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

I. INTRODUCTION

Outer space is becoming increasingly militarized.[1] And, as a result of this increased militarization, the concept of warfare waged from, to, and through outer space is naturally finding greater expression in both military doctrine[2]

1. DEPARTMENT OF DEFENCE, AUSTRALIAN GOVERNMENT, 2016 DEFENCE WHITE PAPER ¶ 2.55 (2016), http://www.defence.gov.au/whitepaper/Docs/2016-Defence-White-Paper.pdf ("Limiting the militarization of space will also require the international community to work together to establish and manage a rules based system – a prospect that does not seem likely in the immediate future.").

The militarization of space includes the continued deployment of military or dual use satellites that assist military forces in the terrestrial environment. For example, the *Space Security Index* (SSI) notes that as of 2016 the United States has 150 dedicated military satellites, in addition to 31 GPS satellites, Russia has 54 dedicated military space satellites in addition to 27 GLONASS satellites, and China has 58 dedicated military satellites. SPACE SECURITY INDEX 2017 (Jessica West ed. 2017) 93–94. The United States, China, and Russia also have developed ground-based anti-satellite (ASAT) missile capability. These States are also developing space-based kinetic kill vehicles, radio frequency weapons, space "mines," microsatellites capable of rendezvous and proximity operations, and "dazzling" lasers that can be used to degrade satellite functionality. *Id.* at 114–16, 118–19. *See also* Harsh Vasani, *How China Is Weaponizing Outer Space*, THE DIPLOMAT (Jan. 19, 2017), https://thediplomat.com/2017/01/how-china-is-weaponizing-outer-space/ (noting that China continues to develop its co-orbital ASAT capability); Harry Pettit, *Russia Has Developed Powerful LASERS to Shoot Down Enemy Satellites as Experts Warn a Space War Could Break out 'Within Years'*, DAILY MAIL, Feb. 28, 2018, http://www.dailymail.co.uk/sciencetech/article-5444255/Russia-develops-powerful-lasers-shoot-enemy-satellites.html (noting that Russian forces are developing space-based lasers that can target satellites); Gareth Corfield, *America's Mystery X-37B Space Drone Lands after Two Years in Orbit*, THE REGISTER (May 8, 2017), https://www.theregister.co.uk/2017/05/08/x37_space_drone_lands_2_years/ (noting that the United States is developing a space drone "designed to operate at altitudes of between 110 and 150 miles above the Earth's surface").

The increasing militarization and weaponization of outer space also has been the subject of considerable academic commentary. *See, e.g.*, Emily Taft, *Outer Space: The Final Frontier or the Final Battlefield*, 15 DUKE LAW AND TECHNOLOGY REVIEW 362 (2017), Linda Johanna Friman, *War and Peace in Outer Space: A Review of the Legality of the Weaponization of Outer Space in the Light of the Prohibition on Non-Peaceful Purposes*, 16 FINNISH YEARBOOK OF INTERNATIONAL LAW 285 (2005); Michael C. Mineiro, *The United States and the Legality of Outer Space Weaponization: A Proposal for Greater Transparency and a Dispute Resolution Mechanism*, 33 ANNALS OF AIR AND SPACE LAW 441 (2008).

2. *See, e.g.*, Chairman, Joint Chiefs of Staff, Joint Publication 3-14: Space Operations (2013), http://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_14.pdf; Development, Concepts and Doctrine Centre, UK Ministry of Defense, Joint Doctrine Publica-

and military legal manuals.[3] In fact, despite international efforts to stem such militarization,[4] outer space is now seen by some as a viable theater of future warfare, no different from its land, sea, or air counterparts.[5]

Given this emerging thinking regarding space warfare, it is critical to identify the way international humanitarian law (IHL) would apply to armed conflict in outer space. The concept of armed conflict in outer space contemplates both the use of force in outer space itself and the use of space assets to achieve military effect in the air, land, and sea environments. The 1991 Gulf War, for example, has been touted as the first space war, not because it was fought in space, but because coalition forces relied so heavily on space-based assets.[6] Accordingly, targeting satellites and other space-based assets in space (from the terrestrial environment or from space itself) becomes the focus of specific attention. This topic raises broad questions of how IHL would regulate activity in the unique physical environment of outer space.[7] While such questions are undoubtedly important from a purely IHL perspective, they cannot be answered without addressing the more fundamental issue of how IHL interacts with the international legal regime that already applies to outer space. This regime is principally comprised of the 1967 Outer Space Treaty (OST) and four other key treaties. Together, these treaties provide the foundational framework for peacetime activity in outer space: the outer space legal regime. The interaction between the two regimes has the capacity to modify

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tion 0-30: UK Air and Space Doctrine (2d ed. 2013), www.gov.uk/government/uploads/system/uploads/attachment_data/file/223495/jdp_0_30_uk_air_and _space_doctrine.pdf.

3. OFFICE OF THE GENERAL COUNSEL, U.S. DEPARTMENT OF DEFENSE, LAW OF WAR MANUAL ch. XIV, at 917–45 (rev. ed. Dec. 2016), https://www.defense.gov/Portals/1/Documents/pubs/DoD%20Law%20of%20War%20Manual%20-%20June%2020 15%20Updated%20Dec%202016.pdf?ver=2016-12-13-172036-190 [hereinafter LAW OF WAR MANUAL].

4. *See generally* Paul Meyer, *Dark Forces Awaken: The Prospects for Cooperative Space Security*, 23 THE NONPROLIFERATION REVIEW 495 (2017).

5. *See, e.g.*, Marcia S. Smith, *Top Air Force Officials: Space Now is a Warfighting Domain*, SPACEPOLICYONLINE.COM (May 17, 2017), https://spacepolicyonline.com/news/top-air-force-officials-space-now-is-a-warfighting-domain/ ("In their joint written testimony, the Air Force officials said: 'Clearly, freedom to operate in space is not guaranteed. In fact, space is now a warfighting domain, similar to the more familiar air, land, and maritime domains our men and women are fighting in today.'").

6. *See generally* 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/.

7. *See generally* Dale Stephens & Cassandra Steer, *Conflicts in Space: International Humanitarian Law and Its Application to Space Warfare*, 40 ANNALS OF AIR AND SPACE LAW 71 (2015).

the way IHL rules apply, even selectively excluding some rules altogether. Conversely, the application of IHL may displace accepted understandings of space law. Despite the potential for unanticipated outcomes arising from a collision of these regimes, there has been little analysis of the implications of their interaction.

Accordingly, this article will examine applicable legal theory with reference to the interaction of the law of outer space and IHL in the context of armed conflict occurring from, to, or through outer space. It will canvass questions of interpretive vertical hierarchy and horizontal priority and examine the International Law Commission's (ILC) recent work on the effects of armed conflict on treaties, as well as the separate ILC review of the impact of subsequent State practice on treaty interpretation.

This examination will lead to the conclusion that while the outer space legal regime does continue to apply in a time of armed conflict and does directly apply to regulate specific conduct occurring during armed conflict; it nonetheless is subject to general legal rules that prioritize the right of self-defense, as well as IHL. The article concludes that the mechanical application of prevailing treaty interpretive maxims does not easily settle issues of potential legal conflict between the outer space legal regime and IHL. As such, different interpretive approaches need to be developed on a case-by-case basis to ensure effective harmonization. In circumstances where harmonization is not possible, a stark policy choice will be required to select which regime will apply and in what manner.

