
Houston, We Have a Problem — Jurisdictional Issues of Criminal Law in Outer Space

Avin Persad-Ford*

ABSTRACT

This paper argues that the current means of prescribing criminal jurisdiction in outer space are inadequate. The Outer Space Treaty and the Intergovernmental Agreement — the main international law instruments that prescribe criminal jurisdiction in outer space — fail to account for many potentially common scenarios in outer space. It would also be impractical to fully transplant the means of prescribing criminal jurisdiction on Earth to apply in outer space, too. This paper argues that the best means of prescribing criminal jurisdiction in outer space is to amend Article VIII of the Outer Space Treaty to allow for a hierarchy of criminal jurisdictions. In descending order of priority, the hierarchy of jurisdictions should be based on territoriality, active nationality, passive personality, universality, and protectivity. Such a hierarchy would respect the underlying principles governing human activity in outer space, while providing for greater certainty as to which countries' criminal laws apply in outer space, and under which scenarios.

*LLB, UCL '21. Articling candidate at Howard C. Cohen & Associates.

INTRODUCTION

In August 2019, media outlets reported that NASA astronaut Anne McClain allegedly accessed Summer Worden's — her ex-wife's — bank account without Ms. Worden's authorisation while Ms. McClain was on the International Space Station ('ISS'). Dubbed 'the world's first space crime',¹ it later transpired that Ms. Worden possibly fabricated her account and is now herself under investigation for lying to the United States' ('US') federal authorities.² Still, the incident raises a question about criminal law in outer space that, it is submitted, has not been satisfactorily answered to date, though not for a lack of trying.³ Namely, if a criminal offence took place in outer space, which nation's criminal jurisdiction should apply?⁴

For Ms. McClain and Ms. Worden, it would have been simple. Given that Ms. McClain and Ms. Worden are both US nationals, the ISS' rules regulating jurisdictional disputes would have granted the US criminal jurisdiction (see Section 2(b) below). More difficult jurisdictional issues would have arisen, however, if the alleged crime had taken place on a spacecraft other than the ISS,

¹ Brandon Spektor, 'The World's First Space Crime May Have Occurred on the International Space Station Last Year' (*LiveScience*, 27 August 2019) <<https://www.livescience.com/anne-mcclain-space-crime.html>> accessed 12 January 2022.

² Chelsea Gohd, 'Astronaut Anne McClain's estranged wife charged with lying about alleged 'space crime' (*Space.com*, 7 April, 2020) <<https://www.space.com/astronaut-anne-mcclain-wife-charged-lying-space-crime.html>> accessed 12 January 2022.

³ Recent proposals include: Danielle Ireland-Piper and Steven Freeland, 'Star Laws: Criminal Jurisdiction in Outer Space' (2020) 44 *Journal of Space Law* 44; Caleb Ohmer, 'When Galaxies Collide: Resolving Criminal Jurisdiction Disputes among Nations in Space' (2019) 43 *Journal of Space Law* 344; P.J. Blount, 'Jurisdiction in Outer Space: Challenges of Private Individuals in Space' (2007) 33 *Journal of Space Law* 299; Lee Seshagiri, 'Spaceship Sheriffs and Cosmonaut Cops: Criminal Law in Outer Space' (2005) 28 *Dalhousie Law Journal* 473; Stacey Ratner, 'Establishing the extraterrestrial: criminal jurisdiction and the International Space Station' (1999) 22 *Boston College International and Comparative Law Review* 323; Karen Robbins, 'The extension of United States criminal jurisdiction to outer space' (1983) 23 *Santa Clara Law Review* 627.

⁴ References to 'criminal jurisdiction' in this paper refers to the jurisdiction to prescribe criminal law – as opposed to the jurisdiction to enforce criminal law – except where noted. See Roger O'Keefe, *International criminal law* (Oxford University Press, 2016) 25.

or even in an area of outer space other than the ISS or another spacecraft. Other international laws forbid nations from claiming sovereignty over any area of outer space (see Section 1(a) below). This would force countries to rely on one of the customary international law's extraterritorial means of asserting criminal jurisdiction in outer space (see Section 2 below).

This paper will argue that the best way of prescribing criminal jurisdiction in outer space is to establish a clear hierarchy among concurrent heads of jurisdiction. In descending order of priority, applicable criminal jurisdiction would be based on territoriality, active nationality, passive personality, universality, and protectivity. Although it is generally accepted that there is no hierarchy among the internationally accepted bases of prescribing criminal jurisdiction on Earth,⁵ this paper argues that this consensus should not apply in outer space. Not only do the arguments militating against a hierarchy not apply in outer space, but the proposed hierarchy would also respect the existing practices in outer space and address the limitations of applying each jurisdictional base individually there.

This paper will argue for a hierarchical approach to determining criminal jurisdiction in outer space in three broad sections. First, it will explain why the two principal means to currently prescribe criminal jurisdiction in outer space — the Outer Space Treaty⁶ and the International Space Station Intergovernmental Agreement ('IGA')⁷ — are inadequate as currently drafted. Second, it will discuss why none of the four traditional means of prescribing criminal jurisdiction on Earth — territoriality, nationality, universality, and protectivity — should be extended to be the sole bases of prescribing criminal jurisdiction in outer space. Third, it will canvass the arguments against a hierarchy of prescriptive criminal jurisdiction bases on Earth, and argue why these should not apply in outer space. It will then propose amendments to the

⁵ *ibid.*

⁶ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (signed 27 January 1967, entered into force 10 October 1967) 610 U.N.T.S. 205 (Outer Space Treaty).

⁷ Agreement Among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station, (signed 29 January 1998, entered into force 27 March 2001), 1998 UST LEXIS 303, TIAS No. 12927 (IGA). References to the 'IGA' throughout this paper are to the IGA's 1998 version, unless noted otherwise.

Outer Space Treaty that include a hierarchy of prescriptive criminal jurisdictions, which would incorporate the advantages of the existing law applicable to outer space while addressing the weaknesses of the existing law.

I. HOW INTERNATIONAL LAW CURRENTLY APPORTIONS CRIMINAL JURISDICTION IN OUTER SPACE

The current law for apportioning criminal jurisdiction in outer space has been described as a ‘bucket ... [containing] many different types of rules and regulations rather than as denoting a conceptually coherent single form of law’.⁸ That bucket has two principal instruments: the Outer Space Treaty and the IGA. This Section will argue that, although both instruments in their current form are the result of political compromises, neither can fully account for potentially common scenarios in outer space in which nations may claim concurrent jurisdiction.

While there are other international instruments that are relevant to outer space — namely the Moon Treaty⁹ and the Bogota Declaration¹⁰ — both have limited relevance in international law. No country that has engaged in self-launched human spaceflight has ratified the Moon Treaty. Only eight countries, meanwhile, have ratified the Bogota Convention.¹¹ The eight equatorial countries party to the Bogota Declaration sought to amend the definition of ‘outer space’ in the Outer Space Treaty to exclude the space above those countries’ territories.¹² Those countries instead sought to classify this space, including the geostationary orbits through which satellites pass, as a natural resource.¹³

The problem with the Bogota Declaration was its political impracticality in terms of enforcement. Most satellites pass over those equatorial

⁸ Francis Lyall and Paul B Larsen, *Space Law: A Treatise* (2nd edn, Routledge 2018) 27.

⁹ The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (adopted 5 December 1979, entered into force 11 July 1984) 1363 UNTS 3 (‘Moon Treaty’).

¹⁰ Declaration of the First Meeting of Equatorial Countries (signed 3 December 1976) (‘Bogota Convention’).

¹¹ *ibid* art VI.

¹² *ibid* art II.

¹³ *ibid* art I.

countries' geostationary orbits because of the Earth's oblate shape. The countries in which those satellites are registered — primarily, the US — would have refused to request permission from the equatorial states to fly satellites over them.¹⁴

a) Outer Space Treaty

The Outer Space Treaty only partially apportioned criminal jurisdiction in outer space. For one, it is clear that the Outer Space Treaty allows for nations to fully assert jurisdiction over individuals aboard a registered spacecraft in outer space. Article VI states that private actors' activities in outer space require a nation's authorisation and supervision.¹⁵ Article VIII further states that 'ownership of objects launched into outer space ... is not affected by their presence in outer space ... or by their return to Earth'¹⁶ and that 'a State Party to the [Outer Space] Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object and over any personnel thereof'.¹⁷ The United Nations 1975 Convention on Registration of Objects Launched into Outer Space¹⁸ ('Registration Convention') then requires launching states to register all space objects launched from their jurisdiction before take-off.¹⁹ For acts occurring outside of a spacecraft or where there are competing claims beyond Article VIII's ambit, the Outer Space Treaty extends international law on Earth to outer space. Article I of the Outer Space Treaty provides that the 'exploration and use of outer space, including the Moon and other celestial bodies ... shall be the province of all mankind'.²⁰ Article II then says that outer space is not 'subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means'.²¹ The most

¹⁴ Thomas Gangale, 'Who owns the geostationary orbit?' (2006) 31 *Annals of Air and Space Law* 425, 443.

¹⁵ Outer Space Treaty (n 6) art VI.

¹⁶ *ibid* art VIII.

¹⁷ *ibid*.

¹⁸ Convention on Registration of Objects Launched into Outer Space (adopted 12 November 1974, entered into force 15 September 1976) 28 U.S.T. 695, 1023 U.N.T.S. 15 ('Registration Convention') art I.

¹⁹ *ibid* art II (1).

²⁰ Outer Space Treaty (n 6) art I.

