

MILITARY USES OF OUTER SPACE: LEGAL LIMITATIONS, CONTEMPORARY PERSPECTIVES

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ABSTRACT

After the end of the Cold War, a dramatic swift has been observed in the space activities of States. Whereas in the beginning the various space programmes were more peace-oriented, the increased commercialization of outer space led to the need to increase defensive technology in space as well.

The problems arising out of the intensified militarization of outer space over the last decades form part of the analysis of the present Article. The interrelation of general international law and of space law is at the background of all relevant argumentation presented in this paper.

The modern trends in State practice are also presented and analysed, within the context of the current legal regime. Suggestions and comments on the different proposals presented for solving the problems, real or fictional, of space law, have been included in the Article.

The conclusion drawn from the research performed for the writing of this paper indicates that the current legal regime governing space law is sufficient for the regulation of almost all issues created by modern technology. The only necessary change is that

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of a change of attitude and conviction of the States towards the law, and perhaps a few minor adjustments to address completely novel concepts.

PROLOGUE

It is true that, after the end of the Cold War era, we have become witnesses of a shift in focus to spatial activities. From missions dedicated to create awe to the spatial counterpart and the designing of defensive – or even passive aggressive – military systems, we have moved to more science-driven and peaceful projects concerning space exploration, Earth monitoring, telecommunications etc. However, even if the old trend is subdued, outer space is still a field where military uses and applications can be realized. Recent developments have indeed demonstrated a swift of the pendulum towards a more military-central approach to space related activities, especially with the emergence of new space-faring Nations.

Entitled “*Military uses of outer space: legal limitations, contemporary perspectives*,” the present Article will attempt to draw a precise picture of the current legal *status quo* and the latest challenges thereto. The stepping stone for this analysis will be the “peaceful use” and “peaceful purposes” clauses found in Articles III and IV of the Outer Space Treaty,¹ the cornerstone of space law. The notion of “peaceful” use or purpose regarding spatial activities has admittedly been the subject of great debate among scholars, since it gives a rather wide margin of interpretation as to what constitutes a conduct compatible with the OST provisions. Notwithstanding the *expressis verbis* prohibition of placing nuclear weapons² or weapons of mass destruction³ in orbit or on the Moon and other celestial bodies, found both in the OST and the

¹ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 [hereinafter OST].

² Louis Haeck, *Les armes nucléaires dans l'espace et la contribution canadienne à la défense nucléaire*, 14 ANNALS AIR & SPACE L. 237, 237-254 (1989).

³ R. Mueller, *The Prevention of an Arms Race in Outer Space – The Present International Law and Aspects of its Necessary Improvement*, in PROCEEDINGS 29TH COLLOQUIUM 62-66, at 64 (Innsburg 1986).

Moon Agreement,⁴ as well as a series of General Assembly resolutions,⁵ one could argue that any other military use of outer space is in fact permissible. It is this trail of thought that gave birth to notions such as “militarisation” or “demilitarisation” of outer space, resulting in flammable academic debate over what was considered terminology insufficiently defined.⁶ The understanding that “aggressive and military activities in outer space present one of the greatest risks of mankind”⁷ was swiftly reached.

The ever-growing technological advancements, as supported with State practice and corresponding State will, have also resulted in new challenges to the peaceful use of outer space.⁸ The creation of long-range ballistic missiles, anti-satellite defensive systems and the so-called “smart weapons,” most often operated *via* satellite networks, are but a few examples projecting the need to re-examine the compatibility of such activities with the aforementioned OST and Moon Agreement provisions.

Another crucial domain of focus, as far as military uses of outer space are concerned, will be the interrelation of space law with general international law and the UN Charter⁹ in this respect. The end of the Cold War did not only mark a new age for space activities, it also unblocked the Security Council from the *veto* policy of the two super-powers. Being faced with modern challenges and threats to international peace and security, the Security Council has actively granted authorisation for the use of force under Chapter VII of the UN Charter over the last two decades. How would the idea of using spatial military systems towards maintaining international peace and security correlate with the

⁴ *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, opened for signature* Dec. 18, 1979, 1363 U.N.T.S. 21 [hereinafter Moon Agreement].

⁵ G.A. Res. 1472 (XIV), U.N. Doc. A/RES/1472 (XIV) (Dec. 12, 1959); G.A. Res. 1721 (XVI), U.N. Doc. A/RES/1721 (XVI) (Dec. 20, 1961); G.A. Res. 1802 (XVII), U.N. Doc. A/RES/1802 (XVII) (Dec. 14, 1962); G.A. Res. 54/67, U.N. Doc. A/RES/54/67 (Dec. 6, 1999).

⁶ Ram Jakhu & Maria Buzdugan, “Peaceful” and Military Uses of Outer Space – Law and Policy, 30-II ANNALS AIR & SPACE L. 511, 512 (2005).

⁷ Karl-Heinz Böckstiegel, *Prospects of Future Development in the Law of Outer Space*, 8 ANNALS AIR & SPACE L. 305, 312 (1983).

⁸ Steven A. Mirmina, *The Ballistic Missile Defense System and its Effects on the Outer Space Environment*, 31-II J. SPACE L. 287, 311 (2005).

⁹ 1945 UN Charter, 15 UNCIO 335.

demands of space law? The following analysis will attempt to examine the circumstances under which such a practice would be vested with legitimacy.

Last but not least, the issue of verification of spatial activities is of the utmost importance for such a case-study. Only a few, if in fact any at all, satellites are registered today as military satellites, even though their existence is nothing short of a common secret.¹⁰ Nevertheless, the demand for peaceful uses of outer space seems to indicate the necessity of actual verification of the space objects launched and their capabilities. The extent of compatibility of this demand with a State's right to self-defence and the prohibition of interference to the internal affairs of a State will also form a part of the present Article.

The Article is constructed in two parts. The first part analyses the legal limitations set in the use of force and other military uses in outer space deriving from general public international law, customary and conventional alike. In particular, the *ius ad bellum* and the *ius in bello* regimes will be examined under the prism of military activities conducted in or related to outer space. Beginning by providing a general overview about the prohibition of threat or use of force in general international law, the inherent right to self-defence and its exercise in outer space form the second chapter of this part, while the third focuses on the issue of authorisation for the use of force by the Security Council under Chapter VII of the UN Charter. The fourth chapter focuses on the compatibility of space technologies in the case of peace-keeping operations. Chapter five finally addresses issues of responsibility and/or liability relating to the use of force in or through outer space.

Part two of the Article consists of the analysis of the contemporary perspectives regarding the militarisation of outer space. Chapters one and two examine the recent paradigms of use of anti-satellite weapons and the issue of ballistic missiles and other space weapons, in the hope of detecting the conformity of State practice with the current rules or the seeds of new trends in the understanding of these rules. Chapters three and four analyse the emerging proposals for complete denuclearisation and demilitari-

¹⁰ Alexander Proelß, *Peaceful Purposes*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, §6, www.mpepil.com (last visited Nov. 10, 2014).

sation of outer space, as articulated in the Draft Treaty on Prevention of Placement of Weapons in Outer Space (PPWT) proposed by Russia and China and the 2010 European Code of Conduct, both under the context of PAROS. Finally, chapter five addresses the issue of verification of space objects, directly linked to the efforts on confidence-building associated with the dewatering endeavour.

The concluding remarks found in the Epilogue put together the outcomes reached from authoring the afore-described two parts. It is evident that we are now at a turning point as far as spatial activities are concerned, and it would not be a hyperbole to say that we are observing a reshaping and a re-evolution of the global space community.¹¹ The increasing number of commercial uses of outer space and the discussion on the exploitation of natural resources of different celestial bodies are mere indications to this assessment. It is I think important to examine, if the evolution of State practice, as far as space activities are concerned, will consequently provoke an analogous shift of the overall spirit and character of the law of Outer Space.

Before continuing with the substantive analysis of the aforementioned issues, it is crucial to clarify some terms, based on the opinions of leading scholars in the field of international space law, the first naturally being “peaceful uses.”

While at the beginning of the space era both super powers, the USA and the USSR accepted that “peaceful” meant non-military, this view was quickly abandoned by the change in policy of the USA and the significant number of military payloads launched by the USSR.¹² It became apparent short after the signing of the OST that military satellites were indeed being developed and used by both super-powers.¹³ Gradually, the predomi-

¹¹ Jackson N. Maogoto & Steven Freeland, *From Star Wars to Space Wars – The Next Strategic Frontier: Paradigms to Anchor Space Security*, 33 AIR & SPACE L. 10 (2008).

¹² Ivan Vlasic, *The Legal Aspects of Peaceful and Non-Peaceful Uses of Outer Space*, in B. JASANI (ED.), PEACEFUL AND NON-PEACEFUL USES OF SPACE: PROBLEMS OF DEFINITION FOR THE PREVENTION OF AN ARMS RACE (Taylor & Francis, New York, 1991); Ivan Vlasic, *Space Law and the Military Applications of Space Technology*, in NANDASIRI JASENTULYIANNIA (ED.), PERSPECTIVES ON INTERNATIONAL LAW 385-410 (Kluwer Law International, Boston 1995).

¹³ Mircea Mateesco-Matte, *Des agents très spatiaux: quel régime juridique? Au vingtième anniversaire de l'ère spatiale*, 2 ANNALS AIR & SPACE L. 351, 353 (1977).

nant opinion converged towards the view that “peaceful” meant “non-aggressive,”¹⁴ since the UN Charter prohibits the threat or use of force in international interstate relations.¹⁵ This rather restrictive interpretation has not been welcomed by everyone, with scholars such as Manfred Lachs vehemently protesting against it.¹⁶ Lachs in fact envisioned a world where armaments would be prohibited gradually from various environments, as it was indeed happening with the Antarctic Treaty¹⁷ and the Limited Test Ban Treaty,¹⁸ so that one day States would only be confined to peaceable activities.¹⁹ Proposals for amendment of the pertinent provisions of the space treaties have been made, but unfortunately no such procedure ever commenced.²⁰ Nevertheless, State practice seems to have prevailed over the intention of the drafters of the treaties,²¹ and even perhaps over the very wording of the law,

¹⁴ Martin Menter, *Peaceful Uses of Outer Space and National Security*, in PROCEEDINGS 25TH COLLOQUIUM 135-143, at 137 (Paris 1983); CARL Q. CHRISTOL, *THE MODERN INTERNATIONAL LAW OF OUTER SPACE* 5 (Pergamon Press, New York 1982); Marko G. Markoff, *Disarmament and “Peaceful Purposes” Provisions in the 1967 Outer Space Treaty*, 4 J. SPACE L. 3, 6 (1976); Daniel Goedhuis, *Some Observations on the Efforts to Prevent a Military Escalation in Outer Space*, 10 J. SPACE L. 13, 16 (1982); Ram Jakhu, *Legal Issues Relating to the Global Public Interest in Outer Space*, 32-I J. SPACE L. 31, 85 (2006).

¹⁵ U.N. Charter art. 2, para. 4.

¹⁶ MANFRED LACHS, *THE LAW OF OUTER SPACE: AN EXPERIENCE IN CONTEMPORARY LAW MAKING* (REISSUED ON THE OCCASION OF THE 50TH ANNIVERSARY OF THE INTERNATIONAL INSTITUTE OF SPACE LAW) (Martinus Nijhoff, Leiden & Boston, 2010) 98; J. F. McMahon, *Legal Aspects of Outer Space, Recent Developments*, 41 BRIT. Y.B. INT’L L. 417, 419-422 (1965-1966); Nikolaos. Poulantzas, *The Outer Space Treaty of January 27, 1967. A Decisive Step Towards Arm Control, Demilitarization of Outer Space and International Supervision*, 20 REVUE HELLÉNIQUE DE DROIT INTERNATIONAL 66, 66 (1967); GYULA GAL, *SPACE LAW* (Budapest 1969), 164-175; P. C. JESSUP & H. J. TAUBENFELD, *CONTROLS OF OUTER SPACE AND THE ANTARCTIC ANALOGY* (Columbia University Press, New York 1959) 223.

¹⁷ Antarctic Treaty, *opened for signature* Dec. 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 72.

¹⁸ Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, *opened for signature* Aug. 5, 1963, 14 U.S.T. 1313, T.I.A.S. 5433, 480 U.N.T.S. 43.

¹⁹ LACHS, *supra* note 16, at 100.

²⁰ Eilene Galloway, *Governing in Action: The Role of Political Science in Outer Space Activities*, 13 ACTA ASTRONAUTICA 467 (1986).