II. THE OUTER SPACE LEGAL REGIME

The outer space legal regime comprises five main treaties, headed by the OST,[8] which is the most comprehensive treaty and closest to representing a quasi-constitution for space. The four further treaties deal with issues of the rescue and return of astronauts,[9] liability,[10] registration,[11] and activities on the

8. 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].

9. Agreement on the Rescue of Astronauts and the Return of Objects Launched in Outer Space, Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119.

10. Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187.

11. Convention on Registration of Objects Launched into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15.

moon.[12] The treaties range in date from 1967 to 1979, though each treaty has a sequentially lower number of States parties.[13] This decrease led after 1979 to an increased reliance upon "soft law" instruments to guide the legal framework applicable to space activities.[14] Such a change of approach could reflect a growing realization by States of the military utility of outer space, as well as the increased access, lower costs, and capacity for civil, commercial, and military space activity.

The preamble to the OST provides that the exploration and use of outer space shall be undertaken for "peaceful purposes."[15] This emphasis on peaceful purposes is repeated in Article IV, which provides that "[t]he Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes."[16] Notably the term "peaceful" is not defined in the Treaty. In addition to the references to peaceful purposes, Article I provides that "exploration and use" of outer space "shall be the province of all mankind."[17] Article II further provides that there shall be no national appropriation of space or any celestial body by claim of sovereignty[18] and Article V provides that astronauts are "envoys of mankind."[19] Article IX requires a State party to "undertake appropriate international consultations before proceeding with any such activity," when it has reason to believe that carrying out this activity in outer space "would cause potentially harmful interference with activities of other States parties."[20]

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12. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 18, 1979, 1363 U.N.T.S. 3.

13. The 1967 Outer Space Treaty has 105 States parties, the 1968 Rescue Convention has 95, the 1972 Liability Convention has 94, the 1975 Convention on Registration of Objects Launched into Outer Space has 63, and the 1979 Moon Convention has 17. *See* Committee on the Peaceful Uses of Outer Space, Status of International Agreements Relating to Activities in Outer Space as at [sic] 1 January 2017, U.N. Doc. A/AC.105/C.2/2017/CRP.7, at 12 (Mar. 23, 2017), http://www.unoosa.org/documents/pdf/spacelaw/treatystatus/AC105_C2_2017_CRP07E.pdf.

14. *See, e.g.*, Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, G.A. Res. 37/92 (Dec. 10, 1982); Principles Related to Remote Sensing of the Earth from Space, G.A. Res. 41/65 (Dec. 3, 1986); Principles Relevant to the Use of Nuclear Power Sources in Outer Space, G.A. Res. 47/68 (Dec. 14, 1992).

15. Outer Space Treaty, *supra* note 8, preamble.

16. *Id.* art. IV.

17. *Id.* art. I.

18. *Id.* art. II.

19. *Id.* art. V.

20. *Id.* art. IX.

Given the themes and legal obligations imposed by the OST, it may seem that the conduct of any military activity in outer space is *prima facie* inconsistent with the outer space legal regime, ostensibly because such activity by itself may be characterized as non-"peaceful." However, Article IV undermines such a conclusion. Indeed, the Article provides only one specific prohibition on military activity: "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."[21] Plainly, this Article anticipates military activity though proscribes only specific aspects of that activity. Moreover, Article III demands, "States parties shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding."[22] The combination of Articles III and IV seem to contemplate that military activity conducted in a manner consistent with the U.N. Charter is permitted, though subject to the specific prohibitions on the placement in orbit of weapons of mass destruction and the establishment of military bases, installations, and fortifications on the moon and other celestial bodies. Despite this conclusion, the specific interplay between the remaining provisions of the OST and military activities, including the conduct of hostilities in outer space, is subject to a high level of theoretical and practical conjecture.

III. APPLICATION OF THE OUTER SPACE TREATY AND THE IMPACT OF ARMED CONFLICT

The OST was developed against a background of evident optimism regarding humanity's ventures into outer space. Drafted at a time when there were principally only two space powers, namely the USSR and the United States, the treaty seemed to anticipate something of a *sui generis* application of legal normativity to this new operating environment. While there were consistent overtures to "peaceful" use and concepts of "envoys of mankind" and "province of mankind" in its provisions, the OST failed to provide any level of specificity or even define such concepts. Despite these invocations, it was

21. *Id.* art. IV.
22. *Id.* art. III.

equally evident that preceding (and postdating) the conclusion of the OST, both the USSR and the United States engaged in military activities in space, with the deployment of military surveillance satellites and the conduct of military testing. Indeed, because of this State practice, it came to be understood that "peaceful" meant "non-aggressive,"[23] which was consistent with the U.N. Charter as required by Article III of the OST. This interpretation permitted the conduct of peacetime military activities that did not offend understandings of the operative provisions of the OST, despite the normative tension such an accommodation generated. Therefore, military use of space was permitted, or at least tolerated, as consistent with the prevailing regime of peaceful, cooperative activity in outer space.

However, beyond this peacetime application of the OST, a deeper and more resonate question is how the OST would continue to apply in a time of armed conflict. The ILC, in its authoritative report on the issue of the impact of armed conflict on the continued application of treaties,[24] concluded that traditional rules relating to treaty interpretation as contained within the 1969 Vienna Convention of the Law of Treaties (VCLT)[25] applied to determine whether a treaty was susceptible to termination, withdrawal or suspension in the event of armed conflict. To this end, in a time of either international or non-international armed conflict,[26] reference first needed to

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23. LAW OF WAR MANUAL, *supra* note 3, § 14.10.4, at 943–45; *see also* Fabio Tronchetti, *The Applicability of Rules of International Humanitarian Law to Military Conflicts in Outer Space: Legal Certainty or Time for a Change?*, *in* PROCEEDINGS OF THE 55TH (2012) COLLOQUIUM ON THE LAW OF OUTER SPACE 357, 362 (2012)

> States have shown growing acceptance of these military uses of outer space which are generally referred to as "passive", in the sense that space assets are utilized as tools to support military operations on the ground and not as means to carry out acts of aggression in the space environment against other space objects.

24. Int'l Law Comm'n, *Draft Articles on the Effects of Armed Conflicts on Treaties, with Commentaries*, Rep. on the Work of Its Sixty-Third Session, U.N. Doc. A/66/10, at 175–211 (2011) (noting that the Draft Articles and Commentaries were also published in volume 2 of the 2011 Yearbook of the International Law Commission) [hereinafter ILC Armed Conflict Report].

