the overwhelming part of its development, military uses of outer space were the exclusive realm of science fiction. The law of armed conflict historically followed the extension of human activities into various domains, and therefore largely developed along domain-specific lines. Only relatively recently, however, such domains have come to include outer space.

The two oldest domains are exemplified by Hague V and Hague XIII addressing, respectively, “War on Land” and “Naval War.”<sup>76</sup> There is no treaty law specifically dedicated to the use of force in the air domain.<sup>77</sup> For that reason, a group of experts collaborated to produce the *Air and Missile Warfare Manual*.<sup>78</sup> Drawing on the applicable international law from various treaties and customary international law, the manual restates existing international law applicable to air and missile warfare. Similarly, the cyber domain lacks domain-dedicated treaty law, State practice, and *opinio juris*. The *Tallinn*

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73. See Bothe, *supra* note 61.

74. Convention No. V Respecting the Rights and Duties of Neutral Powers and Persons in Case of War on Land, Oct. 18, 1907, 36 Stat. 2310, T.S. No. 540 [hereinafter Hague Convention V].

75. Convention No. XIII Concerning the Rights and Duties of Neutral Powers in Naval War, Oct. 18, 1907, 36 Stat. 2415, T.S. No. 545; 36 Stat. 2415 [hereinafter Hague Convention XIII].

76. See *supra* notes 71–72 and accompanying text.

77. See, e.g., WALLACE, *supra* note 14, at 104–7; AKEHURST, *supra* note 14, 286–88. The Chicago Convention, the overarching framework treaty of global applicability to aviation, is “applicable only to civil aircraft, and . . . not . . . to state aircraft,” the latter specifically including “[a]ircraft used in military, customs and police services.” Convention on International Civil Aviation art. 3(a)–(b), Dec. 7, 1944, 61 Stat. 1180, T.I.A.S. No. 1591, 15 U.N.T.S. 295.

78. PROGRAM ON HUMANITARIAN POLICY AND CONFLICT RESEARCH AT HARVARD UNIVERSITY, MANUAL ON INTERNATIONAL LAW APPLICABLE TO AIR AND MISSILE WARFARE (2009).

*Manual Project*<sup>79</sup> tries to fill the gap through analogous reasoning and the opinions of “distinguished international law practitioners and scholars.”<sup>80</sup>

The Woomera Manual project on the law of armed conflict in outer space faces the same absence of domain-specific law precisely because of the absence thus far of the actual use of force in outer space.<sup>81</sup> For instance, the law of targeting is specific and precise in outlining its scope, effectively excluding targets in outer space. Similarly, the law of prize is not fit—let alone meant—to apply to “space prizes.”<sup>82</sup>

However, the law of armed conflict also includes rules, rights, and obligations that are not domain-specific. Moreover, in several cases, it could be argued that, though defined in a domain-specific manner, specific rules, rights, and obligations reflect broader principles that may well apply to outer space.<sup>83</sup> This observation ultimately requires a thorough analysis of those rules, rights, and obligations of the law of armed conflict that are without question domain-specific and those that are either not domain-specific, or should be seen as reflecting underlying principles that are not domain-specific.

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79. TALLINN MANUAL ON THE INTERNATIONAL LAW APPLICABLE TO CYBER WARFARE (Michael N. Schmitt ed., 2013)).

80. Michael N. Schmitt, *Introduction to id.* at 1. Even if their opinions could be considered as the “teachings of the most highly qualified publicists of the various nations,” however, they would qualify only “as subsidiary means for the determination of rules of law.” Statute of the International Court of Justice, *supra* note 33, art. 38(1)(d).

81. *See supra* note 17.

82. *Cf.*, e.g., Hague Convention II, *supra* note 71 (even apart from the Convention’s title referring to “War on Land,” Article 25 of the annexed Regulations prohibits “towns, villages, habitations or buildings which are not defended” from being the objects of “attacks or bombardments”); Paris Declaration, *supra* note 72; London Declaration, *supra* note 72. Even apart from the references in the titles to “Maritime Law” and “Naval War,” respectively, Article 3 of the Paris Declaration refers to “[n]eutral goods [which], with the exception of contraband of war, are not liable to capture under enemy’s flag.” Under space law there is no flag-State principle. *See supra* text accompanying note 37. Note also the definitions of “contraband of war” in Articles 22–24 of the London Declaration.

83. “General principles of law recognized by civilized nations” are also recognized as a source of international law. Statute of the International Court of Justice, *supra* note 33, art. 38(1)(c).

For instance, major arms control and disarmament treaties, such as the ABM Treaty,<sup>84</sup> while it was in force, and the New START Treaty,<sup>85</sup> were clearly relevant to the outer space domain. This is also the case for those arms proliferation agreements that aim to achieve the same goals, such as the Non-Proliferation Treaty.<sup>86</sup> However, legal regimes addressing specific types of arms and limitations or prohibitions on their possession, usage, or proliferation usually focus on existing types of arms, which means they focus on arms that either by definition are not usable in outer space or are not expected to be used in outer space.<sup>87</sup>

In summary, this analysis confirms that the law of armed conflict, even if largely springing from sources developed exclusively—or at least in practice—to apply to armed conflicts occurring in the terrestrial domains of land, sea, and airspace, may creditably be viewed as providing a baseline for addressing all areas where the threat or use of force in outer space might indeed be a realistic possibility.

### III. CONFLICTS OF APPLICATION: A FEW KEY EXAMPLES

While it is impossible here to list, let alone analyze, all possible activities, events, scenarios, and developments where the application of seemingly pertinent space law rules would be inconsistent with the application of seemingly pertinent law of armed conflict rules, it is important to assess a few key examples.

The first two examples concern the U.N. Charter, the fundamental legal source of the *jus ad bellum*. As indicated above,<sup>88</sup> Article III of the Outer Space Treaty effectively imported the prohibition of the use of force found

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84. Treaty Between the United States of America and the Union of Socialist Soviet Republics on the Limitation of Anti-Ballistic Missile Systems, May 26, 1972, U.S.-U.S.S.R., 23 U.S.T. 3435, T.I.A.S. No. 7503, 944 U.N.T.S. 13 (no longer in force). *See also, e.g.*, Ramey, *supra* note 14, at 101–06; Tronchetti, *supra* note 18, at 347–48.

85. New START Treaty, *supra* note 67. *See also, e.g.*, Tronchetti, *supra* note 18, at 348–49.

86. Treaty on the Non-Proliferation of Nuclear Weapons, July 1, 1968, 21 U.S.T. 483, T.I.A.S. No. 6839, 729 U.N.T.S. 161.

87. An example of a specific category of arms that is to date irrelevant in the outer space context are those prohibited by the Ottawa Convention (Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, Sept. 17, 1997, 2056 U.N.T.S. 211).

88. *See supra* text accompanying notes 42–46.

within Article 2(4) of the U.N. Charter and its two principal exceptions found in Articles 42, 51, and 53 into the domain of outer space law. In doing so, it raises a number of issues concerning the special characteristics of outer space and space law.