²¹ *ibid* art II.

important is Article III, which says that states may conduct activities relating to the exploration or use of outer space ‘in accordance with international law’.²²

Article III’s reference to international law is important not only to prescribe criminal jurisdiction, but also as a barrier against political pressures for other nations to conduct subsequent prosecutions for the same crime(s). Article III would allow, for example, Article XII of the Draft Code of Crimes against the Peace and Security of Mankind²³ and Article XIV of the International Covenant on Civil and Political Rights,²⁴ both of which enshrine the *non bis in idem* (double jeopardy) principle, to limit such prosecutions among signatories to those two instruments. It is therefore essential that nations settle prescriptive criminal jurisdiction in outer space from the onset.

While the Outer Space Treaty and Registration Convention are useful starting points for apportioning criminal jurisdiction in outer space, their limitations are fourfold. First, the Registration Convention fails to account for the growing number of objects launched into outer space for commercial purposes. The Outer Space Treaty and the Registration Convention were signed when registering spacecrafts and other man-made objects in outer space was simple because only state actors launched such crafts. Those state actors primarily did so for military purposes and political gamesmanship during the Cold War, to which the Outer Space Treaty and the Registration Convention needed to respond.²⁵ In the post-Cold War era, however, more private actors are using outer space for commercial purposes, including ‘spaceflight

²² *ibid* art III.

²³ International Law Commission, ‘Yearbook of the International Law Commission 1996’, vol II/2, art 12.

²⁴ United Nations General Assembly, ‘International Covenant on Civil and Political Rights’ (adopted 23 March 1976, entered into force 23 March 1976) art 14, para 7.

²⁵ Tanja Masson-Zwaan and Roberto Cassar, ‘The peaceful uses of outer space’ in Simon Chesterman, David M Malone, and Santiago Villalpando (eds), *The Oxford Handbook of United Nations Treaties* (Oxford University Press 2019) 182.

participation’,²⁶ resource extraction, communications, and satellite imagery.²⁷ Morgan Stanley estimates that the roughly 350 billion USD space industry (as of 2016) will grow to 1 trillion USD by 2040.²⁸ It may therefore be more difficult to track this new and growing activity, which the current law does not contemplate.²⁹ For example, although the Registration Convention may be ‘crystalised’ international law, only 89% of spacecraft and other man-made objects in outer space were registered as of the date of this paper’s submission,³⁰ and more than 60% of which are privately owned.³¹ As this paper will explain below, there are issues with determining jurisdiction solely based on a spacecraft’s registration.

Secondly, and more problematically, the Outer Space Treaty fails to address competing claims or criminal acts occurring in areas of outer space outside of the spacecraft, instead relying on customary international law to resolve the dispute per Article III. However, not only would one traditional overarching means of prescribing criminal jurisdiction fail to cover many potentially common scenarios in outer space (see Section 2 below), customary

²⁶ NASA HQ, ‘Principles regarding processes for criteria and selection, assignment, training, and certification of ISS (expedition and visiting) crewmembers’ (*Spaceref*, 31 January 2002) <<http://www.spaceref.com/news/viewsr.html?pid=4578>> accessed 26 February 2022.

²⁷ Organisation for Economic Co-Operation and Development, *The space economy at a glance 2007* (OECD Publishing 2007) 48. Military applications of outer space are beyond this paper’s scope except where explicitly noted. But see Cassandra Steer & Matthew Hersch, *War and Peace in Outer Space: Law, Policy, and Ethics* (Oxford University Press 2021) for a comprehensive review of how military applications in space interact with international law.

²⁸ Morgan Stanley, ‘A new space economy on the edge of liftoff’ (*Morgan Stanley*, 17 February 2021) <<https://www.morganstanley.com/Themes/global-space-economy>> accessed 21 February 2022.

²⁹ See Steven Freeland, ‘Newspace, small satellites, and law: finding a balance between innovation, a changing space paradigm, and regulatory control’ in Md Ahmad & Jinyuan Su (eds), *NewSpace Commercialization and the Law* (Centre for Research in Air and Space Law 2017) 107-123.

³⁰ United Nations Office for Outer Space Affairs, ‘United Nations Register of Objects Launched into Outer Space’ (*UNOOSA*, 25 February 2021) <<https://www.unoosa.org/oosa/en/spaceobjectregister/index.html>> accessed 26 February 2022.

³¹ Therese Wood, ‘Visualizing All of Earth’s Satellites: Who Owns Our Orbit?’ (*Visual Capitalist*, 20 October 2020) <<https://www.visualcapitalist.com/visualizing-all-of-earths-satellites/>> accessed 20 October 2022.

international law generally does not recognize a hierarchy of criminal jurisdictions (see Section 3(a) below).

Third, the Outer Space Treaty's emphasis on criminal jurisdiction being designated to the registrant's nation assumes that determination of a rightful registrant is simple. It is not. Although spacecraft are registered in one jurisdiction, modern spacecraft such as the ISS incorporate modules designed in multiple jurisdictions. The Outer Space Treaty's only response to such a situation is to require that nations resolve their dispute 'in accordance with international law'.³² International law, however, struggles to accommodate competing jurisdictional claims based on territoriality. As will be shown below, similar problems have arisen over competing jurisdictional claims in Antarctica.

The problem is more acute in outer space where collaboration is key. For example, under the 'Dragon Programme' between the European Space Agency ('ESA') and China's Ministry of Science and Technology, the ESA's constituent nations and China work together to build each module that they send into outer space. The Dragon Programme is silent about prescribing criminal jurisdiction over satellites.³³ The various nations who collaborate to assemble one spacecraft may therefore disagree about who ought to be able to register that spacecraft and thus assume criminal jurisdiction.³⁴

There is a further difficulty in that the nation in which the spacecraft modules are assembled is not always the nation from which the completed spacecraft is launched into outer space. For example, satellite company OneWeb is jointly owned by UK and Japanese companies. Prior to sanctions imposed against Russia, OneWeb relied on the Baikonur Cosmodrome — a launchpad that Russia leases from Kazakhstan — to launch its satellites into orbit. The Registration Convention would have normally granted Russia, as the nation who held the lease on the platform from which the satellites would launch, with

³² Outer Space Treaty (n 6) art III.

³³ European Space Agency, 'Enter the dragon: ESA and China's joint Earth watch begins' (*ScienceDaily*, 27 April 2004) <<https://www.sciencedaily.com/releases/2004/04/040427054730.htm>> accessed 1 September 2022.

³⁴ Ohmer (n 3) 367-368. See also Nina Tannenwald, 'Law versus power on the high frontier: the case for a rule-based regime in outer space' (2004) 29 *Yale Journal of International Law* 363, 388.

prescriptive jurisdiction. After the Russian invasion of Ukraine, however, the UK and Japanese governments insisted that Russia cede jurisdiction over the satellites to the UK. Russia refused to do so. As of March 2, 2022, the Russian government revoked its permission for OneWeb to use the Baikonur Cosmodrome because of this jurisdictional dispute.³⁵

Fourth, the Registration Convention's attempt to balance political realities undermines its attempt to provide legal certainty to the Outer Space Treaty's Article VIII. Under Article VIII, non-registrant nations may maintain competing jurisdictional claims because the Article only refers to 'jurisdiction', not 'exclusive jurisdiction'.³⁶ Those nations with competing claims are therefore not defeated *prima facie* simply by virtue of Article VIII prescribing criminal jurisdiction to the state of registration.

The Registration Convention would fail to resolve those competing claims. Although the Registration Convention requires launching states to register all space objects launched from their jurisdiction before take-off,³⁷ it simultaneously allows partner states to negotiate separate agreements for jurisdiction and control over individual launches.³⁸ While the Registration Convention is not binding in international law because it is merely a General Assembly Resolution, as Lee Seshagiri argues, 'the ongoing practice of state registration of space objects may have crystallized the convention into customary international law'.³⁹ The OneWeb example above illustrates this. Despite there being four nations with potentially competing jurisdictions, the default position was that Russia — as the nation who controlled the platform from which the satellites would launch — had prescriptive jurisdiction as a result of a contractual agreement between Russia, Kazakhstan, the UK, and Japan.⁴⁰ Likewise, when the UK government agreed with the Indian government

³⁵ Paul Sandle, 'UK company OneWeb suspends Baikonur launches' (*Reuters*, 3 March 2022)

<<https://www.reuters.com/business/aerospace-defense/uk-satellite-company-oneweb-suspends-baikonur-launches-2022-03-03/>> accessed 3 August 2022.

³⁶ Michael Chatzipanagiotis, 'Criminal Issues in International Space Law' (2016) 18 *European Journal of Law Reform* 105, 109.

³⁷ *ibid* art II (1).

³⁸ *ibid* art II (2).

³⁹ Seshagiri (n 3) 483.

⁴⁰ Sandle (n 35).

to launch the satellites from India's Satish Dhawan Space Centre, the default was that India would have prescriptive jurisdiction over those satellites.⁴¹

The Outer Space Treaty's main benefit relates more to its overarching principle of cooperation than its specific means of apportioning criminal jurisdiction. Article IX, for example, requires nations to cooperate with each other if a current or planned space activity harmfully interferes with another nation. Although exercising criminal jurisdiction would not 'cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space',⁴² it may, as Michael Chatzipanagiotis argues, oblige the state of registry to 'refrain from exercising its jurisdiction' over foreign nationals before consulting with their national state(s).⁴³ As the delegation from India noted during negotiations for the Outer Space Treaty:

When the day comes that men of various nations, through international co-operative efforts, journey into outer space and celestial bodies, many old concepts will have to be forgotten and will, indeed, be out of place in outer space. There should be only one governing concept, that of humanity and the sovereignty of mankind.⁴⁴

If the United Nations General Assembly believed that prescribing criminal jurisdiction in outer space based on the spacecraft's registration would be the best way of exercising the governing concept of 'humanity and the sovereignty of mankind', any means of apportionment should not deviate from such an international consensus except where circumstances require it. As argued, however, such circumstances can exist. Examples include unregistered spacecraft, incidents arising outside of spacecrafts, instances where there are multiple assemblers, or where there are competing jurisdictional claims. In the first two cases, there is no territorial jurisdiction connecting a nation to a crime. In the last two cases, there are potentially competing territorial jurisdictions,

⁴¹ Jonathan Amos, 'OneWeb: UK satellite firm does deal to use Indian rockets' (*BBC News*, 21 April 2022) <<https://www.bbc.com/news/science-environment-61175261>> accessed 2 August 2022.