25. Vienna Convention on the Law of Treaties, May 23, 1969, 1155 U.N.T.S. 331.

26. ILC Armed Conflict Report, *supra* note 24, art. 2(b) ("'[A]rmed conflict'" means a situation in which there is resort to armed force between States or protracted resort to armed force between governmental authorities and organized armed groups."). Article 2(b) "reflects the definition employed by the International Criminal Tribunal for the Former Yugoslavia in the *Tadic* decision" in defining a non-international armed conflict. *Id.* art. 2(b), cmt. (4). The language "resort to armed force between States" defines an international armed conflict as set forth in Common Article 2 of the 1949 Geneva Conventions. *See, e.g.*, Convention (I) for the Amelioration of the Condition of the Wounded and Sick in the Armed

be made to the relevant treaty itself to ascertain whether provision had been made for its continued application in armed conflict.[27] In the absence of such a reference, there was still a presumption that the treaty would continue to apply unless there was a reason for non-application. Some types of treaties create a stronger presumption that they would survive transition to a time of armed conflict.[28] These were treaties with certain subject matter at their core, namely those that dealt with IHL; land and maritime boundaries; treaties of friendship, commerce and navigation in relation to private rights; human rights; environmental protection; watercourses and aquifers; international settlement of disputes; and diplomatic and consular relations.[29]

With respect to the OST, it is evident that it does not include any specific provision relating to its application in a time of armed conflict. This contrasts with treaties such as the 1954 Hague Convention on the Protection of Cultural Property in a Time of Armed Conflict, which has provisions relating to peacetime, wartime, and post-war application.[30] Perhaps more relevantly, treaties like the OST, such as the 1982 Law of the Sea Convention,[31] which establishes legal boundaries in the maritime environment, do continue to apply in a time of armed conflict, although they are subject to the rules of IHL as they apply in that physical and legal environment.[32]

As to the other provisions of the OST, it remains unclear as to how they would apply in a time of armed conflict. Significantly, the ILC fully acknowledged in its report that a

> State exercising its inherent right of individual or collective self-defense in accordance with the Charter of the United Nations is entitled to suspend

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Forces in the Field art. 2, Aug. 12, 1949, 6 U.S.T. 3114, 75 U.N.T.S. 31; *see also* COMMENTARY TO GENEVA CONVENTION I FOR THE AMELIORATION OF THE CONDITION OF THE WOUNDED AND SICK IN THE ARMED FORCES IN THE FIELD 32–33 (Jean Pictet ed., 1952).

27. ILC Armed Conflict Report, *supra* note 24, art. 4, cmts. (1)–(3).

28. *Id.* art 7.

29. *Id.*, annex; *see also id.*, annex cmts. (1)–(77).

30. Convention for the Protection of Cultural Property in the Event of Armed Conflict arts. 3, 7, 18, May 14, 1954, 249 U.N.T.S. 240.

31. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397.

32. *See, e.g.*, SAN REMO MANUAL ON INTERNATIONAL LAW APPLICABLE TO ARMED CONFLICTS AT SEA pt. II (Louise Doswald-Beck ed., 1995); U.S. NAVY, U.S. MARINE CORPS & U.S. COAST GUARD, NWP 1-14M/MCWP 5-12/COMDTPUB P5800.7A, THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS ch. 7(2007).

> in whole or in part the operation of a treaty to which it is a Party insofar as that operation is incompatible with the exercise of that right.[33]

Accordingly, those provisions of the OST that interfere with rights of self-defense as reflected in Article 51 of the U.N. Charter would be inapplicable to the extent of the inconsistency. Despite this rather large exception, it is unlikely that specific prohibitions relating to weapons and military activities, such as those contained in Article IV, would be suspended because of an application of Article 51.[34] Such a reading is consistent with any number of weapons treaties that operate in a time of armed conflict relating, *inter alia*, to chemical and biological weapons.[35]

Importantly, the ILC in its draft articles also concluded that in a time of armed conflict, the *lex specialis* that applies is IHL, to the detriment of other inconsistent regimes.[36] While the utility of the mechanism of *lex specialis* is increasingly questionable as an effective ordering principle under international law, such a conclusion does envisage a level of methodological priority for IHL vis-à-vis the space law regime. If one accepts the findings of the ILC, it would seem certain that in a time of armed conflict, the OST would continue to apply. However, its application would be tempered by the nature of the armed conflict and resulting normative reconciliation with IHL and other applicable legal regimes. While sovereignty claims to space and celestial bodies would remain prohibited, and the OST would continue to bar the placement in orbit of weapons of mass destruction, other provisions would be subject to an interpretive process of harmonization. Hence, in certain cases, OST provisions would be accorded priority, whereas in others, IHL provisions would govern conduct in space, even those that were contrary to

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33. ILC Armed Conflict Report, *supra* note 24, art. 14.

34. U.N. Charter, art. 51.

35. *See, e.g.*, Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction art. 1(b), Jan. 13, 1993, 1974 U.N.T.S. 45 ("Each State Party . . . undertakes never under any circumstances . . . to use chemical weapons"); Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction art. 1, Apr. 10, 1972, 26 U.S.T. 583, 1015 U.N.T.S. 163

> Each State Party to this Convention undertakes never in any circumstances to develop, produce, stockpile or otherwise acquire or retain: (1) Microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes; (2) Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.

36. ILC Armed Conflict Report, *supra* note 24, art. 2, cmt. (4).

the OST. Determining the manner of this reconciliation would remain a matter of interpretation.

IV. INTERPRETATION OF THE OUTER SPACE TREATY IN A TIME OF ARMED CONFLICT

It is a feature of contemporary international law that multiple legal regimes can apply to a single legal question. Further, given the diffused nature of international legal practice, there is a real potential of conflicting legal norms arising from these regimes. The imprecise relationships between legal forms, between law and policy, and the disquiet expressed regarding the realization of particularized interpretive tropes illustrate the disaggregated nature of international legal practice. Indeed, the reach for a unifying metanarrative that reconciles these disparate features within the international legal enterprise remains elusive. The 2006 ILC study on the fragmentation of international law makes clear that the international legal structure comprises numerous "rule-complexes"[37] that come with their own "ethos."[38] The ethos of one specialized law is not necessarily identical to that of a neighboring specialization and the two may not be easily reconciled. Examples include international environmental law and international trade law, coastal State and flag State jurisdiction over vessels, domestic criminal law and international human rights, and of course, outer space law and IHL. The difficulty in reconciling specialized rules is a product not only of their nature and subject matters, but also of legal cultures, needs for specialization, and activities of particular legal caucuses that promote the objectives and goals of these separate areas of law. Accepting this, the practice of international law, particularly in the context of armed conflict in outer space, is one that is undertaken within a highly pluralist field of interpretation. This is a field where the realization of a unified and coherent structure proves largely illusory.

In the context of the OST, it is highly relevant to examine how particular provisions have been applied in practice to determine their reach in a time of armed conflict. To this end, subsequent State practice provides an accepted and effective mechanism to understand the meaning accorded to provisions of the OST, which can then be compared with potentially contrary

37. Rep. of the Study Group of the Int'l Law Comm'n, (Finalized by Martti Koskenniemi), *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, ¶¶ 8, 10, U.N. Doc. A/CN.4/L.682 (Apr. 13, 2006) [hereinafter ILC Fragmentation Report].

38. *Id.* ¶ 15.

IHL obligations. If provisions of the OST have seldom been relied upon in practice, or have been given a narrow meaning in peacetime, it would provide a relevant reference point for undertaking the exercise of reconciliation with IHL in a time of armed conflict.