Especially since the Second World War, many armed conflicts have arisen that cannot be characterized as “State-to-State” and hence would not squarely fall within the scope of U.N. Charter-based rules.<sup>89</sup> This may not (yet) be relevant in the outer space context since military activities in outer space, at least for the near future, will likely remain limited to States (and relatively few States at that). To that extent, the Charter may still cover the likely activities, events, scenarios, and developments appropriately and comprehensively.

Within interstate conflicts, the U.N. Charter specifically addresses the use of force “*against* the territorial integrity or political independence of any state.”<sup>90</sup> After all, the classic conception of armed conflicts until and including the Second World War (and to a considerable extent beyond as well), was that they were most dangerous to the existence of a State if they involved the deployment of massive armed force directly threatening a State’s national territory and its sovereignty over that territory.

However, by virtue of the structural principles of the Outer Space Treaty, territorial sovereignty does not apply to outer space,<sup>91</sup> and since there is no territory in the legal sense, “territory” cannot be attacked. The Charter cannot be simply applied in outer space on an “as if” basis, given the profound and consciously drafted structural provisions of space law, notably Article II of the Outer Space Treaty. Thus, unless an armed attack against a space object would in itself threaten the political independence of a State, it would not violate Article 2(4) of the U.N. Charter.

Does this mean that armed attacks on satellites are not fundamentally prohibited by the U.N. Charter, but merely limited under non-Charter-based law of armed conflict rules? Under Article VIII of the Outer Space Treaty and the Registration Convention, registered space objects enjoy a quasi-territorial status much akin to that of registered ships and aircraft.<sup>92</sup> In turn, does that allow belligerents to treat space objects of opposing belligerents as

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89. See *supra* discussion note 47.

90. U.N. Charter art. 2, ¶ 4 (emphasis added). See also, e.g., CASSESE, *supra* note 14, at 321–22; Ramey, *supra* note 14, at 61–63; BOAS, *supra* note 14, at 315–16.

91. Cf. Outer Space Treaty, *supra* note 10, arts. II, I; see also *supra* text accompanying notes 28–30.

92. See *supra* text accompanying note 40.

legitimate targets for the use of force, noting that ships and aircraft can also present legitimate targets under the law of armed conflict? To what extent would the undeniable differences between satellites on the one hand and ships and aircraft, on the other hand, stand in the way of treating them as essentially the same? Further, would States then agree to follow the same rules that have been developed in a domain-specific manner, such as the immunity of warships?<sup>93</sup>

A second crucial example in this context concerns the other side of the U.N. Charter: applying the right to self-defense in response to an armed attack on a satellite. If an attack on a satellite is not covered by the Charter's fundamental clauses on the use of force, notably Article 2(4), would it still trigger the right of self-defense as meeting the Article 51 threshold of an "armed attack . . . against a Member of the United Nations?"<sup>94</sup>

Or, considering the Charter's characterization of the right of self-defense as "inherent"<sup>95</sup> and the ongoing discussion as to a possible customary right of self-defense *outside* the Charter,<sup>96</sup> would States whose space objects were attacked be entitled to respond with the use of force—or non-forceful means of degrading or destroying the responsible State's capabilities such as by cyber interference<sup>97</sup>—outside the Charter where it would not be necessary to meet its triggers of territorial integrity or political independence?<sup>98</sup> And, if so, would such an entitlement translate into a right to attack terrestrial assets of the attacker instead of or in addition to attacking its satellite(s)? Or would counterattacks on the attacker's satellites be legitimized as countermeasures

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93. Cf. UNCLOS, *supra* note 30, art. 95. Note that, as discussed *supra* text accompanying note 37, in the context of space law, the drafters of the Outer Space Treaty made a conscious decision not to use the word "nationality" for properly registered space objects, thus deviating from the practice with regard to ships and aircraft, effectively suggesting the status of a space object is not entirely similar to that of a ship or an aircraft.

94. U.N. Charter art. 51. Arguably, the phrase "against a Member" could include its satellites, certainly if of crucial importance for the defense of a country in general terms, just like that phrase has already in a number of cases been claimed to include a State's nationals.

95. U.N. Charter art. 51.

96. The examples usually discussed in this context are anticipatory self-defense and/or related rights, such as humanitarian intervention. See CASSESE, *supra* note 14, at 307–21, 341; BOAS, *supra* note 14, at 308, 320–26, 333–35; Ramey, *supra* note 14, at 62; Waldrop, *supra* note 14, at 217–20.

97. As addressed in the TALLINN MANUAL, *supra* note 79; see also Jack M. Beard, *Legal Phantoms in Cyberspace: The Problematic Status of Information as a Weapon and a Target Under International Humanitarian Law*, 47 VANDERBILT JOURNAL OF TRANSNATIONAL LAW 67 (2014).

98. Cf. U.N. Charter arts. 2, ¶ 4, 51.



or reprisals, where the legitimacy of the use of force may be restricted merely by such concepts as proportionality and necessity and a lack of direct human victims?<sup>99</sup>

A third case may exemplify relevant issues concerning the *jus in bello* focus on issues of direct humanitarian concern, such as the treatment of prisoners of war or non-combatant citizens of belligerents (or those of neutral States). In doing so, by implication it also defines a class of persons qualifying as combatants, hence legitimate targets for the opposing belligerent's use of force.<sup>100</sup> In outer space, this may not be relevant as the presence of humans in outer space for specific military purposes (or even more generally speaking) remains quite limited.

Yet, if this changes, applying the *jus in bello* rules concerning combatants runs afoul of the fundamental principle of space law that astronauts, regardless of their nationality or affiliation, should be treated as "envoys of mankind" and receive all reasonably possible support, as well as the right to be repatriated to their home State as soon as possible.<sup>101</sup> Should this rule apply, as a plain text reading of the Outer Space Treaty requires?<sup>102</sup> But then, what happens when an astronaut belonging to one belligerent and ends up under the control of an opposing belligerent? Certainly if the astronaut (potentially also in violation of space law itself) was engaged in military operations and thus qualifies as a combatant, would not the *jus bello* rules rather than space law, apply in this regard?<sup>103</sup>

A fourth exemplary issue arises in a similar context. A key principle of space law concerns the liability of the launching State for damage caused by its space objects, including onward damage from secondary collisions caused

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99. See, e.g., CASSESE, *supra* note 14, at 305–21; BOAS, *supra* note 14, at 316–26.

100. Cf., e.g., Ramey, *supra* note 14, at 48–59.

101. Cf., Outer Space Treaty, *supra* note 10, art. V; Rescue Agreement, *supra* note 20, art. 1–4.

102. Note that the default interpretation of any treaty should be "in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose." Vienna Convention on the Law of Treaties art. 31(1), May 23, 1969, 1155 U.N.T.S. 331.