⁴² Outer Space Treaty (n 6) art IX.

⁴³ Chatzipanagiotis (n 36) 109.

⁴⁴ Bin Cheng, 'The extra-terrestrial application of international law' (1965) 18(1) *Current Legal Problems* 132, 133.

which the Outer Space Treaty cannot resolve in its current form. So, while the present Outer Space Treaty may be a reasonable starting point for apportioning criminal jurisdiction in outer space, it cannot do so comprehensively without amendment.

b) IGA

There are two differences between the Outer Space Treaty and the IGA. First, the Outer Space Treaty covers all of outer space,⁴⁵ whereas the IGA only applies aboard the ISS.⁴⁶ Second, unlike the Outer Space Treaty, the IGA has explicit provisions for allocating criminal jurisdiction,⁴⁷ for which the latter has been termed ‘one of the few positive sources of criminal law in outer space’.⁴⁸ These provisions are still, however, an insufficient basis for adopting a wider means of apportioning criminal jurisdiction in outer space.

The ‘positive source’ to which Professor Blount alludes is deceptively simple. Article V(2) of the IGA says that ‘each Partner shall retain jurisdiction and control over the elements it registers ... and over personnel in or on the [ISS] who are its nationals’.⁴⁹ Article XXII(2), however, then allows the complainant’s nation to exercise exclusive criminal jurisdiction where the alleged perpetrator’s nation ‘fails to provide assurances that it will submit the case to [the perpetrator State’s] competent authorities for the purpose of prosecution’.⁵⁰ For example, if A, a US national, were to assault B, a Russian national, Article V(2) would grant the US default jurisdiction because of A’s nationality. If Russia, however, were sceptical of the US’ ability or desire to refer A for prosecution, then Russia could exercise its criminal jurisdiction through Article XXII(2).

The IGA has three clear advantages. First, it would be simple, on its face, to apply. A Partner State could assert criminal jurisdiction whenever one of its perpetrators was a national, subject to its belief that the nation who registered the area of the ISS in which the alleged incident occurred would not prosecute the alleged offender. Second, Partner and non-Partner nations who use the ISS

⁴⁵ Outer Space Treaty (n 6) art I.

⁴⁶ IGA (n 7) art 1(1).

⁴⁷ Outer Space Treaty (n 6) art VIII.

⁴⁸ Blount (n 3) 312.

⁴⁹ IGA (n 7) art 5(2).

⁵⁰ IGA (n 7) art 22(2).

would be well-accustomed to the IGA's means of apportioning criminal jurisdiction in outer space. This is key because of the large number of individuals who have visited the ISS as a proportion of the total number who have visited outer space. As of November 20, 2020, of the 567 individuals who have reached low Earth orbit, 242 researchers and tourists from 19 nations have visited the ISS.⁵¹ Third, the changes between the 1988⁵² and 1998 IGAs indicate that, although nations acknowledge that their wealthier counterparts may have greater influence over prescribing criminal jurisdiction in outer space, those wealthier countries are willing to compromise. The IGA 1988 allowed the Partner States to exercise jurisdiction over 'the flight elements they provide' and 'personnel in or on any flight element who are their respective nationals'⁵³ — corresponding to subjective territoriality and nationality, respectively (see Sections 2(a) and (b) below). Although notionally a collaboration between Partner States, the IGA 1988 granted the US unprecedented jurisdiction over alleged criminal acts aboard the ISS, likely because the US was the primary provider of equipment and expertise.⁵⁴ When Russia joined the IGA in 1998, the US agreed in exchange to cede its sole criminal jurisdiction not just to Russia, but to the other Partner States, too.⁵⁵

The IGA's simplicity is not without its problems, not only for potentially basing a wider jurisdictional dispute mechanism on the IGA, but because of the IGA itself. First, the IGA is silent on how jurisdiction ought to apply where a crew member's conduct places the rest of the crew in imminent danger and there are several nations with competing claims over that crew member's conduct.⁵⁶ Next, it may be difficult to determine who is a 'national', especially where an alleged offender holds dual nationalities or where one

⁵¹ NASA, 'Visitors to the Station by country' (*NASA*, 15 Nov 2020) <<https://www.nasa.gov/feature/visitors-to-the-station-by-country/>> accessed 23 February 2022.

⁵² Agreement among the United States of America, governments of Member States of the European Space Agency, the government of Japan, and the government of Canada on Cooperation in the Detailed Design, Development, Operation, and Utilisation of the permanently Manned Civil Space Station, (signed 29 September 1988, entered into force 30 January 1992) 1988, 37 *Zeitschrift für Luft-und Weltraumrecht (ZLW)* (hereinafter 'IGA 1988') s 22.

⁵³ *ibid* s 1.

⁵⁴ Ratner (n 3) 335.

⁵⁵ Ohmer (n 3) 371.

⁵⁶ Ohmer (n 3) 372.

Partner State asserts that an alleged offender is its national but other Partner States dispute that conclusion (see Section 2(b) below). This paper therefore argues that the ideal means of apportioning criminal jurisdiction in outer space is one that is not as overly reliant on nationality as the IGA is.

Additionally, Article XXII(2), under which the complainant nation may assert criminal jurisdiction if it does not believe the perpetrator's state can prosecute the perpetrator, suggests a deep mistrust among the Partners about each other's judicial systems.⁵⁷ There are already political difficulties with countries collaborating in outer space. Under US federal law, for example, NASA is precluded from partnering with China on space projects.⁵⁸ In response, China has opted to build its own lunar base instead of joining the ISS project. For its part, Russia's enmity with the US has led it to divest itself from its interest in the ISS to join China's lunar base project.⁵⁹ Basing a wider means of apportioning criminal jurisdiction in outer space on Article XXII(2)'s unilateralism would undoubtedly exacerbate those political tensions. The Outer Space Treaty, for example, which was negotiated among far more parties than the IGA, lacks Article XXII(2)'s default provision.

Finally, Article XXII(2) is also silent on Partner States exercising criminal jurisdiction over non-Partner States and non-Partner States exercising criminal jurisdiction over their own nationals. That would be difficult to apply to private spacecraft, where different people of different nationalities travel on spacecraft assembled by different nations. The IGA's simplicity is therefore something that can be learned from when apportioning criminal jurisdiction in outer space. But this wider means of apportionment must account for every signatory to the Outer Space Treaty — not just the IGA's Partner States — while avoiding one nation unilaterally asserting its criminal jurisdiction.

⁵⁷ Julian Hermida, 'Crimes in Space' (2006) 31 *Annals of Air & Space Law* 405, 411.

⁵⁸ Virginia A Seitz, 'Unconstitutional restrictions on activities of the Office of Science and Technology Policy in section 1340(A) of the Department of Defence and Full-Year Continuing Appropriations Act, 2011' (*US Department of Justice*, 19 September 2011) <<https://web.archive.org/web/20120713080223/http://www.justice.gov/olc/2011/conduct-diplomacy.pdf>> accessed 21 February 2022.

⁵⁹ Henry Foy, 'Russia to pull out of International Space Station in 2025' (*Financial Times*, 21 April 2021) <<https://www.ft.com/content/a1518565-e643-42ae-a650-02e9c3bdd657>> accessed 26 April 2022.

II. TRADITIONAL BASES OF PRESCRIBING CRIMINAL JURISDICTION ON EARTH

Because of the limits of the current means of apportioning criminal jurisdiction in outer space, international law relies on its traditional means of prescribing criminal jurisdiction on Earth to fill in the gaps. As with the law of the High Seas on Earth, the general starting point for outer space is that it is *res communis*: it belongs to everyone.⁶⁰ Furthermore, the Outer Space Treaty allows for international law on Earth to apply in outer space too (see Section 1(a) above). The Draft Convention on Jurisdiction with Respect to Crime — a comprehensive study of the principles for prescribing criminal jurisdiction — identified the four primary bases for doing so: territoriality, nationality, protectiveness, and universality.⁶¹ As this Section explains, however, each of these bases have flaws that prevent any of them from being the sole means of prescribing criminal jurisdiction in outer space.

a) Territorial principle

The territorial principle is the oldest means of apportioning criminal jurisdiction in international law, dating to the Treaty of Westphalia's idea that a nation's power ends at its borders.⁶² Under this approach, a nation has exclusive criminal jurisdiction within its borders. In the context in which a nation seeks to prescribe criminal jurisdiction, jurisdiction applies where either the alleged misconduct occurs in that state's territory (subjective territoriality), or where the effects of such alleged misconduct have a 'substantial effect within its territory'⁶³ (objective territoriality).

Territoriality would offer two benefits in outer space. First, it would be familiar to nations seeking to apportion criminal jurisdiction in outer space. Territoriality is not only the primary means of exercising criminal jurisdiction on

⁶⁰ Outer Space Treaty (n 6) art I.