State practice comprises a major component of determining the existence of customary international law. Aside from this well-known use, subsequent State practice is also recognized in the VCLT as a means of interpreting treaty provisions. Article 31(1) states, "[a] treaty shall be interpreted 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."[39] Importantly, Article 31(3)(b) provides, "There shall be taken into account, together with the context: Any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation."[40]

Indeed, so significant is the role of subsequent practice that the ILC is currently engaged in a multiyear study of its importance to treaty interpretation.[41] In the reports produced to date, the ILC has concluded that subsequent practice is an "authentic" means of interpretation.[42] Subsequent practice has been broadly identified as including legislative action, administrative practice, and official acts, as well as action, reaction, acquiescence, and relevant silence by other States to those acts.[43]

The ILC has identified that several criteria need to be present for subsequent practice to be an authentic means of interpretation. Hence, States must be parties to the treaty and the actions taken must be "relational" to the treaty.[44] In this context, "practice may include official statements concerning the treaty's meaning, protests against non-performance, or tacit consent to statements or acts by other parties."[45] Conduct by itself can qualify as relevant "State practice," provided it can be established that States are manifest-

39. Vienna Convention on the Law of Treaties, *supra* note 25, art. 31(3).

40. *Id.*

41. *See* Georg Nolte (Special Rapporteur), *First Report on Subsequent Agreements and Subsequent Practice in Relation to Treaty Interpretation*, U.N. Doc. A/CN.4/660 (Mar. 19, 2013).

42. *Id.* ¶ 8.

43. *Id.* ¶¶ 110–11, 134.

44. *Id.* ¶ 76.

45. *Id.* ¶ 110.

ing a position in relation to the interpretation of the relevant treaty in question.[46] In this regard, it is important to recall that silence can also be relevant practice and, provided it is identifiable, it need not be formally designated.[47]

The issue relating to the role of silence and acquiescence is particularly relevant in the contemporary period. It has been noted that States have become generally reticent to make public statements concerning legal rights and obligations.[48] This appears to be particularly acute in IHL and national security contexts.[49] At the same time, it has been observed that the academic commentary has quickly filled this void, generating trajectories of meaning and interpretation that provide creative, but not always accurate representations of international law,[50] let alone a State's assumed position. Accordingly, while necessarily a delicate process of analysis, the absence of complaint or reaction by a State party in the context of another State's conduct, especially in circumstances where the former's apparent rights or entitlements have been infringed, has meaning under Article 31(3) of the VCLT. States are the still the subjects and not the objects of international law and despite the profusion of academic commentary as to what the law is—or more typically what the law should be—it is still States that occupy the exclusive role as the creators of international law.

Given this background regarding the manner in which subsequent State practice can inform treaty meaning, it is useful to examine how provisions of the OST have been applied by States. Significantly, the requirements of establishing a relational context are easily met in the case of space and the OST. The OST remains the primary governing treaty dealing with space conduct; hence, State activities within space are necessarily undertaken in direct connection with this specific regime. Thus, identifying State practice is relatively straightforward and allows for greater confidence in assessing how terms of the OST would apply in a time of armed conflict.

Article IX is one provision that deserves particular attention. As previously noted, the Article requires, *inter alia*, when a State party engages in an activity that "would cause potentially harmful interference with activities of

46. Georg Nolte (Special Rapporteur), *Second Report on Subsequent Agreements and Subsequent Practice in Relation to the Interpretation of Treaties*, ¶ 19, U.N. Doc. A/CN.4/671 (Mar. 26, 2014).

47. *Id.* ¶ 59.

48. Michael N. Schmitt & Sean Watts, *The Decline of International Humanitarian Law* Opinio Juris *and the Law of Cyber Warfare*, 50 TEXAS INTERNATIONAL LAW JOURNAL 189, 191 (2015).

49. *See id.* at 195–209.

50. *Id.* at 192.

other State Parties . . . it shall undertake appropriate international consultations before proceeding with any such activity."[51] This requirement is capable of being carried out in a time of armed conflict, and may obligate the belligerents to warn civilians and neutral States of attacks or other "potentially harmful interference" with their activities or assets.

Such an obligation is not entirely unknown under IHL, which mandates that warnings be given in certain circumstances preceding attack;[52] however, Article IX purports to go further and raises the specter of a broader range of military activities that may be encompassed within its provisions. Much turns on what conduct would constitute "potentially harmful interference" and the nature and content of the consultations required. Hence, does Article IX set a high or low threshold, one where potential damage or other interference is probable as opposed to merely possible?

Recourse to State practice reveals that Article IX has rarely been invoked.[53] In the fifty years since the OST came into force, there have been only two instances where Article IX has been the subject of international engagement. One occasion arose after China undertook a kinetic anti-satellite strike on its own *FY-1C* weather satellite in 2007 that caused considerable orbital debris.[54] In that instance, several countries, including the United Kingdom, United States, Canada, India, South Korea, Australia, and Japan, asserted that Article IX obligations were activated and that consultation was obliged prior to the strike, although China failed to take such action.[55] The second occasion occurred in 2008 and revolved around a U.S. declaration that its obligations under Article IX were not activated prior to targeting its own *USA-193* satellite that had fallen into low orbit and represented a threat

51. Outer Space Treaty, *supra* note 8, art. IX.

52. *See* Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts art. 57(2)(c), June 8, 1977, 1125 U.N.T.S. 3 (noting that "effective advance warnings shall be given of attacks which may affect the civilian population, unless circumstances do not permit").

53. Sarah M. Mountin, *The Legality and Implications of Intentional Interference with Commercial Communication Satellite Signals*, 90 INTERNATIONAL LAW STUDIES 101, 150 (2014).

54. Michael C. Mineiro, FY-1C *and* USA-193 *ASAT Intercepts: An Assessment of Legal Obligations under Article IX of the Outer Space Treaty*, 34 JOURNAL OF SPACE LAW 321, 336 (2008).

55. There is an argument that Cold War practice, in which the USSR and the United States did not consult prior to ASAT tests, represents relevant State practice indicating that there is not an obligation to consult under Article IX prior to conducting such tests. However, the effects of the tests were limited and does not support a conclusion that State practice has established that there is no obligation to consult for kinetic ASAT tests or experiments in outer space. *See id.* at 345–47.

to the terrestrial environment.[56] The attack resulted in the destruction of the satellite; with the low atmosphere causing the resulting debris largely to burn up in de-orbit.[57] Academic analysis of Article IX puts focus on the State's knowledge that the consequences of a planned action would represent an interference with peaceful uses of outer space.[58] Clearly, creating a large physical debris field that threatens existing orbits and the general space activity of other States satisfies this criterion.[59] The two actions were therefore qualitatively different: the obligation was activated in the case of the Chinese attack, but not in the case of the U.S. attack.[60] These two instances represent the only time in fifty years where international attention has focused on Article IX. Such paucity of State practice would seem to establish that a very high threshold of "potential harmful interference" is required. In turn, this threshold would inform the interpretation of this Article in a time of armed conflict.[61]

In relation to the conduct of armed conflict in outer space, there is (fortunately) no State practice in the public domain to draw upon to inform meaning of other OST provisions. Despite this, positions adopted by nations in their military law manuals regarding the conduct of hostilities in outer space may represent sufficient State practice for the purposes of Article 31(3) of the VCLT. Hence, the updated U.S. Department of Defense *Law of War Manual* is instructive in its dealing with IHL and outer space.[62]