²¹ Peter Jankowitsch, *The Role of the United Nations in Outer Space Law Development: Past Achievements and New Challenges*, 26-II J. SPACE L. 101, 103 (1998).

perhaps due to the “intimate intertwining”²² of military and commercial applications.

Another set of terms that needs to be clarified is “militarisation” and “weaponisation,” which are sometimes used interchangeably by authors. This use however is not completely accurate, as militarisation signifies the use of outer space for military purposes, but not necessarily through exclusively military means (such as military satellite telecommunications realized by the use of civilian, commercial satellites), while weaponisation means the stationing in outer space of a space weapon or system, with the possibility of immediate or nearly immediate use thereof.²³ Said weaponisation is believed to happen as States will develop either defensive systems for their space assets or offensive systems against enemy States wanting to use similar assets.²⁴ However, there are also voices claiming that such a prospect would be extremely dangerous, and would in fact hinder the future commercial use of outer space by as many States as possible,²⁵ especially by the developing countries.²⁶

PART I: LEGAL LIMITATIONS: THE USE OF FORCE AND OUTER SPACE

The Prologue of this Article focused on clarifying the notion of “peaceful” use or purpose regarding spatial activities, which has admittedly been the subject of great debate among scholars, since it gives a rather wide margin of interpretation as to what constitutes a conduct compatible with the OST provisions. The birth of concepts such as “militarisation” and “demilitarisation” of outer

²² Christopher M. Petras, *The Use of Force in Response to Cyber Attack on Commercial Space Systems – “Re-examining “Self-defense” in Outer Space in Light of the Convergence of US Military and Commercial Space Activities*, 67 J. AIR L. & COM. 1213, 1219 (2002).

²³ Michael C. Mineiro, *The United States and the Legality of Outer Space Weaponisation: A Proposal for Greater Transparency and a Dispute Resolution Mechanism*, 33 ANNALS AIR & SPACE L. 441, 449 (2008).

²⁴ Elizabeth Waldrop, *Weaponization of Outer Space: US National Policy*, 29 ANNALS AIR & SPACE L. 329, 331 (2004).

²⁵ Todd Barnet, *Legal Fictions in the Five United Nations Space Treaties Stifle Commerce and Encourage a Dangerous and Chaotic Space Environment*, 28 ANNALS AIR & SPACE L. 257, 272 (2003).

²⁶ See Nandasiri Jasentuliyana, *Civilian and Military Space Activities: A Third World Perspective*, 12 ANNALS AIR & SPACE L. 247 (1987).

space was a direct result of said debate and, as explained above, has tested the limitations imposed by space law on the various activities of States in and in relation to outer space.

However, any analysis would remain incomplete, if general international law were not to be taken into consideration, in accordance with article 3 OST. In this first part of the Article, the correlation between space law and general international law *as per* the use of force will be examined, in an attempt to solidify the framework of legal limitations on the spatial military activities of States.

A. The prohibition of threat or use of force in general international law.

Constituting the basis for discussion on the issue of the use of force, article 2§4 UN Charter²⁷ has been described by scholars as the “cornerstone of peace in the Charter,”²⁸ “the heart of the United Nations Charter”²⁹ and “the basic rule of contemporary public international law,”³⁰ while the prohibition rule stipulated therein has acquired the status of *ius cogens*.³¹ According to the predominant theory,³² the notion of force refers only to armed force against another State. Under that specific scope, one can include all activities relevant to military action, from the transfer of soldiers to the borders to the act of warfare itself. This was also confirmed by the

²⁷ U.N. Charter art. 2, para. 4.

²⁸ Claud H. M. Waldoc, *The Regulation of the Use of Force by Individual States in International Law*, 81 R.C.A.D.I. 451, 492 (1952).

²⁹ Louis Henkin, *The Reports of the Death of Article 2(4) are Greatly Exaggerated*, 65 AM. J. INT'L L. 544, 544 (1971).

³⁰ EDUARDO JIMÉNEZ DE ARÉCHAGA, *EL DERECHO INTERNACIONAL CONTEMPORANEO* (Madrid 1980).

³¹ Juan A. C. Salcedo, *Reflections on the Existence of a Hierarchy of Norms in International Law*, 8 EUR. J. INT'L L. 583, 588 (1997).

³² DEREK W. BOWETT, *SELF-DEFENCE IN INTERNATIONAL LAW* 148 (Manchester, 1958); IAN BROWNLIE, *INTERNATIONAL LAW AND THE USE OF FORCE BY STATES* 362 (Oxford, 1963); SUBHAS KHARE, *USE OF FORCE UNDER THE UN CHARTER 27-28* (Metropolitan, New Delhi, 1985); JAI N. SINGH, *USE OF FORCE UNDER INTERNATIONAL LAW* 212 (Harnam, New Delhi, 1984); Georg Dahm, *Das Verbot der Gewaltanwendung nach Art.2(4) der UNO-Charta und die Selbsthilfe gegenüber Völkerrechtsverletzungen, die keinen bewaffneten Angriff enthalten*, 11 JAHRBUCH FÜR INTERNATIONALES RECHT 48-72, 49 (1962); Dietrich Schindler, *Die Grenzen des völkerrechtlichen Gewaltverbots*, 26 BERICHTE DER DEUTSCHEN GESELLSCHAFT FÜR VÖLKERRECHT 11-47, 14 (1986); YOREM DINSTEIN, *WAR, AGGRESSION AND SELF-DEFENCE* 86 (Cambridge, 4th ed., 2005).

Declaration on Principles of International Law, Friendly Relations and Co-operation among States,³³ now considered to be reflecting customary international law,³⁴ where forms of force other than military, such as economic or political, fall under the scope of the non-intervention principle.³⁵ The prohibition is addressed to and protects States (even non-members of the UN), exclusively as far as their international relations with other States are concerned.³⁶ The ICJ has held that the prohibition of threat or use of force was in fact the “cardinal rule”³⁷ of public international law, not only on a conventional, but also on a customary level.³⁸ The rule has hence a dual nature, its distinct sides living and evolving in parallel.³⁹

Indeed, from the very beginning of the past century, there were several efforts undertaken by States in order to restrict the freedom to resort to war. The first of them aimed at creating a specific procedure or timeframe for the beginning of hostilities.⁴⁰ The first international convention to prohibit the recourse to war was the General Treaty for Renunciation of War as an Instrument of National Policy, known as the Briand-Kellogg Pact,⁴¹ to which 57 States became Parties, although other similar efforts have failed in the past.⁴² Despite its shortcomings, namely concerning the sanctions, the Pact constituted the basis for the creation of the customary prohibition of use of force⁴³ and was the inspiration for the wording of article 2§4 UN Charter.

³³ G.A. Res. 2625 (XXV), U.N. Doc. A/RES/25/2625 (Oct. 20, 1970).

³⁴ Case Concerning Military and Paramilitary Activities in and against Nicaragua, ICJ Reports 1986, §§191-193 [hereinafter *Nicaragua case*].

³⁵ Albrecht Randelzhofer, *Article 2*, in BRUNO SIMMA (ED.), *THE CHARTER OF THE UNITED NATIONS, A COMMENTARY* 111-136, 118 (2nd ed., Oxford, 2002).

³⁶ *Advisory Opinion on the Accordance with International Law of the Unilateral Declaration of Independence in Respect of Kosovo*, ICJ Reports 2010, §80.

³⁷ *Nicaragua case*, *supra* note 34, §190.

³⁸ *Id.* §§174, 178.

³⁹ *Id.* §179 ; Caroline Lang, *L'affaire Nicaragua / États-Unis devant la Cour Internationale de Justice*, LGDL 123 (1990).

⁴⁰ Hague Convention III relating to the Opening of Hostilities, art. 1 (1907), available at www.yale.edu/lawweb/avalon; Covenant of the League of Nations, arts. 10, 12, 13 & 15 (1919), 225 CTS 195.

⁴¹ General Treaty for Renunciation of War as an Instrument of National Policy, art. 1 (1928), 94 LNTS 57 [hereinafter Briand-Kellogg Pact].

⁴² Geneva Protocol for the Pacific Settlement of International Disputes, art. 2 (1924).

⁴³ Franciszek Przetacznik, *The Unlawfulness of War under Contemporary International Law*, 67 REVUE DE DROIT INT'L 183, 190 (1989).

Any use of force, whether direct or indirect, violates article 2§4 UN Charter, if it constitutes unilateral action to forcibly deprive a State of its legal rights,⁴⁴ the respect of which being the “first and foremost [obligation] imposed by international law upon a State”⁴⁵ as “an essential foundation of international relations.”⁴⁶ Additionally, any use of force violates article 2§4 UN Charter if it does not fall under the accepted exceptions to the prohibition norm.⁴⁷

It is clear that the prohibition of threat or use of force is not absolute,⁴⁸ since the Charter includes, in an exhaustive manner, certain circumstances under which a State can lawfully resort to force in its international relations with third States. These conditions can be found in articles 39 to 51 UN Charter and form following parts of this analysis.

An institution that definitely falls outside the scope of accepted exceptions to the rule of article 2§4 is that of forcible countermeasures. Countermeasures were formerly known as reprisals,⁴⁹ the term was however gradually abandoned when it became synonymous to forcible actions of a State in response to wrongful acts of another during the course of an international armed conflict. By endorsing the term countermeasures, international law literature now covers all kinds of “measures that would otherwise be contrary to the international obligations of an injured State vis-à-vis the responsible State, if they were not taken by the former in response to an internationally wrongful act by the latter in order to procure cessation and reparation.”⁵⁰

⁴⁴ Nicholas Rostow, *Nicaragua and the Law of Self-defense Revisited*, 11 YALE J. INT'L L. 437, 453 (1986).

⁴⁵ The Case of the S.S. “Lotus”, France v. Turkey, PCIJ Series A no. 10, 1927, p. 18.

⁴⁶ Case concerning the Corfu Channel, United Kingdom of Great Britain and Northern Ireland v. Albania, ICJ Reports 1949, p. 35.

⁴⁷ Oscar Schachter, *The Nature and Process of Legal Development in the International Society*, in RONALD ST. J. MACDONALD AND DOUGLAS M. JOHNSTON, *STRUCTURE AND PROCESS OF INTERNATIONAL LAW – ESSAYS IN LEGAL PHILOSOPHY, DOCTRINE AND THEORY* 745-808, 756 (Martinus Nijhoff, 1983).

⁴⁸ Ian. Brownlie, *The Principle of Non-Use of Force in Contemporary International Law*, in W. E. BUTLER, *THE NON-USE OF FORCE IN INTERNATIONAL LAW* 17-27, 22 (Martinus Nijhoff, 1989).

⁴⁹ EMER DE VATTEL, *II THE LAW OF NATIONS, OR THE PRINCIPLES OF NATURAL LAW* [1758] 342 (Washington D.C., Carnegie Institution, 1916).

⁵⁰ JAMES CRAWFORD, *THE INTERNATIONAL LAW COMMISSION'S ARTICLES ON STATE RESPONSIBILITY: INTRODUCTION, TEXT AND COMMENTARIES* 281 (Cambridge University

Not every kind of act otherwise inconsistent with international obligations is considered to be a valid countermeasure. Specific prerequisites and condition must apply for them to be considered justified and lawful.⁵¹ Actions that violate the fundamental obligation of States to refrain from the threat or use of force towards other States, i.e. what is nowadays known as forcible countermeasures, are considered unlawful⁵² and have been prohibited as such ever since the adoption of the “Friendly Relations Declaration.”⁵³ So are actions that violate fundamental human rights,⁵⁴ most easily identified as those that a State cannot derogate from even in times of war or emergency “threatening the life of the Nation,”⁵⁵ as well as actions that violate specific humanitarian obligations of the State.⁵⁶ Similarly, actions that violate peremptory norms⁵⁷ of international law, other than the ones just mentioned above, are unacceptable forms of countermeasures.⁵⁸ This last exception encompasses all other rules of a *iure cogens* nature that are not already covered by the aforementioned exceptions, without disregarding the fact that the latter might, and in fact have, also acquired the status of *ius cogens*.⁵⁹

Since the purpose of taking countermeasures is none other than to pressure the offending State to comply with its international obligations, the actions chosen are expected to be of short duration, or to last for as long as the wrongdoing is in effect and to be lifted as soon as the wrongdoing ceases.⁶⁰ For this reason, the

Press, Cambridge 2003); see also G.A. Res. 56/83, U.N. Doc. A/RES/56/83 (Dec. 12, 2001) [hereinafter ASR].