103. Note that most astronauts (and cosmonauts, which is merely the Russian translation of astronauts) in the early days of space exploration were actually military personnel. The Outer Space Treaty does not prohibit such involvement of military personnel, while non-peaceful activities are only *prohibited* as far as celestial bodies are concerned. Outer Space Treaty, *supra* note 10, art. IV. See *supra* text accompanying note 50.

by the space debris resulting from primary collisions.<sup>104</sup> Damage caused on Earth gives rise to absolute liability, while, if caused to other space objects, a determination of fault would be required before liability can be established.<sup>105</sup> More generally, Article IX of the Outer Space Treaty requires international consultations before undertaking activities that may harmfully interfere with other States' space activities.<sup>106</sup>

Yet, how would these concepts square with the most fundamental principles of the law of armed conflict, whether U.N. Charter-based or not, as discussed in the first two examples, that permit a belligerent to destroy or damage objects of its opposing belligerent constituting lawful military objectives? In this example, a State's discretion is bounded only by law of armed conflict rules, such as as military necessity and proportionality.<sup>107</sup>

Fifth, a further important aforementioned principle of space law is found in Article VIII of the Outer Space Treaty and the Registration Convention's requirement that States register space objects they launched.<sup>108</sup> The obvious aim of registration is to allow easier identification of objects in outer space, mainly to determine responsibility for compliance with international (space) law, and more specifically, to determine liability for damage caused by space objects. This obligation is, in principle, applicable to military space objects. It requires the registering State to provide key parameters precisely for such purposes of identification.<sup>109</sup>

Yet, how would this requirement of sharing key information on launched space objects square with the silently but undeniably accepted entitlement of a belligerent under the law of armed conflict to gain a military advantage by

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104. See Liability Convention, *supra* note 21, arts. II–V.

105. See *supra* text accompanying note 36.

106. See *supra* text accompanying note 38.

107. Cf. on military necessity and proportionality, e.g., Ramey, *supra* note 14, at 35–37, 39–40. Note that for damage caused to space objects fault liability applies, and, while the precise definition of fault is subject to considerable discussion (on this, see, e.g., Frans G. von der Dunk, *Too-Close Encounters of the Third-Party Kind: Will the Liability Convention Stand the Test of the Cosmos 2251-Iridium 33 Collision?*, PROCEEDINGS OF THE INTERNATIONAL INSTITUTE OF SPACE LAW 2009, at 199 (Corinne M. Jorgenson ed., 2010)), there should be little debate that if “fault,” however defined, gives rise to liability, “intent” and wanton destruction would certainly also give rise to liability.

108. See *supra* text accompanying note 39.

109. Registration Convention, *supra* note 22, art. IV(1). Key parameters required to be provided are “(a) Name of launching State or States; . . . (c) Date and territory or location of launch; (d) Basic orbital parameters, including: (i) Nodal period; (ii) Inclination; (iii) Apogee; (iv) Perigee [and] (e) General function of the space object”.

cloaking its military strategies and capabilities in secrecy? There are particular domain-specific rules of the law of armed conflict, such as those prohibiting the use of internationally recognized emblems and protective symbols to disguise military objects.<sup>110</sup> Whether such rules would apply, or even make sense, in outer space is questionable—and merely trying to hide one’s military resources is certainly not included in any such rules.

A sixth example concerns the straightforward prohibitions on stationing or orbiting weapons of mass destruction in outer space and establishing military bases and undertaking military activities on the Moon and other celestial bodies. These stem from the general and quite forceful provision that “[t]he Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes,”<sup>111</sup> and the even more fundamental provisions declaring outer space open to all States and “not subject to national appropriation, by claim of sovereignty, by means of use or occupation, or by any other means.”<sup>112</sup> These provisions offer the clearest statement of the hope of the Outer Space Treaty’s drafters to maintain the celestial bodies as sanctuaries for peace.

However, such obligations would run counter to the sovereign discretion of States to maximize their military effectiveness as long as they do not overstep specific—but still rather broad—boundaries between States flowing from the law of armed conflict. In this respect the law generally focuses on the limitations of belligerent use of the territory of a neutral State,<sup>113</sup> but, as a matter of law, there is no State territory on celestial bodies.

As these six key examples have shown, the two rather differently structured bodies of outer space law and the law of armed conflict have almost diametrically opposite points of departure. As a result, for many activities, events, scenarios, and developments where both regimes apply, conflicting legal outcomes result. This, of course, is where the need for legal prioritization arises. In other words, how can we resolve the conundrum of which legal body of law should override the other in case of conflicts of law?

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110. Additional Protocol I, *supra* note 63, art. 38. Examples include the red cross, red cross, and red lion and sun, and the protective emblem for cultural property.

111. Outer Space Treaty, *supra* note 10, art. IV.

112. *Id.* art. II.

113. *Cf.* Hague Convention V, *supra* note 74, arts. 2–5, 11.

A. *Unraveling the Prioritization Issue: The Lex Specialis and Lex Posterior Principles*

In solving conflicts between two different bodies of international law resulting from their application to the same activities, events, scenarios, or developments, two well-known approaches attempt to prioritize the application of the one regime *in toto* over the other regime.<sup>114</sup>

The first concerns the principle *lex specialis derogat lege generali*.<sup>115</sup> For space law, the clause “States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law”<sup>116</sup> is widely interpreted to mean that general international law *only* applies in outer space where space law itself is moot or fundamentally open to conflicting interpretations.<sup>117</sup> Otherwise, it would make little sense to outline certain rules of space law that are different from ones applicable in similar contexts on Earth.<sup>118</sup> In other words, this offers a clear manifestation of *lex specialis derogat lege generali*.

However, that does not help resolve the current problem. While the law of armed conflict may not provide any real equivalent to the single clause of Article III of the Outer Space Treaty confirming space law’s status as *lex specialis*, effectively it does also constitute a *lex specialis* when compared to the *lex generalis* of public international law.

The historic development of the law of armed conflict vis-à-vis other rules of public international law may well have made it look, alternatively, as though the two were developing alongside each other, that the former was

114. See generally Ralf Michaels & Joost Pauwelyn, *Conflict of Norms or Conflict of Laws?: Different Techniques in the Fragmentation Of Public International Law*, 22 DUKE JOURNAL OF COMPARATIVE & INTERNATIONAL LAW 349 (2012) (referring to “conflicts of norms” as opposed to the (potentially) more confined notion of “conflicts of laws”).

115. See also, e.g., BOAS, *supra* note 14, at 46, 65, 107; Hugh Thirlway, *The Sources of International Law*, in INTERNATIONAL LAW 117, 136–37 (Malcolm D. Evans ed., 2003); Nele Matz-Lück, *Treaties, Conflicts between*, MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (last updated Dec. 2010), <https://opil.ouplaw.com/view/10.1093/opil/9780199231690/law-9780199231690-e1485?rskey=2tAaj7&result=1&prd=OPIL>.

116. Outer Space Treaty, *supra* note 10, art. III.

117. See, e.g., Frans G. von der Dunk, *International Space Law*, in HANDBOOK OF SPACE LAW 29 (Frans G. von der Dunk & Fabio Tronchetti eds., 2015), at n.1.