⁶¹ Edwin D Dickinson and others, 'Draft Convention on Jurisdiction with Respect to Crime' (1935) 29 American Journal of International Law Supplement 439.

⁶² Leo Gross, 'The Peace of Westphalia, 1648 – 1948' (1948) 42(1) American Journal of International Law 20.

⁶³ Mary B McCord, 'Responding to the Space Station Agreement: the extension of US law into space' (1989) 77(5) Georgetown Law Journal 1933, 1939.

Earth⁶⁴ but, as per Article VII of the Outer Space Treaty, it is also the agreed-upon primary means of exercising criminal jurisdiction aboard spacecraft. Although nations may not assert sovereignty in outer space, something analogous to territoriality may still apply aboard spacecraft under international law's 'flag state jurisdiction', the analogy for which comes from ships sailing on the High Seas which, like outer space, is *res communis*.⁶⁵ Flag state jurisdiction treats a ship as the sovereign territory of the nation whose flag that ship flies.⁶⁶ Because Article VI of the Outer Space Treaty requires a nation to register any spacecraft or objects launched from that nation's jurisdiction,⁶⁷ flag state jurisdiction could apply to anything a state registers and launches into outer space. An agreed-upon method of apportioning criminal jurisdiction would not encounter the same political and legal difficulties that other, still novel, methods would (see Section 3(c) below). Flag state jurisdiction even has the advantage of acknowledging that people on sea ships and spaceships operate in similar environments — isolated for extended periods in a confined setting in a hostile environment.⁶⁸

Further emphasising this familiarity with flag state jurisdiction in outer space is the fact that a group of space law experts from Germany, Russia, and the US tested its viability through a Draft Convention on Manned Space Flight.⁶⁹ The Convention would grant criminal jurisdiction to the registrant nation, while creating a chain of command in which the spacecraft's commander would assume responsibility for the spacecraft and everyone on board. The commander would then be accountable to the Mission Director on Earth.⁷⁰ Such an explicit articulation of the chain of responsibility would provide legal certainty to the mission's participants. According to the Convention's drafters,

⁶⁴ *S.S. Lotus (France v Turkey)*, 1927 PCIJ Series A, No. 10 (September 7) 18-19.

⁶⁵ O'Keefe (n 4) 14.

⁶⁶ United Nations Convention of the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 397 (UNCLOS) art 94. See also Bin Cheng, *Studies in International Space Law* (Clarendon Press 1997), 387 and *Lauritzen v Larsen*, 345 U.S. 571 (1953) at 929, citing *United States v Flores*, 289 U.S. 137, 155-156.

⁶⁷ Outer Space Treaty (n 6) art VI.

⁶⁸ Ohmer (n 3) 366.

⁶⁹ Karl-Heinz Bockstiegel and others, 'Draft Convention on Manned Spaceflight' (*OPS-Alaska*, 13 December 2015)

<https://ops-alaska.com/IOSL/V7P1/1990_MannedSpaceFlightConvention_EN.pdf> accessed 27 March 2022 ('the Convention').

⁷⁰ *ibid* art IV.

the commander would be responsible for enforcing the registrant nation's criminal laws aboard the spacecraft.⁷¹ In addition to adopting the Outer Space Treaty's emphasis on international cooperation while using outer space, the Convention explicitly encourages such cooperation where individuals from multiple nations participate in these flights.⁷²

The Convention garnered support from the Board of Directors of the International Institute of Space Law, who recommended that Germany, Russia, and the US submit the Convention to the United Nations Committee on the Peaceful Uses of Outer Space's ('COPUOS') Legal Subcommittee. They did so in 1990. However, the COPUOS has failed to place the Convention's recognition on its agenda.⁷³

Second, while this paper is primarily concerned with apportioning the jurisdiction to prescribe criminal law, it would also be easiest for a nation in which a crime was committed to enforce a criminal law against the defendant in that scenario. That nation would have the easiest access to preserving evidence and compelling witnesses aboard a spacecraft to testify.⁷⁴

The territorial principle would, however, suffer from several flaws if it were the sole means of apportioning criminal jurisdiction in outer space. First, once outside a spacecraft's doors, territoriality would immediately conflict with Article II of the Outer Space Treaty, which prevents nations from erecting borders in outer space within which they could assert criminal jurisdiction under the territorial principle. Where, for example, someone commits an offence outside a spacecraft and immediately returns to the spacecraft, territoriality would not apply because a nation's territorial claim over the spacecraft via flag state jurisdiction would not extend to outer space. Territoriality would only occur once the perpetrator returns to the spacecraft after he or she commits the

⁷¹ *ibid.*

⁷² *ibid.*

⁷³ Nandasiri Jasentuliyana, *Perspectives on International Law* (1st edn, Martinus Nijhoff Publishers 1995) 465.

⁷⁴ United Kingdom Mission to the United Nations, 'United Kingdom of Great Britain and Northern Ireland: The Scope and Application of Universal Criminal Jurisdiction' (*UN General Assembly*, 23 March 2020) <https://www.un.org/en/ga/sixth/75/universal_jurisdiction/unitedkingdom_e.pdf> accessed 16 March 2022.

offence. The law is clear, however, that territoriality's jurisdictional nexus must exist at the time of the commission of the offence.⁷⁵ Although territoriality is the most prevalent means of prescribing criminal jurisdiction on Earth, this paper argues that Article II of the Outer Space Treaty should prevail where it conflicts with territoriality in outer space. The UN General Assembly specifically considered and rejected sovereignty-based territoriality claims outside spacecraft in outer space when negotiating the Outer Space Treaty. They did so because of Cold War-era risks of either the US or the Soviet Union asserting sovereignty over any part of outer space for warfare purposes.⁷⁶ As noted above, the international community was hesitant to depart from the Outer Space Treaty to accommodate the Bogota Convention's signatories' concerns because of the political upheaval that would entail. The international community should likewise be hesitant to depart from the Outer Space Treaty for similar political concerns, even for customary international law as applicable on Earth.

Next, there may be confusion about where a nation may exercise territorial jurisdiction because, unlike the 'High Seas' on Earth, there is no internationally accepted definition of what 'outer space' is.⁷⁷ Once outside of a spacecraft, it would therefore be difficult to determine when an individual is within a nation's airspace versus outer space. In the former case, that nation's jurisdiction would apply through territoriality. In the latter case, however, Article II of the Outer Space Treaty precludes a nation from enforcing territorial jurisdiction. The implications of this concern are slightly different to the first problem. Article II of the Outer Space Treaty deals with a jurisdictional dispute in an area of outer space in which it is internationally accepted that no nation can assert territorial jurisdiction. The definitional concern identified here, meanwhile, deals with a jurisdictional dispute in an area where at least one nation believes that it can rightfully assert territorial jurisdiction because there is a separate dispute about whether the incident arose in that nation's airspace or in an area of *res communis*, properly governed by Article II.

Additionally, as with the Outer Space Treaty, a dispute may arise over which nation ought to claim flag state jurisdiction for a spacecraft. Unlike most

⁷⁵ *S.S. Lotus* (n 64) 23.

⁷⁶ Stuart Banner, *Who Owns the Sky? The Struggle to Control Airspace from the Wright Brothers On* (Harvard University Press 2008) 284.

⁷⁷ Lotta Viikari, *The Environmental Element in Space Law* (Brill 2008) 1-2.

sea ships, where only one nation or company constructs the ship, many nations and companies may own parts of a full spacecraft, such as the ISS' modules that are owned by different Partner States. With spacecraft registration, however, only one nation may register a spacecraft.⁷⁸ This would ignore other nations' contributions to that spacecraft and raise the spectre of further political disputes arising.

Furthermore, nations would regard it as fundamentally unfair if nation B unilaterally asserted sole jurisdiction over acts a national of nation A commits in nation B. Correcting the territorial principle's unfairness dates to the 1927 *Lotus* case,⁷⁹ in which the Permanent Court of International Justice (PCIJ) allowed Turkey to assert criminal jurisdiction under Turkish national law against a French national. It was also what motivated the UN to allow signatories to the Registration Convention to negotiate exceptions to the general rule of criminal jurisdiction belonging to the country of registration.⁸⁰

Finally, a territorial means of prescribing criminal jurisdiction in outer space may create inequalities between nations, or corporations residing in particular nations, which can afford to build a spacecraft and those that cannot. For example, of the 4,852 active artificial satellites orbiting Earth as of January 1, 2022, 2,944 belonged to the US government or US-resident corporations.⁸¹ Recall that the IGA's Partner States negotiated the IGA 1998 to explicitly remove the US' unilateral criminal jurisdiction on the IGA from the IGA 1988. It is similarly likely that the other 194 sovereign nations on Earth may regard it as unfair if the US — whose artificial satellites represent over 56% of those orbiting Earth — could unilaterally prescribe criminal jurisdiction for over half of activity in outer space based on territoriality alone. Even the ISS, representing the greatest number of nations participating on one project in outer space, has only 16 Partner States. While the IGA's progress from the 1988 to the 1998 versions suggests that the Outer Space Treaty could similarly be amended as more nations register spacecraft, this does not solve the inequality issue. In a

⁷⁸ Registration Convention (n 19) Annex, art II (2) and (3).

⁷⁹ *S.S. Lotus* (n 64). See also *Ireland-Piper and Freeland* (n 3) 52-54.

⁸⁰ Lee Seshagiri (n 3) 483.