⁵¹ Linos A. Sicilianos, *Les réactions décentralisées à l'illicite: Des contre-mesures à la légitime défense* (1990) (Librairie générale de droit et de jurisprudence, Paris), 501-525.

⁵² ASR, *supra* note 50, art. 50, § 1(a).

⁵³ *Supra* note 33, Annex, Principle 1.

⁵⁴ ASR, *supra* note 50, art. 50, § 1(b).

⁵⁵ Article 4, 1966 International Covenant on Civil and Political Rights, 999 UNTS 1743; Article 15, 1950 European Convention on Human Rights and Fundamental Freedoms, ETS no. 5; Article 27, 1978 American Convention on Human Rights, 1144 UNTS 123.

⁵⁶ ASR, *supra* note 50, art. 50, § 1(c).

⁵⁷ ALEXANDER ORAKHELASHVILI, *PEREMPTORY NORMS IN INTERNATIONAL LAW* 57 (Oxford 2006); L. HANNIKAINEN, *PEREMPTORY NORMS (JUS COGENS) IN INTERNATIONAL LAW* (Helsinki, 1988).

⁵⁸ ASR, *supra* note 50, art. 50, § 1(d).

⁵⁹ *Id.* at 133.

⁶⁰ *Id.* art. 49, § 2; see also *id.* art. 53.

State exercising countermeasures must declare that it does so *ab initio*, so that the offending State can dully adjust its conduct. Declaring that specific actions constitute countermeasures retroactively, as a justification for otherwise unlawful conduct, has been considered a violation of international law.⁶¹ It must be clearly understood that countermeasures are not a form of punishment inflicted by the injured State to the offending State, but only a method to speed up the return to international obligation normalcy.⁶² As such, the means chosen by the injured State must not cause such damage to the interests of the offending State, so as to create non-rectifiable new situations.⁶³

This last element is of extremely great importance, especially with regards to the subsequent international space law considerations, for two reasons. First, countermeasures are to be exercised by the injured State, on the basis of a wrong affecting it, only against the offending State and not against third States, whereby such an exercise would constitute a wrongful act.⁶⁴ And second, that although third States are not supposed to be directly targeted by the countermeasures, some “collateral damage” is to be expected and even tolerated, unless the affected third States have individual rights to the matter.⁶⁵

It is thus obvious that the principle of proportionality is of paramount importance in exercising countermeasures.⁶⁶ The degree of proportionality is undoubtedly more easily established when the countermeasures applied are of similar nature to the injury inflicted by the non-compliance of the offending State with its international obligations.⁶⁷ A response disproportionately severe to the damage suffered by the injured State may be considered an unlawful act. In fact, if the countermeasures applied are

⁶¹ *Application of the Interim Accord of 13 September 1995*, Former Yugoslav Republic of Macedonia v. Greece, ICJ Records 2011, §122.

⁶² ASR, *supra* note 50, at 129.

⁶³ *Id.* art. 49, § 3.

⁶⁴ Case Concerning the Gabcikovo-Nagymaros Project, *Hungary v. Slovakia*, ICJ Reports 1997, §83; Portuguese Colonies (Naulilaa incident) case, UNRIAA vol. II, p. 1011, at p. 1027 (1928); Cysne case, UNRIAA vol. II, p. 1035, at p. 1057 (1930).

⁶⁵ ASR, *supra* note 50, at 130.

⁶⁶ See Thomas M. Franck, *On Proportionality of Countermeasures in International Law*, 102 AM. J. INT'L L. 715 (2008).

⁶⁷ Case Concerning the Air Services Agreement between the United States of America and France of 27 March 1946, *France v. USA*, UNRIAA vol. XVIII, §83.

so prominently disproportionate to the wrongdoing of the offending State, they may even be in breach of the necessity principle and consequently fall short of the countermeasures permissibility rule crystallised in article 49 ASR. This is also a consideration of increased importance with regards to the subsequent space law analysis, in particular with relation to countermeasures against uses of force that do not reach the severity threshold of an armed attack.

B. The inherent right to self-defence and its exercise in outer space.

1. Analysis of the right to self-defence.

As mentioned above, before the adoption of the Briand-Kellogg Pact no justification was required for the initiation of hostilities.⁶⁸ The measure of war's legitimacy was one's own conviction about the fairness of the cause served,⁶⁹ essentially reflecting the Machiavellian concept of "that war is just which is necessary."⁷⁰ Although adequately defined in diplomatic exchanges relating to the Caroline incident⁷¹ and later used in the Nurnberg and Tokyo trials,⁷² the notion of self-defence was made relevant after the Briand-Kellogg Pact and certainly after the adoption of the UN Charter. However, the rather general and abstract wording of article 51 UN Charter has more often than not lead to varied interpretations of what self-defence actually comprises of, resulting in it being characterised as an open notion.⁷³ Scholars

⁶⁸ Josef L. Kunz, *Bellum Justum et Bellum Legale*, 45 AM. J. INT'L L. 528, 529 (1951).

⁶⁹ LESLIE GREEN, *THE CONTEMPORARY LAW OF ARMED CONFLICT* 2 (Manchester, 1996).

⁷⁰ NICCOLO MACHIAVELLI, *THE HISTORICAL, POLITICAL AND DIPLOMATIC WRITINGS*, 1513, ch. II, n. 9 (translated by C. E. Detmold, Boston 1882).

⁷¹ Correspondence between Great Britain and the United States, respecting the Arrest and Imprisonment of Mr. McLeod, for the Destruction of the Steamboat Caroline, (1840-41) 29 *British and Foreign State Papers* 1126, at 1138.

⁷² Christopher Greenwood, *The Caroline*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, <http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e261?prd=EPIL> (last visited Nov. 10, 2014).

⁷³ MARTII KOSKENNIEMI, *FROM APOLOGY TO UTOPIA* 591 (Cambridge, 2006).

have in fact strongly debated over the notion of inherency,⁷⁴ even invoking the notion of natural law,⁷⁵ while the ICJ concluded that inherency refers to the customary nature of the right.⁷⁶

Despite certain claims to the contrary,⁷⁷ the right to self-defence may be triggered only under very specific circumstances, namely when a State is facing an armed attack,⁷⁸ and not any kind of use of force against it,⁷⁹ so as not to send “the mankind

⁷⁴ Brun-Otto Bryde, *Self-Defence*, in R. BERNHARDT (ED.), 4 ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 212-214, at 212 (North Holland Publishing Company, 1982); JEAN DELIVANIS, LA LEGITIME DEFENSE EN DROIT INTERNATIONAL PUBLIC MODERNE 49-51 (Paris, 1971); Louis Henkin, *Use of Force: Law and U.S. Policy*, in LOUIS HENKIN, STANLEY HOFFMANN ET AL. (EDS.), RIGHT V. MIGHT, INTERNATIONAL LAW AND THE USE OF FORCE 37-70, at 45 (Council on Foreign Relations Press, 1989); J. SALMON, 3 DROIT DES GENS 463 (Bruxelles, 1995).

⁷⁵ HUGO GROTIUS, THE RIGHTS OF WAR AND PEACE, Book II, Ch. I, s. III, at 76 (translated by A. C. Campbell) (Washington, London, 1901).

⁷⁶ *Nicaragua case*, *supra* note 34, §§175-176.

⁷⁷ *Id.*, Judge Schwebel Dissenting Opinion, §§167-168, 177; Case Concerning Oil Platforms, Islamic Republic of Iran v. United States of America, ICJ Reports 2003, Judge Simma Separate Opinion, §§12-13; Case Concerning Armed Activities on the Territory of the Congo, Democratic Republic of the Congo v. Uganda, ICJ Reports 2005, Judge Kooijmans Separate Opinion, §§25-26; MYRES S. MCDUGAL, ET AL., HUMAN RIGHTS AND WORLD PUBLIC ORDER: THE BASIC POLICIES OF AN INTERNATIONAL LAW OF HUMAN DIGNITY 238-242 (Yale University Press 1980); Oscar Schachter, *The Right of States to Use Armed Force*, 82 MICH. L. REV. 1620, 1638 (1984); George K. Walker, *Anticipatory Collective Self-Defence in the Charter Era: What the Treaties Have Said*, 31 CORNELL INT'L L.J. 321 (1998); THOMAS FRANCK, RECOURSE TO FORCE, STATE ACTION AGAINST THREATS AND ARMED ATTACKS 75, 96, 107-108, 131-134 (Cambridge, 2002).

⁷⁸ ALFRED VERDROSS & BRUNO SIMMA, UNIVERSELLES VÖLKERRECHT: THEORIE UND PRAXIS, §470 (3rd ed., Duncker & Humblot, Berlin 1984); ANTONIO CASSESE, INTERNATIONAL LAW IN A DIVIDED WORLD 230 (Clarendon Press 1986); Rainee Hoffmann, *International Law and the Use of Military Force Against Iraq*, 45 GER. Y.B. INT'L L. 9, 30 (2002).

⁷⁹ GEORG DAHM, II VÖLKERRECHT 413-414 (Köhlhammer 1961); IAN BROWNLIE, INTERNATIONAL LAW AND THE USE OF FORCE BY STATES 272-275 (Oxford 1963); Krzysztof Skubiszewski, *Use of Force by States, Collective Security, Law of War and Neutrality*, in MAX SORENSEN (ED.), MANUAL OF PUBLIC INTERNATIONAL LAW 739-854, at 777-778 (St. Martin's Press 1968); Albrecht Randelzhofer, in RUDOLF BERNHARDT (ED.), 4 ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 265-275, at 271 (North Holland Publishing Company 1982); D. Schindler, *Die Grenzen des völkerrechtlichen Gewaltverbots*, 26 BERICHT DER DEUTSCHEN GESELLSCHAFT FÜR VÖLKERRECHT 11-47, at 16 (1986); Peter Malanczuk, *Countermeasures and Self-Defence as Circumstances Precluding Wrongfulness in the International Law Commission's Draft Articles on State Responsibility*, 43 ZAÖRV 705-812, 757 (1983); Albrecht Randelzhofer, *Article 51*, in BRUNO SIMMA (ED.), II THE CHARTER OF THE UNITED NATIONS, A COMMENTARY 788-806, at p. 790 (2nd ed., Oxford 2002).

back to square one.”⁸⁰ Only the “most grave forms of use of force”⁸¹ are considered to be an armed attack,⁸² limiting the scope of article 51 UN Charter to cases of armed aggression,⁸³ and only permitting non-forcible countermeasures⁸⁴ to be taken in all other cases of unlawful use of force of lesser gravity. The attribution of the armed attack to a specific State is not considered a *conditio sine qua non* for the exercise of the right to self-defence.⁸⁵ Nevertheless, States are bound by customary international law⁸⁶ to exercise their right to self-defence respecting the principles of proportionality⁸⁷ and necessity,⁸⁸ the latter being the very *raison*

⁸⁰ IDI, *Present Problems of the Use of Force in International Law – A. Sub-group on Self-defence* 75 (Santiago Session 2007), www.idi-iil.org.

⁸¹ *Nicaragua case*, *supra* note 34, §191.

⁸² *Case Concerning Oil Platforms, Islamic Republic of Iran v. United States of America*, ICJ Reports 2003, §51; *Case Concerning Armed Activities on the Territory of the Congo, Democratic Republic of the Congo v. Uganda* ICJ Reports 2005, §§131-135; *Eritrea-Ethiopia Claims Commission, Partial Award (Jus ad Bellum)*, Ethiopia’s Claims 1-8, 19/10/2005, §12.

⁸³ Yutaka Arai-Takahashi, *Shifting Boundaries of the Right of Self-Defence - Appraising the Impact of the September 11 Attacks on Jus ad Bellum*, 36 INT’L LAW. 1081, 1084 (2002); Josef Mrazek, *Prohibition of the Use and Threat of Force: Self-Defence and Self-Help in International Law*, 27 CAN. Y.B. INT’L L. 81, 91 (1989).

⁸⁴ ASR, *supra* note 50, art. 50, § 1; Linos-Alexandre Sicilianos, *La codification des contre-mesures par la Commission du droit international*, 38 R.B.D.I. 447-500 (2005).