In section 14.10.3, the *Law of War Manual* reaffirms the prevailing understanding that Article IV of the OST only prohibits the placement of weapons of mass destruction in full orbit, not the placement of other space-based weapons systems. In fact, it expressly cites anti-satellite laser weapons and other conventional weapons, which would include suborbital defensive weapons such as the Terminal High Altitude Area Defense system, as not being subject to the prohibition contained in Article IV. Notwithstanding these statements, the *Law of War Manual* does recognize the prohibition of atomic testing in the space environment as a requirement deriving from the Limited Test Ban Treaty.[63]

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56. *Id.* at 332.
57. *Id.* at 348–52.
58. *Id.* at 337–38.
59. *Id.* at 354.
60. *Id.* at 352.
61. *Id.* at 334.
62. LAW OF WAR MANUAL, *supra* note 3, ch. XIV, at 917–45.
63. *Id.* § 14.10.3, at 942–43.

The *Law of War Manual* also provides deeper clarity that the term "peaceful purposes," as contained within the OST, is to be equated with the term "non-aggressive . . . consistent with the Charter of the United Nations and other international law."[64] Such a statement is significant given the initial views held by some States[65] and academics[66] that all military activity was prohibited in outer space. Over time, State practice, including that of the USSR, which had initially held contrary views, coalesced into an understanding that "peaceful" did not prohibit all military activity. The statement in the *Law of War Manual* provides a clear confirmation of the U.S. view—a view shared by others[67]—that "peaceful" does not mean non-military. Moreover, the *Law of War Manual* further states "this interpretation of 'peaceful purposes' is like the interpretation given to the reservation of the high seas for 'peaceful purposes' in the LOS [Law of the Sea] Convention."[68] The ILC acknowledged that the use of analogy between one treaty and another, where terms are similarly expressed, is an acceptable instance of State practice.[69] It is notable however that the statement in the manual is also accompanied by the words "non-aggressive and beneficial,"[70] suggesting that not only are actions not to violate concepts of aggression under the *jus ad bellum,* but that there is a further element of restraint implicit in the words "and beneficial." The extent of this further restraint remains unarticulated in the manual. Certainly, the idea of sovereign claims to space are excluded under Article II of the OST, and perhaps this form of wording serves to merely reinforce that provision in the case of actions that constitute "aggression" in the space context.

Moreover, the *Law of War Manual* fully acknowledges the application of Article IV of the OST and the prohibition of the establishment of permanent

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64. *Id.* § 14.10.4, at 943–45.

65. Emilion Jaksetic, *The Peaceful Uses of Outer Space: Soviet Views*, 28 AMERICAN UNIVERSITY LAW REVIEW 483, 493 (1979).

66. *See, e.g.*, Manfred Lachs, *The International Law of Outer Space*, 113 RECUEIL DES COURS 1, 90–91 (1964); BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW 520–22 (1997).

67. The United States, China, and Russia are developing military capability in space and there has been an absence of protest by these States, or any other State with respect to these activities. *See* supra note 1. *See also* Tronchetti, *supra* note 23, at 362

> The 'non-aggression' approach argues that, as long as military activities in space are carried out in accordance with Article 2(4) of the UN Charter, they are consistent with international law. . . . This approach, promoted by the United States, has progressively gained support and finds evidence in State practice.

68. LAW OF WAR MANUAL, *supra* note 3, § 14.10.4, at 943–45.

69. *First Report on Subsequent Agreements and Subsequent Practice in Relation to Treaty Interpretation*, *supra* note 41, ¶ 101.

70. LAW OF WAR MANUAL, *supra* note 3, § 14.10.4 n.164, at 943.

military bases on the Moon. But while the *Law of War Manual* makes clear statements regarding the OST and the way military activities will be conducted in accordance with many of its terms, it also expresses uncertainty as to other terms and their application to such activities. Hence, the manual expresses a level of disquiet over the way Article III may "import" general international law, given the terrestrial context in which such law was developed.[71] At the same time, it expresses no reservation regarding the general application of IHL to outer space in a time of actual armed conflict,[72] even though the context in which some of the law applicable to armed conflict presupposes a land, sea, or maritime environment.

The *Law of War Manual* provides a level of clear expression from a major spacefaring country as to the way provisions of the OST will be interpreted and applied in the conduct of military activities. It asserts that the placement of weapons of mass destruction in full orbit and the establishment of military bases on the moon and other celestial bodies are prohibited in accordance with the OST. To this extent, the United States plainly anticipates the *prima facie* continued operation of at least part of the OST during an armed conflict, though it also acknowledges the application of IHL. It reaffirms that the law of aggression will apply to space military activities in a time of armed conflict (or otherwise) and it reserves the right of the United States to deploy weapons that are not weapons of mass destruction into full orbit.

Finally, the *Law of War Manual* manifests State practice for the purposes of Article 31(3) of the VCLT, as does the apparent acquiescence and silence that comes from other States as to these pronouncements. Despite the enunciation of clear principles and interpretations of the OST, as contained within the manual, there is still a high level of ambiguity regarding the way the OST and IHL interact. It declares that IHL will apply, but does not examine the manner of intersection between this body of law and the OST. Accordingly, the resolution of normative tension between the two regimes then falls to the general principles of international law.

V. VERTICAL HIERARCHY AND HORIZONTAL PRIORITY

In reconciling the intersection between the OST and IHL, the concepts of *jus cogens* (vertical hierarchy) and *lex specialis* (horizontal priority) provide possible mechanisms for resolving potential conflict.

71. *Id.* § 14.10.2.2, at 941–42.
72. *Id.*

Jus cogens find expression in Article 53 of the VCLT.[73] It establishes a hierarchy of peremptory norms that have priority over other more general norms of international law. Prohibitions such as unlawful use of force, slavery, or the performance of an act criminal under international law (such as torture and war crimes) are usually cited as having such status,[74] but it is difficult to identify other topics that come within the concept. To the extent that peremptory norms are contained in either the OST or IHL regarding armed conflict in space, such norms would take precedence in resolving legal conflicts. At face value, there are elements in both regimes that would apply, but such application hardly resolves the preexisting normative tension because they do not act in any kind of opposition. Thus, the concept of nonaggression as interpreted under the OST (through the peaceful activity provisions) does override provisions in IHL, but given that IHL's focus is on *jus in bello* not *jus ad bellum*, there is no need for reconciliation of the two regimes. The other two *jus cogens* prohibitions contained in IHL—torture and war crimes—find no expression in the OST. Hence, while applying the *jus cogens* concept would seem to resolve any apparent conflict, it is unnecessary to do so because there is no direct or implied conflict between IHL and the OST in this context.

Unlike vertical hierarchy mechanisms, the *lex specialis* maxim does offer greater potential to resolve normative conflict. This maxim provides that the "specific shall prevail over the general."[75] It enables a faithful application of the lawmaker's intention to govern specific circumstances where provision has been made for such regulation vis-à-vis more general legal requirements.