118. Examples are the absence of territorial sovereignty in outer space, see Outer Space Treaty, *supra* note 10, art. II; comprehensive State responsibility also for private space activities, *id.* art. VI; and the equally comprehensive State liability for damage caused by private space objects, *id.* art. VII.

simply a subset of the latter, or even the reverse, with public international law being a subset of the law of armed conflict. The premise of the third view was that the threat or use of force between nations was a core element, probably the most salient one, of public international law because it dealt with conflicts between nations and their resolution, either peacefully or otherwise. Over time, however, as wars became more devastating and the killing and suffering of humans became less acceptable, international law has come to address fundamental rights such as the human right to life and liberty, as well as strengthen the baseline right of sovereign States not to be attacked.<sup>119</sup>

Yet there is no question today that the law of armed conflict allows those fundamental rights—and many others—to be set aside partially or completely in an armed conflict, fundamentally limited only by rules of *jus cogens*<sup>120</sup> or conditions that the law of armed conflict itself imposes.<sup>121</sup> In that sense, the special context of an armed conflict overrides the applicable rules of “peacetime” international law as the default regime. In other words, the law of armed conflict serves as *lex specialis* compared to the *lex generalis* of peacetime international law. This means, of course, that the *lex specialis* principle does not solve the conundrum, as it is unable to determine the priority

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119. While originally, the sovereign right of States to resort to arms may have been limited by little more than the semi-legal, moral concept of a “just war,” further major limitations came to be added. In particular in the twentieth century, as evidenced by the formalization of the sovereignty principle (which had hitherto effectively been unnecessary as being rather self-evident); key clauses of the U.N. Charter, such as Article 2(1) that added concepts of “equality” of sovereignty and the prohibition of intervention in internal affairs of a State in Article 2(7); the general development of a body of human rights law from the Charter itself (e.g., the preamble and Article 1(1)–(3)); and such specific regimes as the Genocide Convention. Convention on the Prevention and Punishment of the Crime of Genocide, Dec. 9, 1948, 102 Stat. 3045, 78 U.N.T.S. 277. *Cf.* also in general terms the literature cited *supra* note 14.

120. On *jus cogens*, see, e.g., BOAS, *supra* note 14, at 95–102 (also discussing obligations *erga omnes* in that context); CASSESE, *supra* note 14, at 138–48; WALLACE, *supra* note 14, at 33–34.

121. It is, for example, obviously an internationally wrongful act for one State to kill, seriously harm, or detain the citizens of another State merely because of their citizenship; the law allowing the latter to initiate applicable remedies under international law and/or initiate appropriate legal proceedings, for instance, before the International Court of Justice. Yet, as basically bounded only by rules of *jus cogens* and the law of armed conflict itself pertaining to belligerents and neutral States, in the context of armed conflicts killing, seriously harming, and detaining nationals of other States, as well as destroying or damaging the properties or parts of the territories of such other States may well be legitimized—instead of amounting to flagrant violations of public international law.

between space law and the law of armed conflict, two *leges speciales*, each claiming to be superior to the other “more general” law.

A further problem is that the U.N. Charter is not only an important component of peacetime international law, but also of both space law and the law of armed conflict. To that extent, the doctrinal separation between space law and the law of armed conflict becomes somewhat blurred. As discussed earlier, Article III of the Outer Space Treaty imports the Charter’s double-pronged approach of a basic prohibition on the use of force between States, coupled with the two exceptions of self-defense and U.N.-mandated use of force, into the realm of outer space.<sup>122</sup> Of course, those Charter provisions also underlie the *jus ad bellum*.

The other generic principle often turned to in determining priority is *lex posterior derogat legi priori*, but as Michaels and Pauwelyn have noted, “although the *lex posterior* rule has occasionally been used to resolve conflicts between two branches of international law, this creates some unease.”<sup>123</sup> The Vienna Convention on the Law of Treaties refers rather more narrowly to “successive *treaties* relating to the same subject matter,”<sup>124</sup> as opposed to “successive laws.” This, too, is of little help given that both outer space law and the law of armed conflict have continuously developed by way of a range of different treaties since first discerned as specific bodies of law. It would be well nigh impossible to decide where “posterity” exists that would overrule a contradictory principle or rule.

In short, given the complexity of the issue, both tools are simply too blunt to provide solutions, since they assume one body of law to be principally and across the board superior to the other. If space law *in toto* were given such principled priority, belligerents in outer space could never treat enemy astronauts as combatants,<sup>125</sup> States would have to pay for damage caused to opposing belligerents in the context of perfectly legitimate military space operations,<sup>126</sup> and they would be required to provide crucial strategic information on military objects launched into outer space.<sup>127</sup> If, by contrast, the law of armed conflict were to prevail *in toto*, the efforts of space law to

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122. See *supra* text accompanying notes 46–48.

123. Michaels & Pauwelyn, *supra* note 114, at 366.

124. Vienna Convention on the Law of Treaties, *supra* note 102, art. 30.

125. Cf. *supra* discussion accompanying notes 32, 64, 66, 94–97.

126. Cf. *supra* discussion accompanying notes 34, 65, 67–68, 98–101.

127. Cf. *supra* discussion accompanying notes 35, 102–104.

preserve outer space as an area open to all humankind and to all astronauts,<sup>128</sup> to hold liable those causing damage,<sup>129</sup> and to guarantee access to the Moon and celestial bodies for peaceful purposes would (at least to a very large extent) be ineffectual and virtually defunct.<sup>130</sup>

All of these results would present fundamentally problematic and unwelcome outcomes. As such, to solve the prioritization issue, refuge must be found in more specific and refined tools, usable at the level not of legal regimes *in toto* but of individual activities, events, and developments.

#### B. *Unraveling the Prioritization Issue: The U.N. Charter and Treaty Interpretation*

The examples briefly scrutinized above included two that made specific reference to the U.N. Charter. The Charter helpfully provides “[i]n the event of a conflict between the obligations of the Members of the United Nations under the present Charter and their obligations under any other international agreement, their obligations under the present Charter shall prevail.”<sup>131</sup> But what exactly does this establishment of the Charter as *lex superior* mean in the current context?

To start with, though confined to “obligations under any other international agreement,” the Charter’s priority would also extend to all customary international law, not just that reflected in an agreement, at least as the default approach. It would be illogical to allow U.N. member States to undercut the hierarchical superiority of the Charter by choosing to generate State practice and the accompanying *opinio juris* while avoiding codification through an international agreement.<sup>132</sup> Then, as indicated, the U.N. Charter serves as the baseline for the *jus ad bellum*. This stems from the broader mandate of the United Nations “to save succeeding generations from the scourge of war,” “to unite our strength to maintain international peace and security,” and “to ensure by the acceptance of principles and the institution of methods, that armed force shall not be used, save in the common interest.”<sup>133</sup> In other

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128. *Cf. supra* discussion accompanying notes 19, 28–30, 32, 46, 105–07.

129. *Cf. supra* discussion accompanying notes 34, 65, 67–68, 98–101.

130. *Cf. supra* discussion accompanying notes 19, 28–30, 32, 46, 105–07.

131. U.N. Charter art. 103.

132. Such an interpretation would most likely have to be qualified as “unreasonable” or even “manifestly absurd” in the terminology of Article 32(b) of the Vienna Convention on the Law of Treaties, *supra* note 102; *see also infra* text accompanying notes 132–35.

133. U.N. Charter pmb.

words, the Charter's hierarchical superiority would, in principle, subsume the general body of the *jus ad bellum*, which, from that perspective, would be viewed as essentially a detailed elaboration of the Charter's legal regime.