⁸⁵ *Advisory Opinion on the Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territories*, ICJ Reports 2004, Judge Higgins Separate Opinion, §33; Secretary General’s Statement, *Press Release*, UN Doc. SG/SM/7985 AFG/149 (2001); Linos-Alexandre Sicilianos, *L’invocation de la légitime défense face aux activités d’entités non-étatiques*, 1989 HAGUE Y.B. INT’L L. 147, 161; Christopher Greenwood, *International Law and the Pre-emptive Use of Force: Afghanistan, Al-Qaeda, and Iraq*, 4 SAN DIEGO INT’L L.J. 7, 17 (2003); Brenda L. Godfrey, *Authorization to Kill Terrorist Leaders and Those Who Harbor them: An International Analysis of Defensive Assassination*, 4 SAN DIEGO INT’L L.J. 491, 498 (2003); Tom Ruys and Sten Verhoeven, *Attacks by Private Actors and the Right of Self-Defence*, 10 J. CONFLICT & SEC. L. 289, 310 (2005); Kimberly N. Trapp, *Back to Basics: Necessity, Proportionality, and the Right of Self-Defence Against Non-State Terrorist Actors*, 56 INT’L & COMP. L.Q. 141 (2007).

⁸⁶ *Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons*, ICJ Reports 1996, §141.

⁸⁷ CHRISTINE GRAY, *INTERNATIONAL LAW AND THE USE OF FORCE* 124 (2nd ed., Oxford 2004).

⁸⁸ *Caroline case* (1837), 29 *British and Foreign State Papers* 1137.

d'être of self –defence,⁸⁹ while always acting with due regard for “elementary considerations of humanity.”⁹⁰

In fact, the aforementioned elementary considerations of humanity are the absolute minimum that States have to abide by during any kind of armed conflict. For there is a whole set of rules, the majority of which now considered of customary nature,⁹¹ that is applicable as soon as an armed conflict commences: international humanitarian law. Codified in The Hague and Geneva systems,⁹² international humanitarian law can be considered to rotate around three major principles: distinction, necessity and proportionality.

The principle of distinction first appeared in the St Petersburg Declaration and refers to the need to restrict armed conflict only between belligerent armed forces.⁹³ Now codified in Article 48 of the First Additional Protocol to the Geneva Conventions,⁹⁴ it demands that combatants always distinguish themselves from civilians and that civilian property is not mistaken for military target. Attacks against non-specific military targets, or by means and methods that cannot be targeted exclusively or contained sole-

⁸⁹ Georges Abi-Saab, *Cours général de droit international public*, 207 R.C.A.D.I. 9, 371 (1987).

⁹⁰ Common article 3 to the 1949 Geneva Conventions; *Corfu Channel* case, *supra* note 46, at 22; *Nicaragua* case, *supra* note 34, §218; ITLOS, *M/V Saiga* (No.2) case, 1999, §§155-156; Pierre-Marie Dupuy, *Les “considérations élémentaires de l’humanité” dans la jurisprudence de la Cour internationale de justice*, in MELANGES EN L’HONNEUR DE NICOLAS VALTICOS - DROIT ET JUSTICE 117-130, at 125-127 & 130 (Pedone 1999).

⁹¹ JEAN-MARIE HENCKAERTS & LOUISE DOSWALD-BECK, CUSTOMARY INTERNATIONAL HUMANITARIAN LAW, VOLUME I: RULES, ICRC (Cambridge 2005).

⁹² 1899 Convention with Respect to the Laws and Customs of War by Land and its Annex: Regulations Respecting the Laws and Customs of War on Land, 187 CTS 429 (1898-1899); 1907 Convention concerning the Laws and Customs of War on Land and its Annex: Regulations Respecting the Laws and Customs of War on Land, 205 CTS 277 (1907); 1907 Convention for the Adaptation to Maritime Warfare of the Principles of the Geneva Convention, 2 AM. J. INT’L L. 153 (Supp. 1908); 1949 Geneva Convention Relative to the Treatment of Prisoners of War, 75 UNTS 135; 1949 Geneva Convention Relative to the Protection of Civilian Persons in Time of War, 75 UNTS 287; 1977 Additional Protocol I to the Geneva Conventions, 1125 UNTS 3; 1977 Additional Protocol II to the Geneva Conventions, 1125 UNTS 609.

⁹³ 1868 Declaration Renouncing the Use, in Time of War, of Explosive Projectiles under 400 Grammes Weight, www.icrc.org.

⁹⁴ *Supra* note 91.

ly against military targets are thus violating the distinction principle.⁹⁵

As far as the principle of necessity is concerned, within the context of IHL, the emphasis is put on the balance between the military advantage sought by the undertaking of an operation versus the loss that will result to the enemy from said operation.⁹⁶ The main purpose of the principle is to prevent unnecessary suffering between belligerents.

Finally, the principle of proportionality complements the other two, by placing an obligation on belligerents to act in such a way so as to spare civilians, civilian objects and other non-legitimate, non-military targets.⁹⁷ Attacks with excessive civilian losses, of either life or property, even if incidental, must never be launched, as they would breach Articles 2 and 57 of Additional Protocol I to the Geneva Conventions.

2. Self-defence and its consistency with the *corpus iuris spatialis*.

It is apparent that when it comes to the use of force space cannot be treated in isolation of general international law.⁹⁸ According to article III OST, spatial activities of States are to be carried out "... in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security..." The wording of Article III makes it clear that general international law is to be applied in parallel and in addition to general space law, in accordance with the principle of the systemic interpretation of treaties.⁹⁹ The specific reference to the UN Charter is consistent with the provision of article 103 thereof, whereby in case of conflict between the obligations

⁹⁵ Michel Bourbonnière, *Law of Armed Conflict (LOAC) and the neutralisation of satellites or ius in bello satellitis*, 9 J. OF CONFLICT & SECURITY LAW 43-69, at p. 48 (2004).

⁹⁶ *Id.* at 47.

⁹⁷ Article 57 Additional Protocol I to the Geneva Conventions.

⁹⁸ FRANCIS LYALL & PAUL B. LARSEN, *SPACE LAW, A TREATISE* 501 (Ashgate 2009); Louis Haeck, *Aspects juridiques de certaines utilisations militaires de l'espace*, 21-I ANNALS AIR & SPACE L. 65, 92 (1996).

⁹⁹ 1969 Vienna Convention on the Law of Treaties, art. 31,§1(c), 1155 UNTS 331 [hereinafter VCLT].

arising out of various international instruments and the Charter, the latter prevails.

The inherent right to self-defence is, as noted above, of a dual character: it has both a conventional and a customary law dimension. It is thus evident that the right to self-defence is to be taken into consideration in relation to space activities of States, precisely on the merit of its dual nature. With regard to this last comment, there are two considerations to be made: first, whether States are allowed to defend their satellites from hostile actions and second, whether States have the right to use satellites when exercising their right to self-defence.

As per the first consideration, it is necessary to examine whether an attack on a satellite would trigger the right to self-defence; in other words, if it reaches the gravity threshold established by international law. In the *Nicaragua* case, the ICJ ruled that attacks of the USA on Nicaraguan ports and oil installations, admittedly investments of substantial economic value, were of such gravity as to be considered an armed attack.¹⁰⁰ It would be thus reasonable to assume that an attack on a satellite, an equally costly investment, could trigger the inherent right to self-defence. But even if attacks against just a satellite may someday be regarded as insufficient, or in the case of nano-satellites, in application of the cumulative effects doctrine established in the *Oil Platforms* judgement,¹⁰¹ attacks on multiple satellites can still be equated to an attack of sufficient gravity so as to entitle a State to exercise its right to self-defence.

Pursuant to the aforementioned, in exercising their right to self-defence in space States are still under the obligation to comply with the "minimum test"¹⁰² of necessity and proportionality. Where a State has multiple methods by which to protect its satellite, it should choose the less drastic one, especially in view of the rights of non-involved third parties. In case, for example, that the attack actually originates from another satellite, the use of an anti-satellite missile in response, though undoubtedly efficient, would nevertheless be deemed disproportionate and unnecessary. Its use would create a cloud of space debris endangering other

¹⁰⁰ *Nicaragua* case, *supra* note 34, §195.

¹⁰¹ Case Concerning Oil Platforms, ICJ Reports 2003, §72.

¹⁰² GRAY, *supra* note 87, at 124.

space objects of the defending party, the aggressor and innocent third parties alike¹⁰³ in breach of their rights under international law. Alternate methods, such as the jamming of the signals of the aggressor's satellite,¹⁰⁴ or even a "cyber-attack"¹⁰⁵ have been suggested as proportionate, acceptable defensive mechanisms. It is clear that these methods are in principle violating other rules of international law;¹⁰⁶ however since they are performed in self-defence, the wrongfulness of such actions would under such circumstances be precluded.¹⁰⁷ Evidently, if the attack in question originates from a ground station, then States are entitled to act in self-defence in conformity with their international rights and obligations, as analysed under (I. B. 1.).

As per the second consideration, i.e. whether States have the right to use satellites when exercising their right to self-defence, the answer has already been partially given. If the satellite carries weapon systems permissible under article IV OST and is found in conditions permitting actions in self-defence, then those systems can be lawfully used. The remaining part of this consideration has to do with the use of satellite systems in cases of attacks originating from and directed to targets on the surface of the Earth, including the airspace.

Keeping into consideration the prohibition to place nuclear weapons or weapons of mass destruction in orbit or on the Moon and other celestial bodies,¹⁰⁸ there seems to be no prohibition of targeting space weapons towards the Earth. The only explicit exception is to be found in article 3§2 of the Moon Agreement,¹⁰⁹ whereby "...it is prohibited to use the Moon in order to commit any such act [i.e. threat or use of force, any other hostile act or threat thereof] or to engage in any such threat in relation to the Earth..." Read in conjunction with article 1§2, which equates the regime

¹⁰³ See generally Mirmina, *supra* note 8; Edward F. Hennessey, *Liability for Damage Caused by the Accidental Operation of a Strategic Defense Initiative System*, 22 CORNELL INT'L L.J. 317 (1988).

¹⁰⁴ LYALL & LARSEN, *supra* note 98, at 526.

¹⁰⁵ See generally *The Use of Force in Response to Cyber Attack on Commercial Space Systems*, *supra* note 22.

¹⁰⁶ ITU CONSTITUTION, art. 4, www.itu.org.

¹⁰⁷ ASR, *supra* note 50, art. 21.

¹⁰⁸ See OST, *supra* note 1, art. 4; Moon Agreement, *supra* note 4, art. 3, §§3-4.

¹⁰⁹ See Moon Agreement, *supra* note 4, art. 3, §2.

applicable to the Moon to that of orbits or other trajectories to or around it, one could argue that space law only prohibits the targeting of Earth by any kind of weapon so specifically located. In other words, if a weapon system is located in any orbit around the Earth, but not around the Moon or its orbits and trajectories, then it could, in fact, be used against targets on the Earth, always in conformity with international law and the UN Charter.¹¹⁰

Since the UN Charter makes no reference to weapon systems, it is within the realm of general international law that the answer has to be found. The body of law dealing with the conduct of States during hostilities is the *ius in bello*¹¹¹ and has specific provisions relating to the prohibition of specific kinds of weapons.¹¹² In fact, under international law “the right of the Parties to the conflict to choose methods or means of warfare is not unlimited,”¹¹³ or, in the words of the ICJ “methods and means of warfare, which would preclude any distinction between civilian and military targets, or which would result in unnecessary suffering to combatants, are prohibited.”¹¹⁴

In determining whether the use of satellite technology or satellite weapon systems would be lawful in self-defence, one would

¹¹⁰ See OST, *supra* note 1, art. 3; Moon Agreement, *supra* note 4, art. 2.

¹¹¹ *Supra* note 91.

¹¹² *The Hague Declarations of 1899 (IV, 1) and 1907 (XIV) Prohibiting the Discharge of Projectiles and Explosives from Balloons*, in JAMES B. SCOTT (ED.) THE HAGUE CONVENTIONS AND DECLARATIONS OF 1899 AND 1907 220 (Oxford University Press, New York 1915); *The 1899 Hague Declaration (IV, 2) concerning Asphyxiating Gases*, in James B. SCOTT (ED.) THE HAGUE CONVENTIONS AND DECLARATIONS OF 1899 AND 1907 225 (Oxford University Press, New York 1915); *The 1899 Hague Declaration (IV, 3) concerning Expanding Bullets*, in JAMES B. SCOTT (ED.) THE HAGUE CONVENTIONS AND DECLARATIONS OF 1899 AND 1907 227 (Oxford University Press, New York 1915); 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, 94 LNTS 65; Protocol on Non-Detectable Fragments of the 1980 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons, 1342 UNTS 168; Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices, 1342 UNTS 168; Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons, 1342 UNTS 171; 1971 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxic Weapons and on their Destruction, 1015 UNTS 163; 1976 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 16 ILM 90.

¹¹³ 1977 Additional Protocol I to the 1949 Geneva Conventions, 1125 UNTS 3, art. 35, §1.