Despite finding no expression in the VCLT, the *lex specialis* maxim has been cited in several International Court of Justice cases to resolve apparent conflict.[76] It has also been highlighted by the ILC as a useful mechanism for reconciling disparate areas of international law.[77] As an interpretive mechanism, it seems to offer a solution to the reconciliation of apparent conflict between legal regimes, as is the case with the outer space regime and IHL.

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73. Vienna Convention on the Law of Treaties, *supra* note 25, art. 53.

74. *Reports of the International Law Commission on the Second Part of Its Seventeenth Session and on its Eighteenth Session*, [1966] 2 Yearbook of the International Law Commission 169, 248, U.N. Doc. A/6309/Rev.l.

75. MALCOLM N. SHAW, INTERNATIONAL LAW (6th ed. 2008) 124 (noting that "[t]here is . . . a principle to the effect that a special rule prevails over a general rule").

76. *See, e.g.*, Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. Rep. 226, ¶ 25 (July 8).

77. Anja Lindroos, *Addressing Norm Conflicts in a Fragmented Legal System: The Doctrine of* Lex Specialis, 74 NORDIC JOURNAL OF INTERNATIONAL LAW 27, 35 (2005).

Despite this apparent superficial attraction and the ease with which it may be applied, this interpretive maxim to resolve normative conflict between the regimes is unlikely to produce the outcomes sought.

In her analysis of *lex specialis*, Lindroos correctly makes the point that the maxim's utility is best realized when applied to treaties that are from the same field or subfield.[78] In that situation, there exists a contextual relationship between instruments where priorities may be measured through the word choice, emphasis, or even silence that is evident from the terms of the treaties. Intention can be more reliably discerned given the shared focus.

Such a contextual relationship does not exist, however, where treaties come from different fields, as is the case of the OST and those treaties comprising the core of IHL. Indeed, there are views that both actually represent the *lex specialis*.[79] Such views are hard to reconcile and raise numerous further questions. For example, how do the respective ratios of obligation in each regime get measured in such circumstances? The answer lies not in any mathematical assessment of the specificities resident in the provisions themselves, but rather in a broader value judgment that one regime is to be preferred over the other.[80] This in turn relies on political—or at least policy—choices, as to which regime or provision will have application. Thus, this decision is less about resolving contextual choice in a logically precise manner than of selecting which policy preferences and political values will prevail.[81]

The application of the *lex specialis* maxim to resolve potential conflict between regimes in the context of IHL in outer space carries with it enormous significance, a significance this interpretive tool cannot possibly be expected to fulfill. Numerous examples of its inadequacy can be imagined. Take for instance, the question of the very existence of an armed conflict. Traditional determinations of when an armed conflict begins turn on whether there has been a resort to armed force between two States.[82] There exist separate rules within the regime of State responsibility that help determine who the "State" is for such purposes. Long-established rules of general international law have

78. *Id.* at 41.

79. For the view that space law is the *lex specialis*, see Frans von der Dunk, *International Space Law*, *in* HANDBOOK OF SPACE LAW 29 (Frans G. von der Dunk & Fabio Tronchetti eds., 2015). For the view that IHL is the *lex specialis*, see ILC Armed Conflict Report, *supra* note 24, art. 2, cmt. (4).

80. Lindroos, *supra* note 77, at 42.

81. *Id.*

82. Prosecutor v. Tadic; Case No. IT-94-1-AR-72, Decision on Defence Motion for Interlocutory Appeal on Jurisdiction, ¶ 70 (Int'l Crim. Trib. for the former Yugoslavia Oct. 2, 1995), http://www.icty.org/x/cases/tadic/acdec/en/51002.htm.

a broad understanding of attribution, which hold that a finding of attribution is still within the reasonable limits of what a State actually authorizes or at least in those instances where a State has effective control over a non-State group.[83] In the OST, Article VI creates a broad ambit of State responsibility, including responsibility for actions of non–State actors who undertake space activities within a State.[84] Under Article VI, such activities are deemed "national activities" that the State must ensure are "carried out in conformity" with the OST and under its "authorization and continuing supervision."[85] On one reading of this provision, any space activity occurring within the territory of a State by non-State actors, irrespective of the actual control exercised by the State over the entity concerned, will trigger State responsibility. If such activity involves manipulation of space systems or hacking of other States' satellites rising to a use of force, there is the real prospect of the host State being unwillingly (and unwittingly) drawn into an international armed conflict under existing definitions of IHL. Such an outcome would be consistent with one reading of the OST provision, though one that defies all general international law on the issue of attribution. According *lex specialis* status to the OST in such an instance defies not only legal and practical logic, but also undermines its very purpose and object, which is directed towards advancing the peaceful use of outer space.

Another example of an unanticipated result of according the outer space legal regime *lex specialis* status is the question of the status of military astronauts in a time of armed conflict. Under the Rescue and Return Convention, astronauts that unwittingly land in the territory of a State are required to be "promptly" returned to the launching State,[86] which is normally their State

83. Military and Paramilitary Activities in and against Nicaragua (Nicar. v. U.S), Judgment, 1986 I.C.J. Rep. 14, ¶¶ 105–15 (June 27).

84. Outer Space Treaty, *supra* note 8, art. VI.

85. *Id.* In full, article VI states:

> States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty.

86. Agreement on the Rescue of Astronauts and the Return of Objects Launched in Outer Space *supra* note 9, art. 4

> If, owing to accident, distress, emergency or unintended landing, the personnel of a spacecraft land in territory under the jurisdiction of a Contracting Party or have been found on the high seas or in any other place not under the jurisdiction of any State, they shall be safely and promptly returned to representatives of the launching authority.

of nationality. In circumstances where a military astronaut engaged in armed conflict lands in belligerent territory, this would *prima facie* require the return of that astronaut to their launching State. Such return would be contrary to the rights and obligations contained in the Third Geneva Convention,[87] which enables the belligerent to retain the astronaut as a prisoner of war and the obligations of a neutral State to intern members of a belligerent's armed forces downed in their territory for the duration of the conflict. Arguing that the outer space legal regime is the *lex specialis* or even that this provision has that status runs counter to core principles that underpin IHL.

Examples also run the other way. If the IHL regime, *in toto*, was determined to be the *lex specialis*, then establishing military bases on the moon would be permissible. Such a development is plainly inconsistent with Article IV of the OST, which prohibits the establishment of "military bases, installations and fortifications" on celestial bodies.[88] It would also throw open the issue of sovereign appropriation of celestial bodies, or perhaps even space itself, which forms the basis for the assertion of many belligerent rights. Such an outcome is completely at odds with the governing regime established for the regulation of human activities in space.

VI. RECONCILIATION OF REGIMES

Despite the superficial attraction of the interpretive rules like *lex specialis*, it is evident that they cannot effectively reconcile the IHL and outer space regimes. This is a product of the limitation of the interpretive tools when there are two parallel regimes that apply in very different ways to govern space activity in a time of armed conflict. While invocation of the *lex specialis* maxim would give the appearance of an objective standard of ordering, it would ultimately be a subjective value judgment as to which regime or which provision is the more specific one. Such judgments are liable to result in inconsistent and unanticipated outcomes.