⁸¹ Erick Burgueño Salas, 'Number of satellites in orbit – major countries 2022' (*Statista*, 27 July 2022)

<<https://www.statista.com/statistics/264472/number-of-satellites-in-orbit-by-operating-country/>> accessed 10 October 2022.

database compiled by Thomas G. Roberts as of September 1, 2022, for example, the cheapest small satellite — defined as a small-lift vehicle carrying up to 2,000 kg into low-Earth orbit — was the Shian Quxian, which cost approximately \$5 million USD to assemble and launch into outer space, a cost far beyond many countries' treasuries.⁸² Space activity as the domain of the wealthy would be exacerbated if criminal jurisdiction was based on territoriality. This is exacerbated by, as noted above, the US arguing against recognizing the Bogota Convention, an instrument that would have primarily benefited developing nations along the equator. Although the territorial principle is the primary means of prescribing criminal jurisdiction on Earth, the territorial principle would be politically and administratively unfeasible as being the sole means of prescribing criminal jurisdiction in outer space.

(b) Aboard aircraft

The idea of a 'floating flag state jurisdiction' would not be completely foreign in international law. Although not one of the four traditional means of prescribing criminal jurisdiction on Earth, the Tokyo Convention on Offences and Other Acts Committed on Board Aircraft 1963⁸³ ('Tokyo Convention') is a *suoi generis* means of prescribing criminal jurisdiction aboard aircraft that enjoy international recognition. Article 3(1) of the Tokyo Convention accords the aircraft registrant's nation with criminal jurisdiction for incidents arising while the aircraft is in the air, on the surface of the High Seas, or anywhere else outside another nation's territory.⁸⁴ Much like flag state jurisdiction, aircraft jurisdiction is similar to territoriality, in which the 'territory' is assumed to be the vessel, whose identity is the nation in which the vessel is registered.

Although aircraft jurisdiction under the Tokyo Convention would face similar challenges in outer space as territoriality, it may solve at least one of territoriality's problems. Were a spacecraft subject to the Tokyo Convention's

⁸² Thomas G Roberts, 'Space launch to low Earth orbit: how much does it cost?' (*Aerospace Security*, 27 June 2022) <<https://aerospace.csis.org/data/space-launch-to-low-earth-orbit-how-much-does-it-cost/>> accessed 10 October 2022.

⁸³ Convention on offences and certain other acts committed on board aircraft (adopted 14 September 1963, entered into force 4 December 1969) 220 UNTS 136 (Tokyo Convention).

⁸⁴ Termed 'aircraft jurisdiction' for ease of reference.

aircraft jurisdiction, it would not matter where the boundary lies between where a nation's airspace ends and outer space begins, at least for incidents occurring on board the spacecraft. In those situations, the nation in which the spacecraft is registered would assume jurisdiction.

Aircraft jurisdiction, however, would face a similar challenge as flag state jurisdiction in outer space. Namely, aircraft jurisdiction has no answer for incidents arising outside of an aircraft — or spacecraft, as it were.

c) Nationality principle:

Nationality may be divided between active nationality and passive personality. Active nationality provides jurisdiction to a nation over the acts of that nation's nationals, regardless of those nationals' locations. The IGA's Article XXII(1) is one example of active nationality. In contrast, passive personality grants jurisdiction to a nation where a victim is a national of that nation. It is typically done so for serious offences against the person, such as homicides or sexual offences, because of the perceived fairness of allowing a victim's nation the opportunity to try such a case.⁸⁵ Although controversial in the past,⁸⁶ passive personality is generally recognized as customary international law today.⁸⁷

Traditionally, nationality has three ideas inherent to it: allegiance,⁸⁸ membership of a political community,⁸⁹ and 'social facts of attachment'.⁹⁰ Here, nationality may be distinguished from citizenship. The latter is a domestic law concept, typically determined under more formalistic legal rules.⁹¹ The former,

⁸⁵ *Case Concerning the Arrest Warrant of 11 April 2000 (Democratic Republic of the Congo v Belgium)* [2002] ICJ Rep 1 (14 February 2002) ('*Arrest Warrants*') 46-47, 51-52 (Joint Separate Opinion of Judges Higgins, Koojijmans, and Buergenthal).

⁸⁶ *ibid* [47] (Joint Separate Opinion of Judges Higgins, Koojijmans, and Buergenthal).

⁸⁷ See, for example, the Rome Statute of the International Criminal Court (adopted 17 July 1998, entered into force 1 July 2002) 2187 UNTS 90 (Rome Statute) art 90(6)(b), UNSC Res 1816 (2 June 2008) UN Doc S/RES/1816 11, UNSC Res 1846 (2 December 2008) UN Doc S/RES/1846 14, and United Nations Transitional Administration in East Timor Regulation No. 2000/15 s. 2.2(c).

⁸⁸ Rishi Gulati, "Resolving dual and multiple nationality issues in a globalised world" (2014) 28(1) *Journal of Immigration Asylum and Nationality Law* 27, 28.

⁸⁹ *James Hammet Howard (Great Britain) v United Mexican States* (1931) 5 RIAA 232-233.

⁹⁰ *Liechtenstein v Guatemala (Second Phase)* [1955] ICJ Rep 4 ('*Nottebohm Case*') 23.

⁹¹ Gulati (n 88) 35.

meanwhile, is an international law concept, with more fluidity in determining how relevant each of the three ideas inherent to it are.

Nationality would offer three benefits in outer space. First, adopting nationality as a means of prescribing criminal jurisdiction in outer space would avoid territoriality's political challenges. Not only does it allow for the recognition of both the perpetrator and victim's state's jurisdiction, but it also implicitly acknowledges that professional astronauts may be representatives of their national states to whom sovereign immunity or international courtesy may apply.⁹² Second, it also implicitly acknowledges the practical realities astronauts face when living in spacecraft. Rather than confining themselves to their home nation's modules, within which territoriality would apply, astronauts work across the entire spacecraft or space station, which under the territoriality principle may be in other nations' jurisdictions.⁹³ Third, nations may be familiar with using nationality in outer space because it is already the primary means of apportioning criminal jurisdiction in Antarctica, another 'admittedly sovereignless land',⁹⁴ and under the IGA. Canada has also proposed an amendment to its domestic Criminal Code to establish nationality-based criminal jurisdiction over its nationals on the Moon, the Lunar Gateway (a man-made facility orbiting the Moon), or while in transit between Canada, the Moon, and the Lunar Gateway.⁹⁵ The proposed amendment is as follows:

A Canadian crew member who, during a space flight, commits an act or omission outside Canada that if committed in Canada would constitute an indictable offence is deemed to have committed that act or omission in Canada.⁹⁶

Nationality would, however, suffer from three drawbacks in outer space. First, it would deny a nation jurisdiction over non-nationals even where

⁹² Chatzipanagiotis (n 36) 112.

⁹³ *ibid.*

⁹⁴ *Beattie v United States*, 756 F.2d 91, 94 (D.C. Cir. 1984). See also the Antarctic Treaty (adopted 1 December 1959, entered into force 23 June 1961) 402 UNTS 71 (Antarctic Treaty) art VIII.

⁹⁵ Bill C-19, An act to implement certain provisions of the budget tabled in Parliament on April 7, 2022 and other measures, 1st Session, 44th Parliament, 2022.

⁹⁶ *ibid* s. 296(4)(2.35).

that nation may have a legitimate interest in prosecuting that non-national under its domestic law. For example, although all NASA astronauts travelled to outer space in Russian-registered Soyuz rockets between 2011 and 2020,⁹⁷ a nationality-based means of prescribing criminal jurisdiction would leave Russia with little authority aboard its spacecraft unless the alleged offenders were Russian. Such a denial of jurisdiction may exacerbate political tensions in outer space if an alleged offender were subject to prosecution between multiple nations' penal codes, particularly between a nation claiming territorial jurisdiction (Russia, for example, on its Soyuz spacecraft) versus another claiming nationality jurisdiction. As of right now, there are no means of determining which jurisdiction ought to prevail in outer space, although some commentators have argued for such a forum.⁹⁸ This concern is evident with proposed Canadian legislation, which would grant Canada jurisdiction in outer space over its nationals, regardless of whether those nationals were on a vessel registered in another country or not.

The Canadian legislation's application to 'indictable offences' presents another problem. Unlike in English law, a quirk in Canadian domestic law allows the Crown to decide for 'hybrid offences' (sexual assault, for example) whether to proceed by indictment or summarily. The Crown normally bases its decision on the seriousness of the accused's alleged actions and the harm caused.⁹⁹ With this proposed legislation, however, there is a risk that the Attorney General — as a member of Cabinet and the government's chief prosecutor — may exert political influence over the Crown to proceed via indictment to claim jurisdiction over an alleged offence in outer space. In so doing, the risk for other countries is that Canada may seek to artificially assert a claim for jurisdiction by electing to proceed via indictment. This is especially relevant where passive personality is concerned. As noted above, countries typically invoke passive personality where there is a serious offence against a person, such as a sexual offence. If a Crown Attorney would have normally deemed it in the public

⁹⁷ Daniel Oberhaus, 'The US Hitches Its Final Ride to Space From Russia – for Now' (*Wired*, 08 April 2020) <<https://www.wired.com/story/the-us-hitches-its-final-ride-to-space-from-russia-for-now/>> accessed 20 October 2022.

⁹⁸ See, for example, Caleb Ohmer (n 3), Lee Seshagiri (n 3), and Stacey Ratner (n 3) 341.