¹¹⁴ *Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons*, ICJ REPORTS 1996, §95.

have to examine whether said systems may be prohibited as non-discriminatory by the *ius in bello*. Given that weapons of mass destruction and nuclear weapons are *ipso facto* prohibited to be sent to space, any kind of weapon that would not fall under the prohibitive scope of any of the cited treaties could be lawfully used in self-defence. Truth be told, it could be claimed that most of the prohibited weapons are not sophisticated enough to be made part of a satellite system, and that smarter weapons are designed and developed, that are not (yet) prohibited by any international law instrument. However, even in this case, the use of these “smart weapons” must be proper,¹¹⁵ meaning that the distinction between combatants and civilians must always be upheld.¹¹⁶

Pursuant to the above, the use of weapons from space against targets on Earth while exercising the right of self-defence is permissible under international (space) law, as a recognised customary exception to the prohibition or threat of use of force and under the prerequisites of necessity and proportionality.

C. Action under Chapter VII of the UN Charter.

1. General overview of the authorisation regime.

Having already analysed the regime governing the first exception to the prohibition of threat or use of force rule, self-defence, it is now time to move to the second, and last, exception, i.e. action taken by the Security Council under its competences under Chapter VII of the UN Charter.

Indeed, in order to fulfil the primary purpose of the UN, which is “to maintain international peace and security, and [...] to take effective collective measures for the prevention and removal of threats to the peace...”¹¹⁷ the Members of the Organisation have “confer[ed] on the Security Council primary responsibility for the maintenance of international peace and security.”¹¹⁸

¹¹⁵ Dakota S. Rudesill, *Precision War and Responsibility: Transformational Military Technology and the Duty to Care Under the Laws of War*, 32 YALE J. INT'L L. 517 (2007).

¹¹⁶ 1977 Additional Protocol I to the 1949 Geneva Conventions, 1125 UNTS 3, art. 48.

¹¹⁷ U.N. Charter art. 1, para. 1.

¹¹⁸ *Id.* art. 24, para. 1.

While the powers of the Security Council are defined in Chapters VI, VII, VIII and XII of the UN Charter, it is only its actions under Chapter VII that fall under the permissible exceptions to the rule of prohibition of threat or use of force. Entitled "Action with Respect to Threats to the Peace, Breaches of the Peace and Acts of Aggression" Chapter VII of the UN Charter describes in detail the procedure to be followed and the kind of action that can be undertaken.

As already explained, the threat or use of force has been rendered unlawful in inter-State relations ever since the adoption of the UN Charter. However, this does not mean that situations threatening or breaching the peace or possible acts of aggression have never taken place ever since. In fact, quite the opposite is accurate. And even in the recent past, the number of situations that could disrupt international peace and security was further increased by the adoption of the famous "*Agenda for Peace*,"¹¹⁹ proposed by the then UN Secretary General Mr Boutros-Boutros Ghali.

According to Article 39 of the UN Charter, upon determination of a situation as endangering international peace and security, the Security Council "shall make recommendations or decide what measures shall be taken"¹²⁰ in order to remedy the situation. The decisions made under the competences included in this Chapter, even though decisions of an international organisation, are mandatory and binding upon the Member States of the UN, through the combined application of Articles 25 and 103 of the Charter. This point is of particular significance, especially with regards to the content of an authorisation resolution and the means suggested or intended for its implementation.

The measures available to the Security Council are both forcible and non-forcible. The latter will be discussed under title D of the present part of this Article. The option to use force against a State determined to be, somehow, disrupting international peace and security is provided for in Article 42 of the Charter, which reads as follows:

¹¹⁹ G.A. Res. 47/277, U.N. Doc. A/47/277-S/24111 (June 17, 1992).

¹²⁰ U.N. Charter art. 39.

Should the Security Council consider that measures provided for in Article 41 would be inadequate or have proved to be inadequate, it may take such action by air, sea, or land forces as may be necessary to maintain or restore international peace and security. Such action may include demonstrations, blockade, and other operations by air, sea, or land forces of Members of the United Nations.¹²¹

It is a conventional obligation of the Member States of the UN to have contingences of armed forces available at all times, in order to be used by the UN, so as to implement the decisions of the Security Council with regards to the restoration of international peace and security.¹²² Special reference is made in the Charter for the need to have air-force contingents readily available,¹²³ as at the time of the adoption of the Charter, those were the fastest weapons at hand to address a situation, their efficiency having been proven throughout the numerous battlefields of World War II. However, in actual UN practice, although the Security Council could freely designate which of the Member States shall participate in the operation against the perpetrator State, the usual *modus operandi* is that the Council shall make an open invitation to the States “able and willing” to participate in the operation.¹²⁴ Such coalitions of able and willing can either be formed by individual States jointly engaging their armed forces *ad hoc*, or they can be undertaken by other (regional) international agencies or organisations, in which the States are already participating.¹²⁵

This last option acts as a meeting point between Chapters VII and VIII of the UN Charter. Chapter VIII deals with “Regional Arrangements,” which is basically the term used to describe regional organisations of military, amongst other, purposes, such as the North Atlantic Treaty Organisation (NATO), the former Warsaw Covenant coalition, the Economic Community of Western African States (ECOWAS) etc. In fact, the Security Council, on behalf of the UN, encourages the creation of such regional arrangements, the sole prerequisite set being that their objectives

¹²¹ *Id.* art. 42.

¹²² *Id.* arts. 43- 45.

¹²³ *Id.* art. 45.

¹²⁴ *Id.* art. 48, para. 1.

¹²⁵ *Id.* art. 48, para. 2.

are not inconsistent with those of the Charter.¹²⁶ The relation envisioned by the authors of the Charter with regards to this regional arrangement and the Security Council is perfectly clear: the former are to be subservient to the latter. This is apparent by the wording of the entire Chapter. The regional arrangements are to be the first to deal with disputes arising among their members, before they are referred to the Security Council, obligating them, thus, to act as a first line of auxiliary support with its workload.¹²⁷ The clearest evidence of this subservient relation however, is provided for in Articles 53 and 54 of the UN Charter.

The provisions of Article 53 clarify that the Security Council can utilize the regional organisations in order to enforce its decisions under Chapter VII with regards to the restoration of peace and security. On the contrary though, and further solidifying the dependence of the regional organisations to the Council, no regional organisation can take unilateral action against a State violating the peace without the *expressis verbis* authorisation of the Security Council for such action. The only exception recognised for such unilateral action is action taken against an “enemy State,” which according to Articles 53§2 and 107 signifies a State that at the end of World War II was considered an enemy to the signatories of the Charter. The United Nations counting nowadays 193 members, all the former Axis alliance States being included therein, the “enemy State” provisions are rendered obsolete and inapplicable.

There have only been three occasions that a regional arrangement has taken action unilaterally,¹²⁸ without the prior, express authorisation of the Security Council. The first was when the ECOWAS States undertook forcible action against Liberia in 2003.¹²⁹ At the time when the operations against Liberia began, the ECOWAS States were acting on their own accord, having no

¹²⁶ *Id.* art. 52.

¹²⁷ *Id.* art. 52, para. 2.

¹²⁸ Jochen A. Frowein, *Legal Consequences for International Law Enforcement in Case of Security Council Inaction*, in JOST DELBRÜCK (ED.), *THE FUTURE OF INTERNATIONAL LAW ENFORCEMENT: NEW SCENARIOS – NEW LAW?* 111-24 (Duncker und Humblot, Berlin 1993).

¹²⁹ ECOWAS Standing Mediation Committee, Decision A/DEC.1/8/1990; *see also* Jeremy Levitt, *Humanitarian Intervention by Regional Actors in Internal Conflicts: The Cases of ECOWAS in Liberia and Sierra Leone*, 12 *TEMP. INT'L & COMP. L.J.* 333 (1998).

authorisation from the Security Council. In fact, the Council adopted a relevant authorisation resolution some five to seven hours after the commencement of operations.¹³⁰ Due to the time zone difference between Africa and the UN Headquarters in New York, it appears that the resolution was issued just before the beginning of operations. By actually covering up the unilateral actions of ECOWAS, the Security Council tried to make the situation appear as if it developed at all times under its auspices, so as to not entertain any doubts against its supreme authority over regional arrangements concerning operations for the restoration of international peace and security.

The second occasion was NATO operating in Kosovo in 1998.¹³¹ The open conflict that had commenced in the same year between the Serbian forces and the Albanian-Kosovar forces resulted in a substantial death toll for the latter and led to the displacement of more than 400,000 people. NATO decided to intervene, in order to resolve what it considered to be a threat to the peace, security and stability in the region of the Former Republic of Yugoslavia. After a series of meetings at a ministerial level for consideration of possible actions with regards to the situation,¹³² NATO authorised the beginning of air-strikes against Serbia on 13 October 1998, as a means of supporting the on-going diplomatic efforts by exercising pressure on the Serbian Government to withdraw its military forces from Kosovo.¹³³ Whilst the Security Council had expressed its deep concerns about the escalation of conflict between the two sides within the FRY territory¹³⁴ and commended NATO for the establishment of its air verification mission in the area,¹³⁵ in none of these two occasions did it authorise the use of force against Serbia. NATO claimed that it was reviving the spir-

¹³⁰ S.C. Res. 1497, para. 1, U.N. Doc. S/RES/1497 (Aug. 1, 2003).

¹³¹ Klaus D. Naumann, *Rolle und Aufgaben der NATO nach dem Gipfel 1999 und erste Erfahrungen aus dem Kosovo-Konflikt*, in KNUD IPSEN ET AL. (EDS), WEHRRECHT UND FRIEDENSSICHERUNG: FESTSCHRIFT FÜR KLAUS DAU ZUM 175-91 (Geburtstag, Luchterhand Neuwied 1999).

¹³² North Atlantic Council meeting at Foreign Minister Level of May 28, 1998; North Atlantic Council meeting at Defence Minister Level of June 12, 1998.

¹³³ NATO, *NATO's Role in Relation to the Conflict in Kosovo*, <http://www.nato.int/kosovo/history.htm#1>.

¹³⁴ S.C. Res. 1199, U.N. Doc. S/RES/1199 (Sept. 23, 1998).

¹³⁵ S.C. Res. 1203, U.N. Doc. S/RES/1203 (Oct. 24, 1998).

it¹³⁶ of Resolution 1199; however there is little doubt that its action in that case was unlawful.¹³⁷

The third occasion was, again, the USA and its allies operating against Iraq in 2003, after the terrorist attack on the World Trade Centre. The Security Council had issued no resolution authorising action against Iraq. There were two argumentation lines at the time trying to justify the lawfulness of the undertaken action. The first was that the USA was acting pre-emptively in self-defence against a State supporting terrorist groups planning to act against it. However, according to the *Caroline* doctrine analysed above, a State can only act in self-defence when faced with a present and actual attack, or *in extremis* with an imminent one. However, that was not the case with Iraq. The second one was that there was, in fact, authorisation by the Security Council, through the revival of the relevant resolutions about the no-fly zone issued during the first Gulf War.¹³⁸ By arguing that Iraq had violated its obligations set under those resolutions, the coalition was entitled to take action against it, so as to restore the *status quo* in the region. The attempted justification was drawn along the lines of *Operation Provide Comfort*,¹³⁹ *No-fly Zones*, or Security Council Resolutions 1154 (1998) and 1441 (2002). This fall-back clauses argumentation line was heavily criticized by academics and scholars world-wide,¹⁴⁰ who had already considered the revival of powers

¹³⁶ Bruno Simma, *NATO, the UN and the Use of Force: Legal Aspects*, 10 EURO. J. INT'L L. 1 (1999); Christopher Greenwood, *International Law and the NATO Intervention in Kosovo*, 49 INT'L & COMP. L.Q. 926 (2000).

¹³⁷ Nicolas Valticos, *Les droits de l'homme, le droit international et l'intervention militaire en Yougoslavie – Où va-t-on? Éclipse du Conseil de Sécurité ou réforme du droit de veto?*, 104 REVUE GENERALE DE DROIT INT'L PUB. 5, 15-18 (2000); Marcelo G. Kohen, *L'emploi de la force et la crise du Kosovo: vers un nouveau désordre juridique international*, 32 REVUE BELGE DE DROIT INT'L 122 (1999); Serge Sur, *L'affaire du Kosovo et le droit international: points et contrepoints*, 45 ANNUAIRE FRANÇAISE DE DROIT INT'L 280 (1999); Christine Chinkin, *The Legality of NATO's Action in the Former Republic of Yugoslavia (FRY) under International Law*, 49 INT'L & COMP. L.Q. 910 (2000).