Given the decentralized nature of international law, diverging institutional commitments, and goals and objectives that accompany different "rule

87. Convention (III) Relative to the Treatment of Prisoners of War, Aug. 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135.

88. Outer Space Treaty, *supra* note 8, art. IV. ("The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The 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.").

complexes,"[89] the idea of a meta-rule that impartially settles such conflict in a definitive manner is illusory. Despite such a conclusion, the international legal system must retain its coherency, even in the face of contradictory visions generated by different regimes.

At present, there exists no meta-rule that would permit a confident approach to reconciling the different regimes. Interpretive techniques contained in the VCLT have their place, along with the *lex specialis* maxim, but all such techniques should be guided by a sense of mutual reinforcement between regimes. Where there is unavoidable conflict of opposing norms, then a self-aware recourse to publicly stated values will need to underpin interpretive choice. Such moments will expose a clash of ethos and professional commitment, but it need not be an exercise of relativism. There are theories of interpretation that respected scholars such as Ronald Dworkin have advanced that are designed to balance competing equities. These approaches may offer some solution to the interpretive questions discussed above.

Dworkin's concept of "law as integrity" is directed towards an interpretive technique that relies upon reason and a sense of moral judgment.[90] According to Dworkin, law in its very essence is an interpretive enterprise. Meaning is obtained not only from a textual analysis of words, but also through identification of a set of coherent social and political principles that underpin the relevant words that comprise the law.[91] This approach requires a considerable effort by the interpreter to develop the historical and political reference point from which to determine the applicable legal coherence.[92] The methodology is an ongoing process of "fit" and "justification" to make the law cohere to political and historical facts and past practices by attributing a point, purpose, or value to those practices.[93] Such an approach seems to offer both the necessary flexibility and coherency that resolving the two disparate regimes of space law and IHL require.

In applying Dworkin's approach, it is necessary to locate unifying themes between the two regimes and to place them in their historical or social context. The outer space legal regime promotes the peaceful exploration of space with a view to benefiting all humanity. Humanitarianism is also present in the utilitarian calculation that underpins IHL's balancing of the equal and

89. ILC Fragmentation Report, *supra* note 37, ¶¶ 8, 11.
90. RONALD DWORKIN, LAW'S EMPIRE 254–58 (1986).
91. *Id.* at 255.
92. *Id.* at 227–28.
93. *Id.* at 254–63.

opposing elements of military necessity and humanity. To this extent, where interpretations of the two regimes can accommodate a greater outcome of human well-being or better protection, then such a solution should be preferred.[94] I have argued elsewhere that this seemed to be at the core of the International Court of Justice's assessment of the interplay of IHL and international human rights law in the *Nuclear Weapons* advisory opinion,[95] an assessment that gave "weighted significance" to humanitarian outcomes in any review of military action.[96] Such reasoning has also found expression in subsequent cases dealing with IHL in the International Criminal Tribunal for the former Yugoslavia where relative values placed on humanitarianism under IHL calculations were enhanced—or at least harmonized.[97] Accordingly, provisions of the OST that promote humanitarianism should be interpreted in a manner to influence the humanitarian features of IHL. In practice, this means that where there are two possible interpretations open to the application of IHL in a space context, the one prioritizing humanitarian outcomes should be preferred. To this end, the OST may also act as a catalyst for locating special protections for classes of person or property when otherwise under the purview of IHL. The idea of military astronauts engaged in purely scientific exploration, removed from any belligerent activity, is a case that comes to mind.[98]

VII. THE ROLE OF MANUALS

Anticipating legal ambiguity and locating gaps in the law, and then grappling with these issues in peacetime, ensures that the law has relevant and meaningful effect in a time of armed conflict. This has led to efforts over the last twenty years of groups of international legal experts to prepare international law operational manuals applicable in a time of armed conflict in areas of law that are uncertain. In fact, it is not an overstatement to say that we currently

94. Lindroos, *supra* note 77, at 41 (providing an interpretive concept imported from international human rights law).

95. Dale Stephens, *Human Rights and Armed Conflict—The Advisory Opinion of the International Court of Justice in the* Nuclear Weapons *Case*, 4 YALE HUMAN RIGHTS AND DEVELOPMENT LAW JOURNAL 1 (2001).

96. *Id.* at 23.

97. *See, e.g.*, Prosecutor v. Kupreskic et al*,* Case No. IT-95-16-T, Judgment, ¶¶ 424–25 (Int'l Crim. Trib. for the former Yugoslavia Jan. 14, 2000).

98. Stephens & Steer, *supra* note 7, at 15–16.

live in the age of the manual.[99] The pace of technological development in weapons of war, and the failure of States to keep up in the development of the law regulating these new weapons, leaves room for significant gaps. The last major revision of IHL in a general sense occurred in 1977 with the negotiation of the Additional Protocols to the Geneva Conventions.[100] Since that time, technologies and doctrine relating to cyber war, semi-autonomous weapons systems, unmanned aerial vehicles, and space warfare all have advanced. States have claimed legal positions vis-à-vis these new technologies and doctrines, such as those contained in the short "Air and Space Warfare" chapter of the *Law of War Manual*,[101] but such statements, while making methodological choices in their preference for how various bodies of law interact, do not outline with any great clarity the process of resolution.

To fill methodological and substantive gaps, professional communities comprised of practitioners, military legal officers, government officials, and academics (all often working in their private capacity) have taken the lead in drafting international operational law manuals that seek to reflect the law in these new or rapidly changing contexts. In doing so, they have continued the practice of the past one hundred years in which manuals relating to the law applicable in armed conflict were prepared by experts. These manuals restated the law, as then understood, in a coherent and concise manner for a specific genre of warfare. Such manuals include the 1880 *Oxford Manual*[102]

99. *See generally* Dale Stephens, *The Age of the Manual—The Impact of the Manual on International Law Applicable to Air and Missile Warfare*, 45 ISRAEL YEARBOOK ON HUMAN RIGHTS 19 (2015).

100. *See* 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; 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.

101. *See* LAW OF WAR MANUAL, *supra* note 3, at ch. XIV, at 917–45.

102. Institute of International Law, The Laws of War on Land, Sept. 9, 1880 (Oxford Manual), *reprinted in* THE LAWS OF ARMED CONFLICTS 29, 29–40 (Dietrich Schindler & Jiri Toman eds., 4th rev. ed. 2004).

and the 1913 *Oxford Manual of Naval Warfare*,[103] both prepared by the Institute of International Law, and the 1923 Hague Draft Rules of Aerial Warfare prepared by a Commission of Jurists.[104]

These older manuals have found their contemporary equivalents in the form of the 1994 *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*,[105] the International Committee of the Red Cross 2005 *Customary International Humanitarian Law*[106] and 2009 *Interpretative Guidance on the Notion of Direct Participation in Hostilities under International Humanitarian Law*,[107] the 2013 *Manual on International Law Applicable to Air and Missile Warfare*,[108] and the 2017 *Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations* prepared under the auspices of the NATO Cooperative Cyber Defence Centre of Excellence.[109]

These manuals articulate what is understood to be the prevailing *lex lata*. However, their legal force is dependent entirely upon their persuasiveness. Indeed, these manuals act by informing government decision makers of the authors' legal understanding of specific legal questions, thereby acting as a catalyst to the development of the law based solely on government acceptance of their veracity. To date, while not without some academic criticism (usually made by those not involved in the drafting of the particular manual) these manuals have received considerable recognition. They have

103. Institute of International Law, The Laws of Naval War Governing the Relations Between Belligerents, Aug. 9, 1913 (Oxford Manual of Naval Warfare), *reprinted in* THE LAWS OF ARMED CONFLICTS, *supra* note 102, at 1123.