⁹⁹ Government of Canada, 'Criminal Offences' (*Government of Canada*, 7 July 2021) <<https://www.justice.gc.ca/eng/cj-jp/victims-victimes/court-tribunaux/offences-infract ions.html>> accessed 2 July 2022.

interest to pursue the sexual offence charge summarily, the risk is that the Attorney General may seek to ‘upgrade’ the charge to an indictable offence to give Canada potential jurisdiction over the crime.¹⁰⁰ Parliament was alive to such concerns in other parts of the Criminal Code, such as the requirement for the Attorney General to specifically not consider political influence when deciding whether to grant a deferred prosecution agreement.¹⁰¹ But there is no such saving provision for the proposed outer space jurisdiction legislation.

Nationality’s second problem is that it may be difficult to determine. A nation may regard a person to be its national but other nations may disregard that status for jurisdictional purposes. In *Nottebohm’s Case*, for example — the leading case in resolving disputes over nationality — Mr. Nottebohm had German citizenship by birth, though spent most of his life in Guatemala, eventually obtaining permanent residency there. Liechtenstein later recognized Mr. Nottebohm as one of its citizens when Mr. Nottebohm applied for and obtained Liechtenstein citizenship in 1939. Guatemala, however, disregarded Mr. Nottebohm’s Liechtenstein citizenship, believing it to be a sham to evade Guatemala’s domestic ‘enemy alien’ law — which targeted German citizens — drafted in response to World War II. The Guatemalan authorities subsequently arrested Mr. Nottebohm in 1943. The International Court of Justice held that Liechtenstein lacked standing to bring a claim on Mr. Nottebohm’s behalf because Mr. Nottebohm’s ‘effective nationality’ was Guatemalan, not Liechtensteiner. The Court based its decision on the factual ties Mr. Nottebohm maintained with Guatemala as being ‘the main seat of his interests’.¹⁰²

Nationality may also be difficult to determine because a person’s ‘choice’ is not a traditional means of prescriptive criminal jurisdiction in international criminal law.¹⁰³ Dual citizens would potentially face both problems. For private corporations operating in outer space, although they too would have nationality, the rules for determining that nationality are complex and subject to abuses, such as forum shopping.¹⁰⁴ One way to resolve any uncertainty over nationality would be to issue ‘space visas’, for which the nation who issues the

¹⁰⁰ *Criminal Code*, RSC 1985, c C-46, s 601.

¹⁰¹ *ibid* s. 715.32(3).

¹⁰² *Nottebohm Case* (n 90) 22. See also Section 5(b) below.

¹⁰³ *ibid* [43].

¹⁰⁴ *ibid* [71].

visa would assume criminal jurisdiction.¹⁰⁵ This would be analogous to travellers presenting their visas at the airport to enter a country. The clear appeal of a space visa regime is that it would be simple to implement because of its similarity to travel visas. The main problem with a space visa regime is that, like the Registration Convention, it only grants primary jurisdiction *prima facie*. It does not resolve a dispute where there are competing claims. They also fail to address who would assume criminal jurisdiction for transnational organised crimes, such as migrant smuggling, environmental contamination, or weapons trafficking, for which there may be people involved from several visa-granting nations.¹⁰⁶

Nationality's third problem is that, although the Antarctic Treaty's emphasis on peace and collaboration mirrors the Outer Space Treaty,¹⁰⁷ the former's emphasis on nationality has similar weaknesses to the IGA's. Namely, both the Antarctic Treaty and the IGA's nationality principle only apply to some individuals. With the Antarctic Treaty only observers under the treaty, scientists, and staff are subject to national jurisdiction. However, for tourists, military personnel, and non-privileged foreign nationals, the Antarctic Treaty's relevant signatories are only supposed to 'consult together with a view to reaching a mutually acceptable solution'.¹⁰⁸ As with the IGA and the Antarctic Treaty, nations may be unwilling to consult with one another to resolve nationality-based disputes — and thus disputes over jurisdiction — for fear of appearing to cede a claim of sovereignty.¹⁰⁹

d) Protective principle:

The protective principle allows a nation to assert criminal jurisdiction over specific acts, regardless of who committed the acts and where they did so, that might affect that nation's security or interests.¹¹⁰ On Earth, nations have used the protective principle to assert criminal jurisdiction for crimes such as

¹⁰⁵ Blount (n 3) 301.

¹⁰⁶ Ireland-Piper and Freeland (n 3) 70.

¹⁰⁷ Antarctic Treaty (n 94) Preamble.

¹⁰⁸ *ibid* art VIII.

¹⁰⁹ Todd Chatham, 'Criminal jurisdiction in Antarctica: a proposal for dealing with jurisdictional uncertainty and lack of effective enforcement' (2010) 24 *Emory International Law Review* 331, 337.

¹¹⁰ Ohmer (n 3) 364.

‘counterfeiting currency, desecration of flags, economic crimes, forgery of official documents such as passports and visas, and political offences such as treason’.¹¹¹ However, because of the threats to relations between nations by invoking the protective principle, many national penal codes restrict its use.¹¹² In one case, for example, the US prosecuted an East German citizen under the US Espionage Act for selling classified intelligence to foreign operatives in Mexico and East Germany. In that case, however, the district judge specifically held that protectivity could apply because the nature of the crime (espionage) did not depend on locality.¹¹³ The judge also held that espionage was a serious enough crime against the State’s functioning to warrant interpreting Congress’ intent to punish as giving the statute extraterritorial effect.¹¹⁴ Most crimes, however, require locality and while those crimes may be serious, they do not represent a direct threat against a nation’s functioning. And while the assault may be a life-altering matter to the victim, it is not a direct threat to a nation’s functioning. The use of the protective principle should likewise be limited in outer space for the same reason.

One area in which the criminal jurisdiction based on protectivity may have use is with terrorism, as international law defines it to include ‘actions that undermine civilians’ essential rights (namely universal values, such as life, physical integrity, freedom, and dignity) in a manner likely to receive absolute condemnation by the whole international community’.¹¹⁵ One concern, however, may be determining who ought to have prescriptive criminal jurisdiction based on protectivity where a terrorist incident affects multiple nations.

e) Universal principle:

Universal criminal jurisdiction is ‘jurisdiction over offences committed extraterritorially by non-nationals against non-nationals, where the offence constitutes no threat to the fundamental interests of the prescribing [nation] and

¹¹¹ Danielle Ireland-Piper, *Accountability in Extraterritoriality: A Comparative and International Law Perspective* (Edward Elgar Publishing Limited 2017) 33.

¹¹² Ohmer (n 3) 364.

¹¹³ *United States v Zebe*, 601 F. Supp. 196 (D. Mass. 1985) 200.

¹¹⁴ *ibid.*

¹¹⁵ Marcello Di Filippo, ‘The definition(s) of terrorism in international law’ in Ben Saul (ed) *Research handbook on international law and terrorism* (Edward Elgar Publishing 2020) 15; O’Keefe (n 4) 12.

does not give rise to effects within its territory'.¹¹⁶ Countries exercise universal jurisdiction where the other bases of criminal jurisdiction would not apply, such as a war crime that did not occur in that nation's territory. In such a case, the prescribing nation exercises jurisdiction not because it poses a threat to that nation's fundamental interests, but because the alleged crime is serious enough for either that prescribing nation to act as a 'global enforcer' of the law or that the accused should not be offered a 'safe haven' from the law.¹¹⁷ Although two of the judges in *Case Concerning the Arrest Warrant of 11 April 2000 (Democratic Republic of the Congo v Belgium)* ('*Arrest Warrants*') described 'universal jurisdiction *in absentia*' as problematic,¹¹⁸ universal jurisdiction is commonly accepted for war crimes, crimes against humanity, and genocide, as defined by customary international law.¹¹⁹ Should any of those acts occur in outer space, even in a military context, it is doubtful that nations would object to universal jurisdiction being exercised.¹²⁰

More controversy would arise from prescribing universal jurisdiction over piracy *jure gentium* ('as per the law of nations') in outer space because its potentially wide ambit directly conflicts with the Outer Space Treaty's Article VIII flag state jurisdiction. As per Article 101 of the United Nations Convention on the Law of the Sea ('UNCLOS'), 'piracy' consists of, among other things, illegal acts of violence or detention committed for private ends by crew or passengers of a private ship or aircraft on the high seas.¹²¹ International law considers both outer space and the High Seas to be *res communis*. It would therefore be relatively simple at first glance to transplant a universal criminal jurisdiction to outer space for acts of piracy. 'Private ends' refers to 'non-state actors ... without authorization by public authority'.¹²² 'Illegal' is a reference to domestic law, meaning it lies with nations to define what counts as 'violence' or

¹¹⁶ O'Keefe (n 4) 17.

¹¹⁷ *ibid.*

¹¹⁸ *Arrest Warrants* (n 85) 12, 15-16 (Separate Opinion of President Guillaume), 9-11 (Declaration of Judge Ranjeva).

¹¹⁹ *ibid* [173].

¹²⁰ Icho Kealotswe-Maltou, 'The rule of law in outer space: a call for an International Outer Space Authority' in Cassandra Steer and Matthew Hirsch (eds), *War and Peace in Outer Space: Law, Policy, and Ethics* (Oxford University Press 2021) 105.

¹²¹ UNCLOS (n 66) art 101.

¹²² *Republic of Seychelles v Ahmed and Five Others*, Crim Side No 21 of 2011, 14 July 2011, para. 21.

‘detention’.¹²³ Transplanting ‘piracy’s’ terrestrial definition to outer space would therefore clearly cover many acts in the latter.