¹³⁸ S.C. Res. 678, U.N. Doc. S/RES/0678 (Nov. 29, 1990).

¹³⁹ Gordon W. Rudd, *Humanitarian Intervention: Assisting the Iraqi Kurds in Operation Provide Comfort, 1991* (United States Army Center of Military History, Washington, D.C. 2004), www.history.army.mil/html/books/humanitarian_intervention/index.html.

¹⁴⁰ Michael M. Collier, *The Bush Administration's Reaction to September 11: A Multilateral Voice or a Multilateral Veil?*, 21 BERKELEY J. INT'L L. 715, 725 (2003).

scenario in lieu of an implicit authorisation to be dubious.¹⁴¹ Contrary to the ECOWAS scenario however, the situations in Iraq and Kosovo involved at least one permanent member of the Security Council, effectively not allowing for the adoption of a potential resolution condemning this unilateral unauthorised action, by the exercise of the veto right. Hence, the lack of action by the Security Council on both these instances should not be misread as a silent endorsement of the activities of the regional organisations / coalitions.¹⁴²

Last but not least, Article 54 of the UN Charter demands that the Security Council remain at all times informed about the progress of actions undertaken by regional arrangements under its authorisation, or for actions that the arrangements are contemplating to take, so as to provide its authorisation. This being the concluding article of Chapter VIII, it is more than evident that a regional international organisation could potentially undertake action for the restoration of international peace and security, exclusively within the context of an inferiority relation to the Security Council.¹⁴³

It goes without saying that when the Security Council authorises the use of force against a State, that State must not take armed action against the forces acting on behalf of the UN. This is the natural result of the combined interpretation of Articles 25 and 103 of the Charter, according to which States are to comply with the decisions of the Security Council, even if they have conflicting conventional obligations by other instruments; whereas the argument of self-defence cannot be invoked, since the operations for the restoration of peace cannot be considered an armed attack against the perpetrator State. Similarly, third States that are not participating in the operation must not provide support to the State against which action is taken, as a result of their obligations under articles 25, 49 and 103 of the Charter.

¹⁴¹ GRAY, *supra* note 87, at 195.

¹⁴² Lori Fisler Damrosch, *Concluding Reflections*, in LORI FISLER DAMROSCH (ED.), ENFORCING RESTRAINT: COLLECTIVE INTERVENTION IN INTERNAL CONFLICTS 348, 357 (Council on Foreign Relations 1993); Anthony D'Amato, *Israel's Air Strike upon the Iraqi Nuclear Reactor*, 77 AM. J. INT'L L. 586 (1983); Leonard C. Meeker, *Defensive Quarantine and the Law*, 57 AM. J. INT'L L. 515 (1963).

¹⁴³ IDI, *Present Problems of the Use of Force in International Law, Sub-group on Humanitarian Intervention* 179 (Santiago Session 2007), www.idi-iil.org.

2. The “all means necessary” mantra: can the purpose justify all sorts of actions?

When a determination that a specific situation threatens or breaches international peace and security has been made and the above described procedure has been followed, the Security Council, acting under Chapter VII, adopts a resolution authorising the use of force against the perpetrator State of said threat or breach.

There are two elements that must and can be detected in all Security Council resolutions authorising the use of force. First, the last clause of the preamble always states that the Council is acting under its Chapter VII authority. And second, the call to arms will be given by the inclusion of the standard phrase that “States use all means necessary” for the enforcement of the resolution, in accordance with Security Council practice.¹⁴⁴

With regards to military activities undertaken in or related to space, the key phrase “all means necessary” can be the basis for some very interesting considerations. As mentioned above, when it comes to forcible action Article 42 of the UN Charter allows for “operations by air, sea or land forces.” No reference is being made to action by, through or towards Space. Naturally, one cannot ignore the fact that Man’s conquest of Outer Space was, at the time of the adoption of the UN Charter, nothing short of science fiction. It would be easy to claim that after the beginning of the space era a relevant adjustment could have been made to the Charter, if one were to overlook the extremely cumbersome process required to accomplish such a feat. Nevertheless, the Charter of the United Nations is first and foremost a (multilateral) international treaty, and as such, it should be interpreted according to the customary rules of treaty interpretation codified in the VCLT. An interpretation based on the ordinary meaning of the article wording¹⁴⁵ would result in leaving Space completely outside the scope of the aforementioned provision. The possibility that the drafters of the Char-

¹⁴⁴ S.C. Res. 82, U.N. Doc. S/RES/82 (June 25, 1950); S.C. Res. 83, U.N. Doc. S/RES/83 (June 27, 1950); S.C. Res. 84, U.N. Doc. S/RES/84 (July 7, 1950); S.C. Res. 38/39, U.N. Doc. A/RES/38/39 (Dec. 5, 1983); S.C. Res. 546, U.N. Doc. S/RES/546 (Jan. 6, 1984); S.C. Res. 574, U.N. Doc. S/RES/574 (Oct. 7, 1985); S.C. Res. 686, U.N. Doc. S/RES/686 (Mar. 2, 1991); S.C. Res. 687, U.N. Doc. S/RES/687 (Apr. 3, 1991); S.C. Res. 688, U.N. Doc. S/RES/688 (Apr. 5, 1991); S.C. Res. 1078, U.N. Doc. S/RES/1078 (Nov. 9, 1996); S.C. Res. 1080, U.N. Doc. S/RES/1080 (Nov. 15, 1996).

¹⁴⁵ VCLT, *supra* note 99, art. 31,§1.

ter might have instinctually equated Space with air, and thus included the former in the context of the latter, is rather unlikely. In fact, as much as Space was an unattainable goal back in the mid-1940's, it was not totally unknown to the international community, or completely out of its "grasp." Indeed, already in the 1920's the then nascent International Radio Consultative Committee (Comité Consultatif International des Radio Communications – CCIR) had studied and researched the propagation of high-frequency radio-waves in the Ionosphere, the outer layer of the Earth's atmosphere and the ITU and its predecessors had, based on these studies, already addressed relevant regulatory problems,¹⁴⁶ before the adoption of the UN Charter. Therefore, it would be rational to assume that if the Charter drafters wanted to include Outer Space in the provision of Article 42, they could have very well done so. It is also true that Article 42 makes references to "air forces" and not just "air" as a medium through which to operate. The lack of specialised "space forces" even today, would make any further discussion moot, but for one point: the forces expressly mentioned are bound to operate, chiefly, through their respective domains, drawing thus a framework of action envisioned by the Charter. The possibility, however, of allowing a domain where such a great variety of human activities take place to be beyond the reach of the UN, especially for purposes pertaining to the restoration of international peace and security, would be absolutely absurd and would not contribute to solidifying the rule of law.¹⁴⁷

It would, thus, be more prudent to discuss if the means utilised by said forces can include satellites or satellite technology in general. This question basically coincides with the on-going discussion about what constitutes a "weapon" nowadays:¹⁴⁸ is it just a solitary piece of equipment of any given kind, or is it rather a compilation of different units, which create a weapon system? The evolution of technology and the subsequent trend demonstrated by

¹⁴⁶ Richard E. Butler, *The ITU a Pioneer in Space Law* 1-2 (ITU General Secretariat, Geneva 1983).

¹⁴⁷ HERSCH LAUTERPACHT, *THE DEVELOPMENT OF INTERNATIONAL LAW BY THE INTERNATIONAL COURT* 213 (Stevens & Sons, London 1958).

¹⁴⁸ Duncan P. Blake & Joseph S. Imburgia, 'Bloodless Weapons? The Need to Conduct Legal Reviews of Certain Capabilities and the Implications of Defining them as Weapons', 66 A.F. L. REV. 157, 168-172 (2010).

the instruments outlawing specific kinds of weapons¹⁴⁹ would suggest that the international community is now discussing in terms of weapon systems. And if, as discussed above, a State is allowed to use satellites while exercising its right to self-defence, then, in a reasoning *de minore ad maius*, satellites and satellite technology that are part of a weapon system utilised by any of the three forces identified by Article 42, can indeed be used for the purposes of a Chapter VII operation. In fact, the first Gulf War was considered as the first space war, due to the extended use of space-related military technologies by the allied forces against Iraq.¹⁵⁰

Seeing that the use of space related weapons is not precluded on the basis of Article 42 of the UN Charter, one would then have to wonder whether the Security Council could ever authorise the destruction of a satellite considered threatening *per se*, or being part of a weapon system used by the perpetrator State. As already analysed under the self-defence framework,¹⁵¹ the actual destruction of a satellite by e.g. the use of an ASAT weapon would create an orbiting cloud of debris, endangering the space assets of third States. Such an outcome would be manifestly disproportionate to the military gain of the destruction that it would not be possible to be accepted as collateral damage. The alternate methods proposed by scholars and experts could be applied in this scenario too, their otherwise wrongful nature being precluded, this time, on the basis of articles 25 and 103 of the UN Charter.

The last consideration that has to do with a broader question: could the Security Council order a State considered to be threatening international peace and security to refrain from using space at all? In other words, if a State is considered by the international community as being a latent threat to the peace and that State announces the launch of a space object, even for civilian purposes, could the Security Council, order it to abort the launch and cancel its space programme all together, so as to eliminate the threat, basically depriving that State of all its rights under the OST?

¹⁴⁹ *Supra* note 92.

¹⁵⁰ *Legal Issues Relating to the Global Public Interest in Outer Space*, *supra* note 14, at 98; LaToya Tate, *The Status of the Outer Space Treaty at International Law during "War" and "Those Measures Short of War"*, 32-I J. SPACE L. 177, 200 (2006); Richard A. Morgan, *Military Use of Commercial Communication Satellites: A New Look at the Outer Space Treaty and the "Peaceful Purposes"*, 60 J. AIR L. & COM. 237, 265 (1994).

¹⁵¹ *See* Part. I. A. 2.

Would such an order under a Chapter VII resolution be an acceptable method of restoring international peace and security? This is a highly complicated issue, having as many legal aspects as it does political. For some times, various States are considered friends or foes depending on the current political climate and the interests of different players in the political field. The classification of a State as one that threatens the stability of a region or of the whole international community in general is primarily a political decision. And while there will always be legal elements behind such a dispute,¹⁵² one would always wonder what was that weighed more for the Security Council, should ever such a resolution be adopted.

Only two entities could potentially determine in an authentic manner if such a decision is more political than legal: the Security Council itself and the International Court of Justice. It is evident that the first would never question the legality of its own decisions. As for the ICJ, it is a well-known fact that it is the principle judicial organ¹⁵³ of the Organisation, and thus, bound by its purposes.¹⁵⁴ However, absent any specific hierarchy between the six principle organs of the United Nations, the Court cannot judicially review any decisions made by them.¹⁵⁵ The *travaux préparatoires* of the Charter clearly reinforce this interpretation, since it was so decided that each organ would be responsible for interpreting the Charter's particular provisions applicable to its function.¹⁵⁶ Fun-

¹⁵² SS Wimbledon case, United Kingdom of Great Britain and Northern Ireland, France, Italy and Japan *v.* Germany, PCIJ Series A no. 1, Judgment of 17 August 1923, p. 20.

¹⁵³ U.N. Charter arts. 7 & 92; Article 1 ICJ Statute, Annexed to the UN Charter; *Wall Advisory Opinion*, *supra* note 85, §44; Stephen Schwebel, *Relations Between the International Court of Justice and the United Nations*, in MICHEL VIRALLY (ED.), *LE DROIT INTERNATIONAL AU SERVICE DE LA PAIX, DE LA JUSTICE ET DU DÉVELOPPEMENT* 434 (Paris 1991).

¹⁵⁴ U.N. Charter art. 1, para. 1; Malcolm Shaw, *The Security Council and the International Court of Justice: Judicial Drift and Judicial Function*, in SAM MULLER ET AL. (EDS), *THE INTERNATIONAL COURT OF JUSTICE: ITS FUTURE ROLE AFTER FIFTY YEARS* 219-259, at 237 (Martinus Nijhoff 1997); KENNETH KEITH, *THE EXTENT OF THE ADVISORY JURISDICTION OF THE INTERNATIONAL COURT OF JUSTICE* 146 (Sijthoff 1971).

¹⁵⁵ KAIYAN KAIKOBAD, *THE INTERNATIONAL COURT OF JUSTICE AND JUDICIAL REVIEW: A STUDY OF THE COURT'S POWERS WITH RESPECT TO JUDGMENTS OF THE ILO AND UN ADMINISTRATIVE TRIBUNALS* 11 (Kluwer International 2000).