104. Commission of Jurists, Hague Rules Concerning the Control of Wireless Telegraphy in Time of War and Air Warfare, Dec. 11, 1922 – Feb. 17, 1923, *reprinted in* THE LAWS OF ARMED CONFLICTS, *supra* note 102, at 315.

105. SAN REMO MANUAL ON INTERNATIONAL LAW APPLICABLE TO ARMED CONFLICTS AT SEA, *supra* note 32.

106. CUSTOMARY INTERNATIONAL HUMANITARIAN LAW (Jean-Marie Henckaerts & Louise Doswald-Beck eds., 2005).

107. INTERNATIONAL COMMITTEE OF THE RED CROSS, INTERPRETIVE GUIDANCE ON THE NOTION OF DIRECT PARTICIPATION IN HOSTILITIES UNDER INTERNATIONAL HUMANITARIAN LAW (2009).

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

109. TALLINN MANUAL 2.0 ON THE INTERNATIONAL LAW APPLICABLE TO CYBER OPERATIONS (Michael N. Schmitt ed., 2d. ed. 2017).

found expression within national military legal manuals, as well as authoritative citation by international tribunals.[110]

To this end, a collaborative effort led by The University of Adelaide (Australia), Exeter University (United Kingdom), the University of Nebraska (United States), and The University of New South Wales (Australia) is developing *The Woomera Manual on the International Law of Military Space Operations*.[111] The *Woomera Manual* project is directed towards reconciling legal regimes and establishing a coherent narrative regarding the intersection of international space law, the international law relating to the use of force, and international humanitarian law. The manual will grapple with the collision of outer space and IHL regimes as outlined in this article, and will forge outcomes to the conundrums identified. As is the case with all previous manuals of this nature, *The Woomera Manual* project seeks to draft a manual that will be used as a resource by military forces and governments in determining national positions concerning the legal interplay between regimes. It also seeks to create a normative feedback loop, whereby the legal norms articulated are accepted or rejected (which is equally useful), thus contributing to a better understanding of the legal rules within this field.

110. For example, the *San Remo Manual on International Law Applicable to Armed Conflicts at Sea* has been cited in numerous international legal fora. *See, e.g.*, Prosecutor of the International Criminal Court, Situation on Registered Vessels of Comoros, Greece and Cambodia: Article 53(1) Report ¶¶ 31–32 (Nov. 6, 2014), https://www.icc-cpi.int/iccdocs/otp/otp-com-article_53(1)-report-06nov2014eng.pdf; Prosecutor v. Mrkšić et al., Case No IT-95-13/1-T, Judgment, ¶ 457 (International Criminal Tribunal for the former Yugoslavia Sept. 27, 2007); U.N. Human Rights Council, *Report of the International Fact-Finding Mission to Investigate Violations of International Law, Including International Humanitarian and Human Rights Law, Resulting from the Israeli Attacks on the Flotilla of Ships Carrying Humanitarian Assistance*, ¶ 50, U.N. Doc. A/HRC/15/21 (Sept. 27, 2010), http://www2.ohchr.org/english/bodies/hrcouncil/docs/15session/A.HRC.15.21_en.pdf; 1 Jacob Turkel et al., The Public Commission to Examine the Maritime Incident of 31 May 2010, at 33 (2011), http://turkel-committee.gov.il/files/wordocs//8707200211english.pdf; Turkish National Commission of Inquiry, Report on the Israeli Attack on the Humanitarian Aid Convoy to Gaza on 31 May 2010, at 61 (2011), http://gazaflotilla.delegitimize.com/wp-content/uploads/2011/02/official-turkish-inquiry.pdf.

111. *See* UNIVERSITY OF ADELAIDE, THE WOOMERA MANUAL, https://law.adelaide.edu.au/military-law-ethics/woomera/.

VIII. CONCLUSION

The increasing militarization of space presents legal challenges relating to the way existing legal paradigms might apply to regulate such activity, but more fundamentally, as to how the existing outer space legal regime responds to such developments. In the event of armed conflict occurring from, to, or through space there is an inevitable convergence of applicable space and IHL regimes that requires reconciliation.

Work undertaken by the ILC concerning the effects of armed conflict on existing treaty regimes provides valuable insight into how treaty regimes transition in a time of such conflict. In mapping the framework of such transition, the ILC identified priorities, not least of which was the centrality of rights of national and collective self-defense vis-à-vis other treaty regimes. The report also identified IHL as the *lex specialis* in such circumstances.

Navigating the intersection of the outer space legal regime and IHL is fraught with uncertainty. Providing meaning to the inevitable ambiguity of many provisions of the OST in such a context is greatly aided, however, by subsequent State practice, which enables meaning to be accorded to its provisions. Such a process is envisioned by the VCLT to arrive at authentic meaning. To this end, the multi-year ILC study on subsequent State practice is useful in its conclusions. In the context of military activities, including armed conflict in outer space, the U.S. *Law of War Manual* is a reliable source of State practice for discerning the meaning, at least for that of one major spacefaring nation. Further, the apparent tacit acceptance from other States of this manual suggests a measure of State practice, thereby providing useful illumination of the legal landscape vis-à-vis the two regimes.

While the two ILC studies provide a reliable level of confidence in establishing fundamental starting points, they nonetheless leave enormous room for further interpretation. To this end, existing rules of international legal interpretation may fill the void. Application of the *jus cogens* and *lex specialis* maxims would seem to offer a meaningful way forward, but in practice, they offer little practical resolution. While reassuring in its clarity, the concept of *lex specialis* in particular, is a fraught one as a meta-rule for effective ordering, at least in circumstances where there are two major regimes such as those applicable to outer space and IHL.

What this indeterminacy leaves is a need for a provision-by-provision analysis of each regime against an interpretive framework that seeks to optimize harmonization to the greatest extent possible. As this article has advanced, application of a Dworkin-like interpretive approach would offer

both the coherency and flexibility necessary for the harmonization to be successful. Moreover, the concept of humanitarianism could provide a unifying theme that would aid such resolution. Nonetheless, to the extent that norms in both regimes remain irrevocably divergent, States will need to resolve these differences through policy preference and political choice.

Recent efforts by scholars and government officials acting in their personal capacity to draft a manual that seeks to resolve such conundrums by application of existing legal principles hopefully offers a means for effective engagement by States to settle on the fused legal regime that would apply to armed conflict in outer space. Such efforts must be successful. The international community placed enormous hope in the peaceful exploration and use of space in the legal instruments initially drafted in the 1960s and the unifying goal such activity would portend for humanity. In the current century, where access to space has become more mainstream and where armed conflict is a real possibility, it is imperative that future belligerents act within clear legal boundaries of restraint if there is to be any hope of realizing the noble goals of the 1960s.