The international community should, however, restrict piracy *jure gentium’s* ambit in outer space because, rather than supplementing existing practice in outer space, which this paper argues for, a universal jurisdiction for piracy *jure gentium* would contradict it. Applying Article 101 of UNCLOS to outer space would leave universal jurisdiction for piracy *jure gentium’s* ambit far broader than on Earth. The High Seas comprise over 50% of Earth’s surface area,¹²⁴ but 100% of outer space is *res communis*. Every single act of violence or detention — as defined domestically — for non-state purposes aboard a private spacecraft could therefore be subject to universal jurisdiction. To allow such widespread use of universal jurisdiction would be contrary to the Outer Space Treaty’s Article VIII’s spirit, which allows for flag state jurisdiction of such acts aboard registered spacecraft, whether private or publicly owned. One solution to this may be for the nation that could have exercised flag state jurisdiction to grant authority to another nation seeking to exercise universal jurisdiction for piracy *jure gentium*, at the former’s discretion. This would be more in line with the spirit of Article II(2) of the Registration Convention, which allows nations to negotiate exceptions to Article VIII of the Outer Space Treaty. One concern with this proposition is that, as seen in the *S.S. Lotus* case, countries are naturally reluctant to cede their jurisdiction to prescribe criminal law.

III. HIERARCHICAL CLAIMS

(a) On Earth

It is generally accepted that there is no hierarchy among concurrent prescriptive criminal jurisdictions on Earth because of the political and legal difficulties of deciding which means of prescribing jurisdiction should apply in each case. In the *SS Lotus* case, for example, the Court held that, because an individual committed a criminal act on a French ship, whose victims were on a Turkish ship, Turkey could try the individual on the French ship in Turkey’s

¹²³ *ibid.*

¹²⁴ Richard Blaustein, ‘United Nations Seeks to Protect High-Seas Biodiversity’ (2016) 66(9) *BioScience* 713.

criminal courts because there was no rule in international law that prevented Turkey from doing so. According to the Court:

The offence ... was an act ... having its origins on board the [French ship], whilst its effects made themselves felt on board the [Turkish ship] ... These two elements are, legally, entirely inseparable ... Neither the exclusive jurisdiction of either State, nor the limitations of the jurisdiction of each to the occurrences which took place on the respective ships would appear calculated to satisfy the requirements of justice and effectively to protect the interests of the two States ... It is therefore a case of concurrent jurisdiction.¹²⁵

The Draft Convention on Jurisdiction with Respect to Crime specifically rejected such a hierarchy as ‘unwarranted by anything in international law and unsupported by the existing practice of [nations]’.¹²⁶ Likewise, modern multilateral treaties reject such a hierarchy of prescriptive criminal jurisdictions where there are concurrent jurisdictions,¹²⁷ instead requiring nations claiming concurrent criminal jurisdiction to consult with one another.¹²⁸

This practice on Earth should not, however, carry over to outer space for two reasons. First, a hierarchy in outer space would fill the gaps in the existing law identified in Sections 1 and 2 without violating existing international law. As Section 1 above argued, Article VIII of the Outer Space Treaty clearly places territoriality — or at least its flag state jurisdiction equivalent — at the fore, with nationality applying aboard the ISS via Article XXII(1) of the IGA. However, as Sections 1 and 2 also highlighted, there are enough gaps within the Outer Space Treaty and territoriality that they could not be the only means of

¹²⁵ *S.S. Lotus* (n 64) 30, 31.

¹²⁶ Dickinson and others (n 61) 583.

¹²⁷ See, for example, Ronald Schmidt, ‘Convention Against Torture and Other Cruel, Inhuman, or Degrading Treatment or Punishment, Part 1 Substantive Articles, Art. 5 types of jurisdiction over the offence of torture’ in Manfred Nowak and others (eds) *The United Nations Convention Against Torture: A Commentary* (Oxford University Press 2019) 210. Mr. Schmidt argues that the drafters of the Convention Against Torture and Other Cruel, Inhuman, or Degrading Treatment or Punishment 1984 specifically rejected applying a hierarchy among prescriptive jurisdictions in the Convention for torture.

¹²⁸ See the treaties cited in O’Keefe (n 4); (n 116).

prescribing criminal jurisdiction in outer space. Something else, even if secondary, would be needed to fill the gaps territoriality leaves behind.

Second, there would be no risk of a hierarchy in outer space potentially disrupting the ‘existing practice of nations’ on Earth. The gaps identified at Sections 1 and 2 above (among others ‘outer space’ being undefined, spacecraft being assembled by multiple nations, and spacecraft being unregistered) are specific to outer space and thus have an isolated effect.

(b) In outer space

As explained in Sections 1 and 2, there is no single general principle in international law that can account for many common scenarios under which it would be necessary to prescribe criminal jurisdiction in outer space. Inserting a hierarchy of criminal jurisdictions into Article VIII of the Outer Space Treaty would most effectively account for all of them. The hierarchy would work as follows: the first two principles (territoriality and active nationality) should be distinguished based on which is most practical to adopt in each situation. The next three principles (passive personality, universality, and protectiveness) should be distinguished based on the type of crime. Where a higher ranked jurisdiction covers a case and the nation entitled to claim jurisdiction has not waived it, that nation should be entitled to claim jurisdiction. However, where a particular jurisdictional base fails to address a situation, or where a nation entitled to claim jurisdiction declines to do so, the nation entitled to claim jurisdiction the next level down should have the opportunity to do so. This would continue all the way down the hierarchy.

The territoriality principle, or at least its flag state and aircraft jurisdiction analogies — representing the nation in which a spacecraft is registered — should be at the top of a hierarchy of prescribing criminal jurisdiction in outer space. Criminal jurisdiction would be based on the nation of the spacecraft’s registration. The Outer Space Treaty’s territorial principle enshrined in Article VIII has strong precedential value, both for its wide application on Earth and its acceptance in outer space.¹²⁹ Not only would a first-ranked territorial principle align with the political consensus reached by the

¹²⁹ Cestmir Cepelka and Jamie H C Gilmour, ‘The application of general international law in outer space’ (1970) 36(1) *Journal of Air Law and Commerce* 30, 34-35.

United Nations in finding that it best respects the ‘humanity and sovereignty of mankind’, but several countries have also used the Outer Space Treaty as a means of prescribing criminal jurisdiction in outer space in their own domestic laws.¹³⁰

Where the default jurisdiction of territoriality does not apply, active nationality should rank next as a means of prescribing criminal jurisdiction in outer space. As argued above, while territoriality is the dominant means of prescribing criminal jurisdiction on Earth,¹³¹ the international community has accepted nationality as partially applying in Antarctica.¹³² Antarctica, much like outer space, is an area over which no nation may unilaterally assert territorial sovereignty.¹³³ Unlike outer space, there is no possibility of a nation invoking flag state jurisdiction over Antarctica, as the Antarctic Treaty specifically precludes nations from asserting ‘new claim[s]’ or ‘enlargement of ... existing claim[s]’.¹³⁴ Two scenarios in outer space where nationality might apply would be where an alleged crime occurred outside of a spacecraft or on board a spacecraft that multiple nations assembled and there is a dispute about which nation that spacecraft ought to be registered in. Criminal jurisdiction would be based on the alleged offender’s nationality, which in most cases would be the same as his or her citizenship.

For collisions, it would be appropriate to apply similar rules as those applicable to the high seas. Under UNCLOS article 97, for example, criminal jurisdiction lies with either the accused’s ship’s flag state or the accused’s nationality.¹³⁵ For practical purposes, however, it is usually the flag state who exercises jurisdiction because, per UNCLOS article 97(3), only the flag state can detain a vessel for investigative purposes.¹³⁶ Additionally, UNCLOS Article

¹³⁰ See, for example, the United Kingdom’s Outer Space Act 1986, c 38, s 12; Russia’s Law of the Russian Federation ‘About Space Activity’ Decree 5663-1 of the Russian House of Soviets 1993, art 9(3); Russia’s Statute No. 104 – Statute on Licensing Space Operations 1996, ss 2, 3.

¹³¹ *S.S. Lotus* (n 64) 16-17.

¹³² Antarctic Treaty (n 94) art VIII (1).

¹³³ *ibid* art IV (2).

¹³⁴ *ibid*.

¹³⁵ UNCLOS (n 66) art 97.

¹³⁶ Changwoo Ha, ‘Criminal jurisdiction for ship collision and marine pollution in high seas – focused on the 2015 judgement on M/V Ernest Hemingway case’ (2020) 4(1) *Journal of International Maritime Safety, Environmental Affairs, and Shipping* 11.

94(7)'s requirement for the flag state to 'cause an inquiry' into incidents involving the flag state ship that cause 'loss of life or serious injury ... or serious damage to ships or installations ... or to the marine environment' suggests the international community's intention to grant primary criminal jurisdiction to the flag state in such cases.¹³⁷

Where, however, the alleged offender is a dual national, or another nation disputes the nationality, nationality should be based on a factual determination of the legal relationship between the alleged offender and the nation asserting jurisdiction under active nationality.¹³⁸ Such facts may include long standing residence in the claimant nation, the degree to which the person has close personal or family ties to anyone in the claimant nation, whether the person demonstrated an intention to remain in the claimant nation, whether there was an absence of close family or personal ties in the other claimant nation, and the person's choice of nation.¹³⁹

Active nationality would address common situations that the territorial principle either ignores or fails to fully engage with, such as incidents arising outside of a spacecraft, and incidents arising in spacecraft assembled by multiple nations, none of whom would want to surrender criminal jurisdiction based on registration. Situations such as the ISS illustrate this point. As noted above, the IGA 1998 was specifically negotiated to preclude the possibility of one nation exercising exclusive jurisdiction over an entire spacecraft.¹⁴⁰ There may, however, be situations where it would be impossible to completely abandon a mission, despite political challenges on Earth, but that nation would still seek to exercise some degree of jurisdiction over its nationals. On the ISS, for example, there are four US nationals and five Russian nationals. Despite heightened tensions between the US and Russia over the war in Ukraine, Russia has stated that it has delayed abandoning the ISS until 2028 to permit its current astronauts to remain on the ISS to complete their ongoing missions.¹⁴¹ Active nationality would also

¹³⁷ *ibid.*

¹³⁸ Gulati (n 88) 35.