Beyond that, yet intricately linked to it, the mandate of the United Nations is also "to reaffirm faith in fundamental human rights, in the dignity and worth of the human person,"<sup>134</sup> as given shape through numerous treaties and U.N. initiatives, including those addressing certain *jus in bello* aspects of armed conflicts.<sup>135</sup> Given the understanding that the *jus ad bellum* and the *jus in bello* are increasingly seen as two overlapping parts of a continuum rather than two separate bodies of law,<sup>136</sup> at least the broader principles enshrined in the *jus in bello*—the basic distinction between combatants and non-combatants, for example—would override potentially contradictory provisions of space law, inasmuch as they represented detailed elaborations of the Charter's principles.

This hierarchical and principled superiority of the U.N. Charter, and any law of armed conflict rules it takes with it, only goes as far as the Charter applies, as determined by the structural principles of space law. Thus, it does not solve the problems noted above regarding its applicability in outer space where national territory does not exist, as the Charter's regime on the use of force against national territory does not apply, and the right to use force and exercise self-defense may well have to be based elsewhere than the Charter.

The specific and targeted rule of Article 103 of the U.N. Charter, which as argued is effectively part of both space law and the law of armed conflict, does not by itself allow prioritization on the applicability of many elements of the law of armed conflict and outer space law. Rather, clarification by resort to additional analytical tools is needed. As a starting point, "any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation"<sup>137</sup> could serve as an additional interpretive tool if the ordinary meaning, context, object, or purpose of the treaty does not provide sufficient clarity. This creates the possibility

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134. *Id.*

135. *Cf., e.g.*, Declaration on the Protection of Women and Children in Emergency and Armed Conflict, G.A. Res. 3318 (XXIX) (Dec. 14, 1974); ENMOD Convention, *supra* note 52; Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, Oct. 10, 1980, 1342 U.N.T.S. 137.

136. *See supra* discussion accompanying notes 61–63; sources cited notes 61–63.

137. Vienna Convention on the Law of Treaties, *supra* note 102, art. 31(3)(b).



for customary international law, based as it is on State practice and *opinio juris*, to sharpen, direct, or possibly even change what originally was only an obligation stemming from a treaty clause.<sup>138</sup>

Because there has been no use of force in outer space to date, there is no subsequent State practice to be analyzed; thus, this interpretative tool is not currently useful. Unfortunately, with increasing tensions in outer space, relevant practice may soon appear. If that were to occur, it might then become helpful in resolving relevant issues of hierarchical superiority.

The next analytical tool stems from the basic understanding that the States parties to a treaty ultimately determine what substantive rights and obligations they have given their consent by way of ratification or accession. Thus, treaty interpretation requires that “the terms of the treaty [be seen] in their context and in the light of its object and purpose”<sup>139</sup> to determine “if it is established that the parties so intended”<sup>140</sup> relevant terms to be interpreted. Applying the Vienna Convention on the Law of Treaties, it also allows for the use of “supplementary means of interpretation . . . to confirm the meaning resulting from the application of article 31, or to determine the meaning when the interpretation according to article 31 . . . leads to a result which is manifestly absurd or unreasonable.”<sup>141</sup> This last clause is based on a broader fundamental principle that any law has to be at least potentially effective, and law that would be ineffective should be appropriately reinterpreted.<sup>142</sup>

This tool solves some of the prioritization issues. There is little doubt that the States parties to the relevant space treaties did not intend to (and it would, therefore, also be “manifestly absurd or unreasonable” to assume they would) require belligerents to treat enemy astronauts as “envoys of mankind,” certainly if they display all the characteristics of military astronauts or engage in military operations, or both. In such a specific context, the obligations of Article V of the Outer Space Treaty and the Rescue Agreement<sup>143</sup> should bow to the applicable rules of the law of armed conflict on the

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138. Cf. also, e.g., WALLACE, *supra* note 14, at 233–34; BOAS, *supra* note 14, at 63–64, 84–86.

139. Vienna Convention on the Law of Treaties, *supra* note 102, art. 31(1).

140. *Id.* art. 31(4).

141. *Id.* art. 32.

142. See, e.g., BOAS, *supra* note 14, at 134 (referencing the concept *ut res magis valeat quam pereat*); cf. also, on the related concepts of “supervening impossibility of performance” and *rebus sic stantibus*, WALLACE, *supra* note 14, at 240–42.

143. See *supra* discussion accompanying notes 32, 64, 66, 94–97, 118; see also Ramey, *supra* note 14, at 150–53.

treatment of enemy combatants and enemy citizens. Similarly, it is “manifestly absurd or unreasonable” and contrary to the intentions of States parties to the relevant treaties to require a belligerent to compensate for damage caused by its space objects to another belligerent, as long as the conduct producing the damage was lawful under the law of armed conflict. In this context of belligerent-versus-belligerent scenarios, the law of armed conflict would have priority over Article VII of the Outer Space Treaty and the Liability Convention.<sup>144</sup>

That still leaves, however, some major priority issues unresolved. These include the legal status of space objects vis-à-vis the territorial approach of the U.N. Charter, the extent to which the use of self-defense or use of (armed) force *not* meeting the thresholds of the Charter would be legitimate, the applicability of the space law-registration requirements, the general availability and accessibility of outer space to *all* States, and the prohibition on using celestial bodies for other than peaceful purposes. No principled prioritization of the law of armed conflict in these instances can be justified by reference to the superiority of the Charter, subsequent State practice, State party intentions, or that manifestly absurd or unreasonable results would otherwise arise.

For instance, the prohibitions of Article IV of the Outer Space Treaty to demilitarize celestial bodies were agreed upon specifically and consciously, as evidenced by the terminology. And it certainly would be contrary to “the ordinary meaning” of the terms “in their context and in the light of its [the treaty’s] object and purpose”<sup>145</sup> to interpret them otherwise. Similarly, any lack of applicability of U.N. Charter rules caused by the differentiation between “territory” and “quasi-territory” in the legal sense, concepts that were consciously and explicitly accepted under the Outer Space Treaty, cannot be solved by reference either to the status of the Charter itself as *lex superior* or the interpretive tools just discussed.<sup>146</sup>

In sum, treaty interpretation rules should be used only where other prioritization tools do not offer a better solution and where the application of those tools would give rise to a manifestly absurd or unreasonable result.

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144. See *supra* discussion accompanying notes 34, 65, 67–68, 98–101, 119, 122; see also Ramey, *supra* note 14, at 89–91. Obviously, damage caused to third parties would be a fundamentally different matter; see also *infra*, chapter IV.

145. Vienna Convention on the Law of Treaties, *supra* note 102, art. 31(3).

146. See *supra* discussion accompanying notes 28–30, 37, 89–91.

C. *Unraveling the Prioritization Issue: Pacta Sunt Servanda, Third States, and Neutrals*

One of the most fundamental rules of treaty law and public international law as a whole is that “a treaty does not create either obligations or rights for a third State without its consent,”<sup>147</sup> a simple restatement of the old maxim *pacta tertiis nec prosunt nec nocent*.<sup>148</sup> Ultimately based on the sovereignty of States, this maxim is (still) a foundational principle of international law, which, as confirmed in the seminal *obiter dictum* of the Lotus judgment,<sup>149</sup> allows each State, barring the exceptional cases of *jus cogens*,<sup>150</sup> to decide with full discretion what legally binding obligations it will accept and by what legal regimes it will be bound.