¹⁵⁶ 13 UNCIO 1945, at 709-710; *Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa) notwithstanding Security Council Resolution 276*, ICJ Reports 1971, at 45; *id.*, Separate Opinion Judge De Cas-

damental as it is, the UN Charter is not a constitution with a system of checks and balances¹⁵⁷ and the ICJ, although described as the guardian of legality for the international community,¹⁵⁸ is not the “guardian of the Charter” in the way federal constitutional courts are.¹⁵⁹ The Court has, indeed, repeatedly refused¹⁶⁰ to review the decisions of other UN organs and, in the *Lockerbie* case, those of the Security Council. Besides, judicial recourse against the decisions of any organ of the United Nation is not provided for in the Charter, so such proceedings could never be initiated before the ICJ. But even if somehow a relevant case was brought before the Court or it was to be reviewed incidentally through contentious proceedings,¹⁶¹ it would still have to be dismissed. For the legal interests of the UN “would form the very subject-matter of the decision” and, as the UN lacks *locus standi*,¹⁶² the Court proceeding would violate the *Monetary Gold* principle.¹⁶³

Would the affected by the resolution State then remain unprotected under international law, should indeed said resolution

tro, at 180; Geoffrey R. Watson, *Constitutionalism, Judicial Review, and the World Court*, 34 HARVARD INT'L L.J. 1, 13 (1993).

¹⁵⁷ William Michael Reisman, *The Constitutional Crises in the United Nations*, 87 AM. J. INT'L L. 85, 95 (1993).

¹⁵⁸ Questions of Interpretation and Application of the 1971 Montreal Convention arising from the Aerial Incident at Lockerbie, *Libyan Arab Jamahiriya v. United States of America & United Kingdom*, Provisional Measures, ICJ Reports 1992, Separate Opinion Judge Lachs, §138.

¹⁵⁹ SHABTAI ROSENNE, *THE WORLD COURT: WHAT IT IS AND HOW IT WORKS* 36 (Brill 1989); Scott S. Evans, *The Lockerbie Incident Cases: Libyan-Sponsored Terrorism, Judicial Review and the Political Question Doctrine*, 18 MD. J. INT'L L. 35 (1994).

¹⁶⁰ *Advisory Opinion on Certain Expenses of the United Nations*, ICJ Reports 1962, §168; *Namibia case*, *supra* note 156, §45; *Questions of Interpretation and Application of the 1971 Montreal Convention arising from the Aerial Incident at Lockerbie*, *Libyan Arab Jamahiriya v. United States of America & United Kingdom*, Preliminary Objections, ICJ Reports 1998, Dissenting Opinion President Schwebel, at 164-167.

¹⁶¹ MOHAMED SAMEH AMR, *THE ROLE OF THE INTERNATIONAL COURT OF JUSTICE AS THE PRINCIPAL JUDICIAL ORGAN OF THE UNITED NATIONS* 331 (Martinus Nijhoff 2003); JOEL RIDEAU, *JURIDICTIONS INTERNATIONALES ET CONTROLE DU RESPECT DE TRAITES CONSTITUTIFS DES ORGANISATIONS INTERNATIONALES* 85-89 (Paris 1969).

¹⁶² ICJ Statute, art. 34, Annexed to the UN Charter.

¹⁶³ *Monetary Gold Removed from Rome in 1943*, *Italy v. France, United Kingdom of Great Britain and Northern Ireland and United States of America*, ICJ Reports 1954, at 33; *Nicaragua case*, *supra* note 34, §88; *Frontier Dispute*, *Burkina Faso v. Republic of Mali*, ICJ Reports 1986, at 579; *Land, Island and Maritime Frontier Dispute*, *El Salvador v. Honduras: Nicaragua Intervening, Application to Intervene*, ICJ Reports 1990, §73; *Certain Phosphate Lands in Nauru*, *Nauru v. Australia*, Preliminary Objections, ICJ Reports 1992, §55.

overstepped the boundaries of legality and was adopted on purely political reasons? The European Court of Justice seemed unwilling to refrain from reviewing the legality of Security Council resolutions regarding the infamous black lists for the freezing of assets of persons and entities suspected of or related to terrorism.¹⁶⁴ Notwithstanding the validity of proceeding with such a judicial review, the European Court of Justice is a *forum* open only within the European Union context and, as such, its protective capacities, if any, are *ratione personae* limited. It has been suggested that States affected by unlawful decisions of the Security Council could actually choose to disregard them, as if exercising countermeasures against them.¹⁶⁵ While this option presents some advantages, mainly that there is no regional restriction on recourse, the chaotic situation that would result from the domino effect of a State refusing to comply with an unlawful Chapter VII resolution and the Security Council adopting further measures against it cannot be ignored.

It would thus seem that, with regards to this last issue, States would have to count on one of the two following options. First, that the Security Council will always exhibit the necessary maturity to artfully balance political and legal considerations to avoid adopting unlawful resolutions. Or second, that in a more cynical scenario, one of the permanent members of the Security Council, especially those belonging to the actively emerging space-faring nations, would veto block such a resolution.

D. The case of peacekeeping operations.

The operations undertaken under Chapter VII should not be mistaken or equated with peacekeeping operations. The latter are actually the result of the practice of the United Nations, and to be more precise, of the Security Council, in application of Article 37 of the UN Charter, which reads as follows:

¹⁶⁴ European Court of Justice, *Yassin Abdullah Kadi and Al Barakaat International Foundation v Council of the European Union and Commission of the European Communities*, Joined cases C-402/05 P and C-415/05 P (2008).

¹⁶⁵ ANTONIOS TZANAKOPOULOS, *DISOBEYING THE SECURITY COUNCIL: COUNTERMEASURES AGAINST WRONGFUL SANCTIONS* 157-190 (Oxford 2011).

1. Should the parties to a dispute of the nature referred to in Article 33 fail to settle it by the means indicated in that Article, they shall refer it to the Security Council.
2. If the Security Council deems that the continuance of the dispute is in fact likely to endanger the maintenance of international peace and security, it shall decide whether to take action under Article 36 or to recommend such terms of settlement as it may consider appropriate.¹⁶⁶

In the majority of the situations referred to it under Article 37, the Security Council chose to recommend the creation of a peacekeeping mission, as the appropriate means to settle an interstate dispute. It is precisely this fact that presents a paradox in the operation of the Security Council: while Article 37 only makes reference to “recommendations,” the Security Council has always preferred to establish the peacekeeping missions using its authority under Chapter VII, so as to vest its decision with enforceability. This is probably the reason why, although the term “peacekeeping” or “peacekeeper” is nowhere to be found within the UN Charter, international law academics tend to refer to the so called “Chapter VI and a half,” terminology established by the second UN Secretary General, Mr. Dag Hammarskjöld.¹⁶⁷

Unlike the international military force envisioned in Chapter VII of the Charter, which however never came to be, peacekeeping forces are assembled by units voluntarily contributed by the Member States.¹⁶⁸ In UN peacekeeping operations, the Organisation bears international responsibility for the forces acting on its behalf,¹⁶⁹ unless the contributing States maintain control over

¹⁶⁶ U.N. Charter art. 37.

¹⁶⁷ Foreign Affairs and International Trade Canada, *What Peacekeeping does*, www.international.gc.ca/peace-paix/keeping-maintien.aspx?lang=en&view=d (last visited Nov. 10, 2014).

¹⁶⁸ Marten Zwanenburg, *International Military Forces*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, §8, www.mpepil.com (last visited Nov. 10, 2014).

¹⁶⁹ ECHR: *Behrami v. France*, *Saramati v. France*, *Germany & Norway*, 2/5/2007, §§14,141; *Kasumaj v. Greece*, 5/8/2007, §3; *Galić v. Germany*, 28/8/2007, §6; *Williams v. The Shipping Corporation of India*, US District Court, Eastern District Virginia, 63 ILR (1980), at 368; Jean-Marc Sorel, *La responsabilité des Nations Unies dans les opérations de maintien de la paix*, 3 INTERNATIONAL LAW FORUM DU DROIT INTERNATIONAL 130 (2001); Daphna Shrager, *Military Occupation and UN Transitional Administrations – the Analogy and its Limitation*, in PROMOTING JUSTICE, HUMAN RIGHTS AND

their contingences,¹⁷⁰ in which case they also maintain responsibility thereof.¹⁷¹ Keeping that in mind, it is necessary to examine whether it is permissible for the peacekeeping forces to use satellites or satellite-related technology for the successful completion of their mission.

Peacekeeping operations¹⁷² are, by definition, non-aggressive. In fact, peacekeepers only have the right to self-defence, which is however different than the one included in Article 51 of the UN Charter or the individual right of personal self-defence. The original interpretation provided by the UN itself as to what that right signifies was that peacekeepers “may never take the initiative in the use of armed force, but are entitled to respond with force to an attack with arms, including attempts to use force to make them withdraw from positions which they occupy under orders from the commander.”¹⁷³ Although this definition is now loosened, and peacekeeping forces can forcefully prevent attempts to disrupt their mission, they are nevertheless reluctant to do so, not only so as not to sacrifice their impartiality, but also because of a rather often lack of proper equipment.¹⁷⁴

As previously mentioned, peacekeeping operations are established under a relevant Security Council resolution, which also provides their mandate. This mandate is further complemented by

CONFLICT RESOLUTION THROUGH INTERNATIONAL LAW, LIBER AMICORUM LUCIUS CAFLISCH 487 (Martinus Nijhoff 2007).

¹⁷⁰ Jean-Pierre Ritter, *La protection diplomatique à l'égard d'une organisation internationale*, 8 ANNUAIRE FRANÇAISE DE DROIT INT'L 427 (1962); Borhan Amrallah, *The International Responsibility of the United Nations for Activities Carried Out by UN Peace-Keeping Forces*, 32 REVUE EGYPTIENNE DE DROIT INT'L 62, 62-63 & 73-79 (1976); Ewa Butkiewicz, *The Premises of International Responsibility of Inter-Governmental Organizations*, 11 POL. Y.B. INT'L L. 117, 123-125 & 134-135 (1981-1982).

¹⁷¹ ASR, *supra* note 50, art. 8; *Advisory Opinion on the Difference Relating to Immunity from Legal Process of a Special Rapporteur of the Commission on Human Rights*, ICJ Reports 1999, §66; *Nicaragua case*, *supra* note 34; R. SIMMONDS, *LEGAL PROBLEMS ARISING FROM THE UNITED NATIONS MILITARY OPERATIONS* 229 (Martinus Nijhoff 1968); Manuel Perez-Gonzalez, *Les organisations internationales et le droit de la responsabilité*, 99 REVUE GÉNÉRALE DE DROIT INT'L PUB. 63 (1988).

¹⁷² Michael Bothe, *Peacekeeping*, in BRUNO SIMMA, *THE CHARTER OF THE UNITED NATIONS*, A COMMENTARY 686-688 (2nd ed., Oxford 2002).

¹⁷³ Zwanenburg, *supra* note 168, §22.

¹⁷⁴ HITOSHI NASU, *INTERNATIONAL LAW ON PEACEKEEPING: A STUDY OF ARTICLE 40 OF THE UN CHARTER* 25-27 (Brill 2009).

the signing of a Status of Forces Agreement (SOFA)¹⁷⁵ between the UN (or the regional organisation acting under Security Council authorisation, as explained above) and the host State, which must give its consent for the deployment of troops in its territory.¹⁷⁶ The need to sign a SOFA is even greater than in the cases of friendly forces from a third State being present in the host State's territory following invitation. A SOFA will define the privileges and immunities of the peacekeeping force, clarify issues related to the preservation of command authority, the guaranteeing of fair treatment of individual service members, the conservation of scarce resources etc, and fill in the void created by the lack of customary law applicable to this relationship of organisation and host State, since the phenomenon of the truly international armed force is a novel one.¹⁷⁷ The mandate given by the Security Council would, thus, be considered the *ius ad praesentiam* for the peacekeeping force, while the subsequent and complimentary SOFA would play the role of the *ius in praesentia*.¹⁷⁸

The question at hand is whether satellites or satellite-related technology and/or infrastructure can be utilised for the support of a peacekeeping mission, and if so, which aspects thereof. It has already been mentioned that, in most peacekeeping operations, the *casques-blues* have at their disposal just the basic equipment to allow them to act in self-defence. The use of cutting-edge arsenal, as might be the case with interventions authorised under Chapter VII, is not really an option during peacekeeping operations. But in any event, if one is ready to accept the use of such weapons or weapon systems as lawful during the course of a Chapter VII intervention, which is a situation of significant gravity, then one should be equally ready to make the same concession for peacekeeping operations, which are both non-aggressive and performed with the hosting States consent. Remote sensing systems used for positioning definition or even the GPS, a platform

¹⁷⁵ U.N. Secretary General, *Model Status-of-Forces Agreement for Peace-Keeping Operations: Report of the Secretary-General*, U.N. Doc. A/45/594 (Oct. 9, 1990).