¹³⁹ *ibid.*

¹⁴⁰ See, for example, Ratner (n 3) 335 and Ohmer (n 3) 371.

¹⁴¹ Joey Roulette, 'Russia tells NASA space station pullout less imminent than indicated earlier' (*Reuters*, 27 July 2022)

<https://www.reuters.com/business/aerospace-defense/russia-nasa-sticking-with-space-station-until-least-2028-2022-07-27/> accessed 21 September 2022.

resolve any inequalities that territoriality creates, since criminal jurisdiction would not be restricted to only those nations who could afford to send spacecraft into outer space. It would also have some precedential value in outer space — albeit less than territoriality — since it would accord with the IGA.¹⁴² Although the IGA has fewer signatories than the Outer Space Treaty and only applies to the ISS, nationality would still be a means of apportioning criminal jurisdiction in outer space to which many space-going countries are accustomed.

Beneath active nationality, passive personality should rank third as a means of prescribing criminal jurisdiction in outer space. Criminal jurisdiction would be based on the victim's nationality, which, like active nationality, would be the same as citizenship. However, where active nationality could apply to a wide array of crimes, nations should restrict exercising criminal jurisdiction in outer space based on passive personality to serious offences against the person, such as homicides or sexual offences. This would accord with the increasingly customary practice on Earth,¹⁴³ facilitating its adoption into outer space.

Deciding between universality and protectiveness for fourth depends on whether the act in question affects a single nation's vital interests or the interests of the international community.¹⁴⁴ In the former case, protectiveness should prevail. Criminal jurisdiction would be based on whether the alleged offence affected the nation seeking prescriptive jurisdiction's 'fundamental interests or security', as determined by international law. Examples may include counterfeiting currency, desecration of flags, economic crimes, forgery of official documents such as passports and visas, political offences such as treason, and terrorism.

Where the act in question affects the interests of the international community, however, universality should rank fourth as a means of prescribing criminal jurisdiction in outer space. Criminal jurisdiction would be based on whether the alleged offence in question violated customary international law, such as war crimes, crimes against humanity, slavery, or genocide. It may also

¹⁴² IGA 1998 (n 7) art V(2).

¹⁴³ Gillian Doreen Triggs, *International Law: Contemporary Principles and Practices* (LexisNexis Butterworths 2006) 356.

¹⁴⁴ Yoram Dinstein, 'The universality principle and war crimes' in Michael N Schmitt and Leslie C Green (eds) *The Law of Armed Conflict: Into the Next Millennium* (US Naval War College 1998) 22.

cover piracy *jure gentium*, subject to the nation with flag state jurisdiction granting the nation seeking universal prescriptive jurisdiction the authority to exercise it. This would both replicate existing practice on Earth,¹⁴⁵ while respecting the Outer Space Treaty's Article VIII and complying with the spirit of the Registration Convention's Article II(2).

One challenge that this proposed hierarchy would face is if the hierarchy reached its final stage and several countries claimed universal jurisdiction or sought to deny a country from claiming jurisdiction under protectiveness. For example, an individual or group may detonate a kinetic weapon in orbit, potentially injuring a group of space-going individuals from one nation. Despite the attack being focused on one nation's individuals, several nations would regard the detonation of a kinetic weapon in Earth's orbit as affecting those nations' 'fundamental interests or security' because it would affect all of humanity's space activities. At this point, it would be a political question as to which nation ought to have prescriptive jurisdiction: protectivity for the nation whose citizens were directly injured or universality for what may be regarded as a crime against humanity.¹⁴⁶

(c) A 'minimum contacts model' alternative

Karen Robbins' argument for a 'minimum contacts model' to apply to outer space deserves special mention as, at first glance, it bears close resemblance to a hierarchy of criminal jurisdiction.¹⁴⁷ The minimum contacts model — a product of US civil law's due process provision — prescribes jurisdiction based on the accused's nexus to the nation asserting jurisdiction, and the degree to which the nation asserting jurisdiction has an interest in prosecuting the offence.¹⁴⁸ This would be based on a series of factors weighed similarly to a hierarchy for which this paper advocates, such as the accused's nationality, his or her centre of interests, the place of contract (if any), the

¹⁴⁵ See UNCLOS (n 66) art 101 and *Republic of Seychelles v Ahmed and Five Others* (n 122).

¹⁴⁶ Jinyuan Su, 'The legal challenge of arms control in space' in Cassandra Steer and Matthew Hersch (eds), *War and Peace in Outer Space* (Oxford University Press 2021) 181-185.

¹⁴⁷ Robbins (n 3).

¹⁴⁸ *International Shoe Co v State of Washington Office of Unemployment Compensation and Placement*, 326 U.S. 310 (1945) 316.

inaccessibility of a foreign forum, and the policy of the forum seeking jurisdiction.¹⁴⁹

A minimum contacts model would, however, be problematic in outer space in ways that hierarchical jurisdiction would not be. With respect, Ms. Robbins fails to engage with the difficulties with applying general principles of domestic law to fill gaps in due process in international law. While some scholars argue such gap-filling ought to be possible in some areas of international law in the context of due process,¹⁵⁰ these arguments do not fully engage with the fundamental disagreement between nations on the role of general principles, such as due process, in international law.¹⁵¹ These problems are not evident under a hierarchy of existing international law principles. As noted above, nations generally acknowledge the existence of territoriality, active personality, passive personality, universality, and protectiveness (though this is subject to some dispute). The main dispute here is resolving which principle applies in each circumstance. This paper's hierarchy aims to solve that concern.

Ms. Robbins and her successors also fail to acknowledge that, although Article 38(1)(c) of the Statute of the International Court of Justice requires the International Court of Justice ('ICJ') to apply 'the general principles of law recognized by civilized nations',¹⁵² the ICJ rarely does so. In a comprehensive survey of 126 contentious cases before the ICJ, for example, none were decided on a general principle of law.¹⁵³ With due process as interpreted under US law specifically, it is doubtful whether it would have sufficiently universal application

¹⁴⁹ *Lauritzen v Larsen*, 345 U.S. 571 (1952).

¹⁵⁰ Charles Kotuby Jr. and Luke Sobota, *General Principles of Law and International Due Process: Principles and Norms Applicable in Transnational Disputes* (Oxford University Press 2021).

¹⁵¹ Martins Paparinskis, 'Book reviews: General principles of law and international due process: principles and norms applicable in transnational disputes' (2019) 30(2) EJIL 689, 691.

¹⁵² TS No 993, art 38(1)(c).

¹⁵³ The International Law Association's Study Group on the Use of Domestic Law Principles, 'The use of domestic principles in the development of international law – working session report Sydney 2018' (*International Law Association*, 2018) <https://www.ila-hq.org/en_GB/documents/conference-report-sydney-conference-2018> accessed 20 October 2022.

for other countries to agree to it as a rationale for prescribing criminal jurisdiction in outer space.¹⁵⁴

With international criminal law specifically, an overreliance on general principles such as due process may potentially violate the principle of legality, especially the requirement of notice to the accused — similar to a nationality-based means of jurisdiction — and the strict construction of statutes.¹⁵⁵

CONCLUSION

Anne McClain is one of the few people in history to see Earth from above. She is also the only person as of this paper's submission to potentially fall foul of criminal law in outer space. She will not be the last. As more people enter outer space, Hans Sinha's question will become more poignant: 'Human nature being what it is ... what criminal law will guide and judge the behaviour of mankind in space?'¹⁵⁶ This paper argues that a hierarchy of prescriptive criminal jurisdictions would be the best answer to Dr. Sinha's question.

The traditional means of prescribing criminal jurisdiction in outer space — the Outer Space Treaty and the IGA — are insufficient as constructed. They were drafted in a time when only state actors ventured into outer space, for political competition and potential warfare. They do not account for the modern commercial purposes of using outer space. The four traditional means of prescribing criminal jurisdiction on Earth, meanwhile — the territoriality, nationality, universality, and protective principles — are also each unsuitable alone in outer space. They were designed for criminal incidents arising on Earth, and thus fail to account for common scenarios in outer space. Among the most important and potentially common of those scenarios include incidents occurring outside of spacecraft, on or involving unregistered spacecraft, or on or involving a spacecraft that many nations assembled. They also include incidents arising between people of different nationalities on spacecraft.

¹⁵⁴ *ibid.*

¹⁵⁵ Neha Jain, 'Judicial lawmaking and general principles of law in international criminal law' (2016) 57 *Harvard International Law Journal* 111, 116.

¹⁵⁶ Hans P Sinha, 'Criminal Jurisdiction on the International Space Station' (2004) 30(1) *Journal of Space Law* 85, 86.

A better way of prescribing criminal jurisdiction in outer space would be to establish a hierarchy of jurisdictions, in which territoriality is first, active nationality is second, passive personality is third, universality is fourth, and protectivity is fifth. Although international law on Earth has consistently held that hierarchical criminal jurisdiction should not exist, such a rule should not exist in outer space. Such a hierarchy would recognize that the practical realities of outer space preclude the possibility of there being just one means of prescribing criminal jurisdiction. For the sake of legal and political certainty, meanwhile, a hierarchy would bring order and predictability to competing claims for jurisdiction.