Perhaps most importantly, this sovereign discretion translates into the right for each State (of course, within the boundaries both of any applicable *jus cogens* and international obligations entered into by such a State including the U.N. Charter obligation to maintain international peace and security<sup>151</sup>) to determine its preferred level of involvement and participation in an armed conflict. Is it going to engage itself on the battlefields with armed forces? Is it going to act as an ally of one of the parties to the armed conflict, doing everything to support it except engaging in military operations itself? Is it going to engage or continue to engage in trade and other contacts considered beneficial to its interest with any or all of the States fighting in the conflict? Or is it going to undertake an effort to remain completely outside of the conflict—to the extent today’s globalized world makes that possible—and not have any economic, social, or cultural ties with parties to that conflict? It is at this point, of course, where the concept of neutrality becomes relevant.

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147. Vienna Convention on the Law of Treaties, *supra* note 102, art. 34.

148. See CASSESE, *supra* note 14, at 126, 132–33; BOAS, *supra* note 14, at 59; WALLACE, *supra* note 14, at 235–36.

149. See *supra* text accompanying note 32.

150. See *supra* text accompanying notes 119–20.

151. U.N. Charter arts. 2, 39–42, 51. Note, however, that while Articles 42 and 43 have often been taken to give rise to a legal *obligation* of member States to participate in the use of force directed by the United Nations, actual practice has shown that in the few cases where those articles were invoked, member States maintained their national discretion to do so, as also actually implied by the requirement of Article 43 to conclude agreements in such circumstances. On this discussion, see, e.g., BOAS, *supra* note 14, at 335–38; WALLACE, *supra* note 14, at 265–67; CASSESE, *supra* note 14, at 281–83.

The initial problem is that the continued existence of a law of neutrality has become increasingly subject to debate.<sup>152</sup> Nevertheless, the concept of neutrality continues to be relevant, given the existence of treaty clauses and rules qualifying as customary international law which, in one way or another, specifically refer to that concept.

Still, the concepts of “neutrality” and a “neutral State” have never been authoritatively defined in treaty law. For instance, while the drafters of Hague V stated that they were “*desirous* of defining the meaning of the term ‘neutral,’”<sup>153</sup> the Convention does not do so, and in its substantive regime focuses on the rights and duties of “neutral Powers,” “neutral territory,” and “neutral persons”<sup>154</sup>—without defining any of those terms either. Likewise, Hague XIII refers to the need to address “relations between neutral Powers and belligerent Powers,” the desire “to regulate the results of the attitude of neutrality,” and the “admitted duty to apply these rules impartially to several belligerents,”<sup>155</sup> without defining either neutral or belligerent, or even providing relevant clues in its substantive regime.

For helpful definitions, one therefore needs to look elsewhere. A Common dictionary definition of neutrality is “[the] refusal to take part in a war between other powers;”<sup>156</sup> or “[t]he state of not supporting or helping either side in a conflict, disagreement.”<sup>157</sup> Other helpful legal definitions proposed are “[the] impartial treatment of belligerents and non-participation in the conflict,”<sup>158</sup> and “the attitude of impartiality adopted by third States towards belligerents and recognized by belligerents.”<sup>159</sup> And, perhaps most comprehensively, Bothe characterizes neutrality as follows:

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152. See, e.g., Von Heinegg, *supra* note 68, at 532 (“[a]lthough there seems to be no consensus among States as to the continuing validity of the law of neutrality”); CASSESE, *supra* note 14, at 329, discussing its purportedly decreasing relevance.

153. Hague Convention V, *supra* note 74, pmbl. (emphasis added).

154. See, respectively, *id.* arts. 1–10, 11–15, 16–18.

155. Hague Convention XIII, *supra* note 75, pmbl.

156. *Neutrality*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/neutrality> (last visited Jan. 10, 2021).

157. *Neutrality*, LEXICO, <https://www.lexico.com/en/definition/neutrality> (last visited Jan. 10, 2021).

158. Joshua J. Wolff, *Interrupted Broadcasts? The Law of Neutrality and Communications Satellites* 8 (2020) (referring to YORAM DINSTEIN, *WAR, AGGRESSION, AND SELF-DEFENCE* 26 (2d ed. 1994) (unpublished LLM thesis at the University of Nebraska-Lincoln)).

159. Von Heinegg, *supra* note 68, at 528, quoting 2 L. OPPENHEIM, *INTERNATIONAL LAW: A TREATISE* 653 (H. Lauterpacht ed., 7th ed. 1952).

[T]he particular status, defined by international law, of a State not party to an armed conflict . . . . This status entails specific rights and duties in the relationship between the neutral and the belligerent States. . . . On one hand, there is the right of the neutral State to remain apart from, and not to be adversely affected by, the conflict. On the other hand, there is the duty of non-participation and impartiality.<sup>160</sup>

Consequently, according to Von Heinegg, neutral States would be those “States that choose not to participate on behalf of either party to [a] conflict [and are] . . . obliged to remain impartial vis-à-vis the belligerents.”<sup>161</sup> In other words, for a particular armed conflict, neutral States remain third parties in a fundamental legal sense.

Neutrality, therefore, at the core is nothing but the law of force equivalent of third-party status in the broader context of international law, framing the sovereign right of a State to decide whether it wants to be “in” or “out”. “In” and “out” in general international law means being party to a treaty respectively not being a party to a treaty.<sup>162</sup> “In” and “out” in the law of force means becoming a belligerent or an ally of one respectively deciding to remain neutral. Logically, the result of any such decision, whether consciously taken or not, or whether consistent throughout the conflict or changing during its course, brings with it a concomitant host of legal rights and obligations. Whatever the extent to which a State becomes engaged in an armed conflict, it must accept the corresponding set of legal rights and obligations that go with it—but, having made a particular choice, it does not accept the rights and obligations that would go with a different choice.

Neutrality may well ultimately be based on a State’s involvement respectively non-involvement in an international armed conflict, it does not give rise to a simple dichotomy between belligerent States and neutral States. Whatever elements of the law of neutrality are still in force recognize that in today’s interdependent world there will be few armed conflicts where third

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160. Bothe, *supra* note 61, ¶ 1.

161. Von Heinegg, *supra* note 68, at 528.

162. It might be pointed out that as concerns State sovereignty, deciding to be “in” or “out” works similarly in the context of customary international law, the other main source of international law. States decide on their own State practice and what level of *opinio juris* they want to express, which can either align with other States’ practice and *opinio juris*, causing those States to be bound by the resulting customary international law, or create a “persistent objector” status taking such a State outside of the relevant set of rules, rights, and obligations. On the phenomenon of the “persistent objector,” *cf.*, e.g., BOAS, *supra* note 14, at 93–95; *see also* CASSESE, *supra* note 14, at 123–24.

States are willing—or indeed able—to maintain *no* ties whatsoever with either belligerent.

Consequently, some States are “less neutral” than others, without necessarily becoming belligerents themselves or even a formal ally of a belligerent. Relevant portions of the law of neutrality should determine when a State can still be called a neutral State, and what rights and obligations vis-à-vis belligerents (and vice versa) would result from that determination. The bottom line is that if States have not crossed the threshold and become belligerents, they should not enjoy the special set of rights and obligations accorded belligerents. They would, as a consequence, continue to apply the applicable legal framework specific to the domain, for instance, space law when it comes to outer space.<sup>163</sup>

By analogy to the famous comparison of property rights to a “bundle of sticks,”<sup>164</sup> the rights of neutral States amount to a “bundle of rights.”<sup>165</sup> Neutral States, their nationals, and their resources enjoy the benefit of rights based on their formal status as neutrals. But, recognizing that pure neutrality is utopian in today’s interconnected world, they may miss out on the enjoyment of certain “rights” from that bundle to the extent that their behavior is not that of a “pure” neutral, as defined by the applicable elements of the law of neutrality—without thereby becoming belligerents themselves.<sup>166</sup>

Thus, the law of neutrality, as a subset of the law of armed conflict, loosely encompasses all rules dealing with the fundamental distinction between the non-participants and the participants to an armed conflict. It can

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163. *Cf.*, e.g., Michel Bourbonnière, *The Ambit of the Law of Neutrality and Space Security*, 36 ISRAEL YEARBOOK ON HUMAN RIGHTS 205, 226 (2006).

164. *United States v. Craft*, 535 U.S. 274, 278 (2002) (describing a “bundle of sticks” as a “collection of individual rights which, in certain combinations, constitute property”).

165. *See* Daniel B. Klein & John Robinson, *Property: A Bundle of Rights? Prologue to the Property Symposium*, 8 ECON JOURNAL WATCH, Sept. 2011, at 193 (2011);

166. Note, moreover, that following this approach the “sticks” may change over time. Some may get added, others may by contrast disappear completely, and the criteria for being allowed to enjoy the benefit of particular “stick” may also change, for instance in the context of involvement in cyber interference. *Cf. supra* text accompanying note 97. It is then the general decrease in the number and strength of the “sticks” that, following the decreased lack of State discretion to remain fully neutral, especially in view of the role of the U.N. Security Council’s competences in this context, gives rise to the increasing debate about whether the law of neutrality still exists and/or is relevant, noting, however, that that role of the Security Council is still primarily limited to the use of (massive armed) force against the territorial integrity or political independence of a State. *See also supra* discussion accompanying notes 41, 84, 88, 93, 145.

be a comprehensive tool, a fallback approach in cases where the U.N. Charter's superior status, the principles of State party-intent, or the rule of manifest absurdity or unreasonableness are inadequate to prioritize a rule of space law over a rule of the law of armed conflict or vice versa.

#### IV. THE MATRIX ON PRIORITIZATION: AN APPROACH TO SOLVING THE CONUNDRUM

The analysis of the six examples above and how to address the prioritization issue between space law and the law of armed conflict can now be generalized into an overall approach helpfully summarized in—and illustrated by—a simple four-box Matrix on prioritization.

In all four boxes, the U.N. Charter, not only qualifying as non-domain-specific,<sup>167</sup> but also as *lex superior* as confirmed by Article 103,<sup>168</sup> overrides any potentially contradictory terms both in space law and the law of armed conflict. In addition, the Charter is effectively integrated into both, but, of course, only within the boundaries of the application of the Charter itself, as determined by the structural principles of space law. As a consequence, the right to use force in self-defense against an armed attack or if sanctioned or mandated by the Security Council applies in outer space. Here, in the absence of any space domain-specific law of armed conflict, the Charter takes with it those parts of the law of armed conflict of a non-domain-specific character.

The first box of the Matrix addresses the legal situation between belligerents. There, clearly, any further rules, rights, and obligations of the law of armed conflict override any potentially contradictory rules, rights, or obligations derived from space law. But again, given that there is thus far no law of armed conflict truly specifically applicable to the domain of outer space, this applies only to the extent those rules, rights, and obligations are either formulated in a non-domain-specific manner or, even though framed in a domain-specific manner are reflective of underlying principles that are non-domain-specific.

However, that does not resolve the two further issues addressed here: first, what law applies where the U.N. Charter does not apply, given the limitations of its territorial approach to the use of force; and second, what law controls when the use of force does not meet the thresholds of the Charter.

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167. The United Nations is generally purposed to “maintain international peace and security,” regardless of where threats to that international peace and security may arise. U.N. Charter art. 1, ¶ 1.

168. *Id.* art. 103.

Here, recourse is required to the non-Charter-based law of armed conflict, which then, in turn, requires an analysis of the extent to which relevant rules are non-domain-specific, either stated explicitly or implicitly in their underlying principles. For example, the law of armed conflict's general principles of military necessity, discrimination, and proportionality—especially as applied through the law of targeting—are likely to control, thus determining the legality of any targeting activities. At the same time, unless it can be argued that an armed attack on a satellite is properly addressed by such non-domain-specific law of armed conflict, giving rise to an appropriate reinterpretation of applicable space law clauses as per State party intent, manifest absurdity or unreasonableness, the peacetime rules of space law, such as those calling for payment of damage caused by space activities, would apply.

The last box of the Matrix addresses the legal situation between third party (or neutral) States to the armed conflict. In this context, the rules, rights, and obligations of space law maintain their full force and applicability, subject only to the U.N. Charter to the extent it applies, since the Charter contains *lex superior* also on how States should behave outside of armed conflicts. That follows directly from their decision to stay out of the conflict and the concomitant legal consequences that brings with it. Thus, neutral States should, for instance, continue to treat each other's astronauts as envoys of mankind and be held fully liable for damage caused to each other's property, whether located on Earth or in outer space. The only caveat here concerns the applicability of the law of armed conflict's subset of neutrality-related rules, in as far as the relevant "sticks" in the "bundle" are expressly formulated as non-domain-specific or to be interpreted as being implicitly non-domain-specific. Only to the extent analysis might unearth such rules as requiring neutral States not to treat astronauts of other neutral States under some circumstances as envoys of mankind, would those otherwise applicable space law rules be overridden.

The two difficult boxes in the Matrix are, of course, the ones addressing the legal rules, rights, and obligations that establish the legal relationship between belligerents and neutrals.<sup>169</sup> Outer space is a single immense domain.

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169. Note that, technically speaking, the boxes should be expected to fundamentally mirror each other, the one addressing the rights and obligations of any neutral State vis-à-vis any belligerent State and the other addressing the rights and obligations of any belligerent State vis-à-vis any neutral State. In order not to engage here in highly theoretical and meta-legal discussions on whether and to what extent *every* obligation of one State mirrors a *right* of another, the simple solution is to have two boxes, noting the large measure of duplication that inevitably will result.



Yet, space activities require a large measure of international cooperation because of their importance to today's globalized economy. As a result, the neutral-belligerent relationship presents complex issues. For instance, a single damaged satellite can mean damage is suffered by a host of different States that may rely on it for such services as television, navigation, business and finance, and climate and environmental monitoring. Moreover, the destruction of a belligerent's space object may, in turn, cause damage to all States with resources in outer space—space debris does not discriminate.

Here, again, the law of neutrality becomes relevant. To the extent it defines rights and obligations of neutral States during an armed conflict in a non-domain-specific manner, whether expressly so formulated or correctly interpreted, those would override the otherwise applicable regime of space law. The treatment of third State-astronauts by a belligerent and the handling of third State-damage caused by a belligerent's military space operations would thus be legitimized within the applicable boundaries of the law of armed conflict, read with reference to a neutral State's "bundle" of relevant "sticks."

However, this approach can only be applied to the extent relevant rights and obligations do not work *erga omnes*. The absence of territorial sovereignty and the resulting free access to all areas of outer space, including celestial bodies and the requirement to use them for peaceful purposes, the abstention from stationing or orbiting of weapons of mass destruction, and registering satellites in an international context do constitute such rules *erga omnes*; whereas the liability regime, given the possibility of cascading harms, also has a major *erga omnes* element to it.

A belligerent might legitimately cause damage to a satellite of an opponent without paying for the resulting damage, but what if it also causes damage to satellites of third States? What if the satellite targeted is not only used or owned by that State but by third States, as is often the case? A belligerent may be entitled to seek military advantages by shrouding military launches in mystery or by using celestial bodies for military maneuvers or installations, but in so doing it violates the rights of other States to be informed of the launching of space objects and to enjoy the benefits of demilitarized celestial bodies. While an opposing belligerent might not be entitled to compensation, third States certainly would remain entitled to compensation for

damages suffered. Violating obligations to register space objects<sup>170</sup> and to maintain celestial bodies as demilitarized areas would amount to violations of obligations *erga omnes*.

Here, the only caveat would be the applicability of the law of armed conflict's subset of neutrality-related rules, and once more only insofar as the relevant "sticks" in the "bundle" are formulated or interpreted in a non-domain-specific manner. To the extent analysis of the current "bundle of rights" of neutrality would discover non-domain-specific rules that, for example, prohibit neutral States from allowing belligerents the use of their space infrastructure or services, belligerents might lawfully damage such infrastructure or prevent the use of those services without paying compensation. But here again, the belligerent State may still be held liable for damaging the relevant sticks of the neutral State.

Finally, as indicated, the Matrix rules of treaty interpretation would offer a tool of last recourse in case the result of the prioritization mechanism would cause an undesirable deviation from State party-intent or give rise to a manifestly absurd or unreasonable outcome.

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170. In any event, the Registration Convention requires just a description of the "General function of the space object" without any amplifying details. Moreover, it requires only that any information is to be provided "as soon as practicable," with few clues indications as to what that means. Registration Convention, *supra* note 22, art. IV(1). In other words, the regime still allows for a number of legal loopholes and a lot of mystification in practice.

<p>Enjoying rights/ benefitting from obligations →</p> <p>Accountable for obligations/ guaranteeing rights ↓</p>	<p><b>Belligerent engaged in the armed conflict in outer space</b></p>	<p><b>Neutral (third) State with respect to the armed conflict in outer space</b></p>
<p><b>Belligerent engaged in the armed conflict in outer space</b></p>	<p>(1) U.N. Charter rules &amp; law of armed conflict rules carried with it (by definition non-domain-specific) – to the extent applicable as per the structural principles of space law</p> <p>(2) Non-U.N.-Charter-based (other) non-domain-specific law of armed conflict rules</p> <p>(3) Substantive space law rules</p> <p>(4) Treaty rules whose application would be more in line with parties' intentions or less manifestly absurd or unreasonable than conflicting treaty rules</p>	<p>(1) U.N. Charter rules &amp; non-domain-specific law of armed conflict rules carried with it (by definition non-domain-specific) – to the extent applicable as per the structural principles of space law</p> <p>(2) Erga omnes provisions &amp; effects substantive space law rules</p> <p>(3) Other non-domain-specific law of armed conflict rules – as applicable per non-domain-specific law of neutrality</p> <p>(4) Non-erga-omnes substantive space law rules</p> <p>(5) Treaty rules whose application would be more in line with parties' intentions or less manifestly absurd or unreasonable than conflicting treaty rules</p>
<p><b>Neutral (third) State with respect to the armed conflict in outer space</b></p>	<p>(1) U.N. Charter rules &amp; non-domain-specific law of armed conflict rules carried with it (by definition non-domain-specific) – to the extent applicable as per the structural principles of space law</p> <p>(2) Erga omnes provisions &amp; effects substantive space law rules</p> <p>(3) Other non-domain-specific law of armed conflict rules – as applicable per non-domain-specific law of neutrality</p> <p>(4) Non-erga-omnes substantive space law rules</p> <p>(5) Treaty rules whose application would be more in line with parties' intentions or less manifestly absurd or unreasonable than conflicting treaty rules</p>	<p>(1) U.N. Charter rules – to the extent applicable as per the structural principles of space law</p> <p>(2) Substantive space law rules (except where non-domain-specific neutrality law applies &amp; dictates differently)</p> <p>(3) Law of armed conflict rules generally</p> <p>(4) Treaty rules whose application would be more in line with parties' intentions or less manifestly absurd or unreasonable than conflicting treaty rules</p>

Figure 1. The Matrix on Prioritization of Space Law the Law of Armed Conflict.

## V. CONCLUSION

Of course, the Matrix should be seen as an instrument of initial guidance rather than an instrument providing an unsalable and final solution. Its key strength is approaching the prioritization conundrum in a transparent, fair, and legally sound manner. I do not claim completeness for it, certainly not in terms of its substance, but it does provide a structured approach that invites further corrections and refinements necessary for it to develop into a fuller or even authoritative model to address the prioritization of space law vis-à-vis the law of armed conflict or vice versa.

At this stage, already two fundamental shortcomings can be discerned. First, using the Matrix to determine prioritization will often require further analysis of the immense but rather incoherent and incomplete set of rules under the law of armed conflict, in particular, the law of neutrality, to determine whether those rules—or at least their underlying principles—are non-domain-specific. Second, the novel prospect of armed conflict in outer space and the almost complete absence of State practice and *opinio juris* make it difficult to go beyond the relevant treaties. Here, the absence of any law to be interpreted means there is no prioritization issue for the Matrix to resolve. Similarly, what the Matrix currently may point to as the proper interpretation and application of a particular rule of law, that interpretation and application exists in the absence of significant State practice and *opinio juris*, and may rapidly change as State practice develops. For example, to the extent that future State practice and *opinio juris* would condone violations of *erga omnes* space law obligations, and to the extent the U.N. Security Council takes no action against belligerents overstepping these general boundaries, the legal relationship between belligerent and neutral States in terms of rights and obligations might well change.

Similarly, State practice, *opinio juris*, or Security Council action may determine whether the U.N. Charter's prohibition of the use of force against another State's sovereign territory equates with a prohibition of the use of force against another State's satellite, ignoring the fundamental differentiation that space law makes between "territory" and "quasi-territory" or whether such satellites are the equivalent of ships or aircraft under the law of armed conflict. State practice, *opinio juris*, or Security Council action may also determine the question of whether a right of self-defense outside of the Charter or other legal justification for the use of force under the law of armed conflict would prevail over rules, rights, and obligations under space law designed to preserve peace in outer space.

Hopefully, the Outer Space Treaty's many references to peace and peaceful will continue to characterize space activities, so that *Star Wars* will remain a work of fiction. However, it would certainly be best for the precise legal contours of military space activities to be clear before "Space Wars" are upon us. The Matrix of Prioritization, as outlined here, presents a valuable contribution to achieving exactly that end.