¹⁷⁶ Bothe, *supra* note 172, at 690-692.

¹⁷⁷ Jochen Herbst, *Host State Agreements*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, §16, www.mpepil.com (last visited Nov. 10, 2014).

¹⁷⁸ Paul J. Conderman, *Status of Armed Forces on Foreign Territory Agreements*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, §33, www.mpepil.com (last visited Nov. 10, 2014).

developed from the start as a military application with only limited civilian access,¹⁷⁹ or satellites of the contributing States used for military communications should be deemed as permissible uses of space assets for peacekeeping reasons.

With regards to communications, a point that should be clarified is that of the radio-frequencies used by the peacekeeping force. According to Article 48 of the ITU Constitution, military radio installations fall outside the regulatory scope of the ITU. However, the military is obligated to comply with the regulations when providing non-military services and to not interfere with civilian authorised and protected uses. It is rather often that peacekeeping forces stationed in a host territory will set up a radio station to transmit the UN radio program to the local population, in an effort to establish “a culture of peace.”¹⁸⁰ Such activities must always be carried in accordance with the rules of the SOFA, which should include provisions regulating the use of frequencies and the granting of consent of the host State for the operation of such a radio station. If such provisions do not exist, then the peacekeeping forces should request the authorisation of the host State, on the basis of its national frequency regulation, taking into account the international or regional radio regulations of the ITU. Not doing so, would be an unlawful action, which could even be equated to an interference to the internal affairs of a State contrary to article 2§7 of the UN Charter, triggering the international responsibility of the organisation.¹⁸¹

¹⁷⁹ Paul B. Larsen, *Issues Relating to Civilian and Military Uses of GNSS*, 17 SPACE POL'Y 111 (2001); Paul B. Larsen, *Global Navigation Satellite Systems: Universal Technology under Divisive Legal Regimes*, 27 ANNALS AIR & SPACE L. 387, 395 (2002).

¹⁸⁰ G.A. Res. 53/243, U.N. Doc. A/RES/53/243 (Oct. 6, 1999); G.A. Res. 53/25, U.N. Doc. A/RES/53/25 (Nov. 19, 1998); G.A. Res. 56/5, U.N. Doc. A/RES/56/5 (Nov. 13, 2001); G.A. Res. 57/6, U.N. Doc. A/RES/57/6 (Nov. 27, 2002); G.A. Res. 59/143, U.N. Doc. A/RES/59/143 (Feb. 25, 2005).

¹⁸¹ Int'l Law Comm'n, 63rd Sess., Apr. 26–June 3, July 4–Aug. 12, 2011, U.N. Doc. A/CN.4/L.778 (May 30, 2011) [hereinafter DARIO]; ILA, *Report of the Committee on the Accountability of International Organizations*, Berlin Conference (2004), <http://www.ila-hq.org/en/committees/index.cfm/cid/9>.

E. Issues of responsibility and/or liability relating to use of force.

Despite the instances and conditions under which force can be lawfully used in, from, towards or through Outer Space analysed in the four titles just above, it is still possible that situations triggering the international responsibility and/or liability of States or of international organisation might take place. A State might actually use disproportionate or unnecessary force while exercising its right to self-defence or while acting under Security Council authorisation: it might actually choose to destroy an enemy satellite instead of following other indicated methods of neutralisation. Such a choice would be a breach of international law, bringing about the application of a secondary set of rules, those relating to the international responsibility and/or liability of the State. The situation with regards to space is even more complex, since the space treaties themselves include provisions relating to the responsibility of States for their activities in space, which should be applied first in such a scenario, as the *lex specialis*.

In general, depending on the performed actions, there are two corresponding types of responsibility and/or liability. If the State has performed commercial activities, *i.e. acta iure gestionis*, and in the process of them has somehow breached a legal obligation, then the State or international organisation is primarily liable in a civil/tort context.¹⁸² However, if the State or international organisation has breached its international obligations while performing *acta iure imperii*, or in other words sovereign acts, then it faces issues of international responsibility and potentially of liability too.¹⁸³ The difference between these two types of actions and of corresponding responsibility and/or liability is the existence of jurisdictional immunity for the latter type.¹⁸⁴ States can be brought before domestic foreign courts for violations relating to *acta iure gestionis*, as in those situations they act as a private entity. On the contrary, domestic court jurisdiction is barred when it

¹⁸² Juliane Kokott, *Sovereign Equality of States*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, §36, www.mpepil.com (last visited Nov. 10, 2014).

¹⁸³ *Id.*

¹⁸⁴ HAZEL FOX, THE LAW OF STATE IMMUNITY (Oxford 2008).

comes to the adjudication of *acta iure imperii*.¹⁸⁵ this is because States enjoy sovereign immunity over said actions, as a result of the *par in parem non habet imperium / iudicium* doctrine, most commonly known as sovereign equality.¹⁸⁶

It is obvious that actions relating to the use of force are actions undertaken under the exercise of sovereign powers of the State. It becomes, therefore, necessary to examine issues of international responsibility and/or liability for States acting in breach of the afore-analysed prerequisites for lawful use of force with regards to Outer Space.

Article VI of the OST recognises the international responsibility of States for national activities in outer space, whether by governmental or non-governmental entities. It is clear that defensive manoeuvres or actions taking place in outer space are national activities of a State, as they constitute a prominent manifestation of governmental authority. Article VI of the OST further imposes upon the States the obligation to carry out their national activities in conformity with the provisions set in the OST. This obligation solidifies the duty of States to act in accordance with general international law with regards to the use of force, as analysed above, as it in fact re-emphasises the obligations created, *inter alia*, by Article III of the OST. It also creates a link with Article IX of the OST, which creates a duty of “due regard to the corresponding interests of all other State Parties to the Treaty.” The same Article also provides for the request of international consultations, if a State believes that activities planned by another State will cause harmful interference to its rights and rights of third States under the Treaty.¹⁸⁷ Since the possibility of States actually consulting one another before engaging in defensive, even if unlawful for reasons described above, moves is rather slim, States are actually left with the due regard duty. Hence, a State that chooses to use an ASAT weapon against an enemy satellite will be hard pressed to show that it was actually acting with due regard

¹⁸⁵ *Jurisdictional Immunities of the State*, Germany v. Italy: Greece Intervening, ICJ Reports 2012, §§77-78.

¹⁸⁶ Christian Tomuschat, *International Law: Ensuring the Survival of Mankind on the Eve of a New Century: General Course on Public International Law*, 281 R.C.A.D.I. 13, 179 (2001); Jean-Flavien Lalive, *L'immunité de juridiction des états et des organisations internationales*, 84 R.C.A.D.I. 205 (1953).

¹⁸⁷ See OST, *supra* note 1, art. 9.

for the corresponding interests of other States for the peaceful enjoyment of outer space, since its action will cause the creation of an orbiting, hazardous cloud of debris, threatening the space assets of numerous different States, and not just those of the enemy.

The issue becomes even more complicated, when liability considerations are taken into account. For under the OST, States are internationally liable for the damage caused by objects they launch, or procure the launch of, to space objects of third States in outer Space, among others.¹⁸⁸ This provision was further clarified by the provisions of the Convention on the International Liability for Damage Caused by Space Objects.¹⁸⁹ Throughout the Liability Convention, the term used is “space object.” Article I.(d) of the Convention defines the term “space object” as including component parts of a space object as well as its launch vehicle and parts thereof. This circular definition only refers to objects that can actually be put into orbit in outer space and their launch vehicles and parts thereof, as explained by space law scholars interpreting different provisions of the space treaties.¹⁹⁰ Ballistic missiles or other ASAT weapons do not actually orbit in outer space: they fly through space, perhaps in a sub-orbital manner depending on their target, up until the moment of collision. And indeed, how could a laser beam, such as the ones to be used in Direct Energy Weapon systems,¹⁹¹ be considered an object, when it is not even tangible? If that is the case, and ASAT weapons cannot actually be considered as space objects, and indeed they are not, then the Liability Convention as a whole is rendered inapplicable with regards thereof. Would States then not be liable for the consequences of using an ASAT weapon at all?

One option would be to suggest that regardless of the Liability Convention, the liability provision included in Article VII of the

¹⁸⁸ *Id.* art. 7.

¹⁸⁹ Convention on the International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 7762, 961 U.N.T.S. 187 [hereinafter Liability Convention].

¹⁹⁰ See OST, *supra* note 1, art. 4; Moon Agreement, *supra* note 4, art. 3,§2 & 12,§1; Convention on Registration of Objects Launched into Outer Space, *opened for signature* Jan. 14, 1975, 28 U.S.T. 695, T.I.A.S. 8480, 1023 U.N.T.S. 15 [hereinafter Registration Convention]; Stephan Hobe, *Spacecraft, Satellites and Space Objects*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, §1, www.mpepil.com (last visited Nov. 10, 2014).

¹⁹¹ See Part II *infra*.

OST would still be in effect. Indeed, this provision makes reference to “objects” in general, and as long as a warhead of some kind is carried upon a ballistic missile targeting a satellite, then that could be an object launched into space. While this approach could look valid, there are two significant problems: first, if such an interpretation were to be followed, then this would create a loophole for States to develop and use such military technologies that would not qualify as objects, establishing thus conditions of *de facto* immunity and impunity. And second, the combination of the customary rules of interpretation *lex posterior specialis derogat lege priori generali* (i.e. the new and specialised rule overturns the old and general one)¹⁹² does not allow for such an interpretation despite the rules established in the Liability Convention.

It would, therefore, seem as though there is an impasse regarding the international liability of States resulting from the use of ASAT technology. The solution is provided once again, through the application of Article III of the OST, which brings rules of general public international law to the forefront. Where the provisions contained in the space treaties are insufficient or inapplicable to the situation at hand, this fall back provision allows for the application of general public international law.¹⁹³ And relating to issues of responsibility and/or liability one would only have to look into the codification of relevant rules by the International Law Commission in the form of the Articles on State Responsibility.¹⁹⁴

Since the use of an ASAT weapon by the armed forces of a State against an enemy satellite, instead of the use of other available neutralisation means and methods, would constitute a breach of a series of Articles of the OST and of general public international law (necessity, proportionality, abuse of right etc), the State acting unlawfully would be internationally responsible under Articles 1, 2 and 4 of the ASR. The consequence of said responsibility is that the wrong-doing State would have to make reparations¹⁹⁵ to the affected by its unlawful conduct State. Indeed, the unlawful destruction of a satellite infringes the customarily protected prop-

¹⁹² VCLT, *supra* note 99, arts. 30,§3 & 31,§3(a).

¹⁹³ MANFRED LACHS, THE LAW OF OUTER SPACE: AN EXPERIENCE IN CONTEMPORARY LAW-MAKING 15 (Sijthoff, Leiden 1972).

¹⁹⁴ ASR, *supra* note 50.

¹⁹⁵ *Id.* art. 31.

erty rights¹⁹⁶ over said satellite, of either the State itself or of its nationals. In fact, it has been considered as customary law that the responsible State is under “the obligation to restore the undertaking and, if this be not possible, to pay its value at the time of the indemnification.”¹⁹⁷ It is highly unlikely that the wrong-doing State would actually choose to replace the wrongfully destroyed enemy satellite as a form of restitution,¹⁹⁸ if ever this was a possibility. The only option therefore available to the injured State would be to demand¹⁹⁹ compensation²⁰⁰ for the loss of its space asset. In accordance with international jurisprudence, “[i]t is a well-established rule of international law that an injured State is entitled to obtain compensation from the State which has committed an internationally wrongful act for the damage caused by it.”²⁰¹ The purpose of the provided compensation is to rectify the wrong suffered, to make the injured State “whole again.”²⁰² International jurisprudence in a large range of cases has determined that the sum owed to the injured party should be “corresponding to the value which a restitution in kind would bear.”²⁰³ The loss of a satellite is financially assessable,²⁰⁴ and equals that of its value (possibly degraded due to use) and, in the case of commercial satellites used for both civilian and military purposes, the anticipated

¹⁹⁶ Case Concerning Certain German Interests in Polish Upper Silesia, Germany v. Poland, PCIJ Series A No. 7 (1926), p. 32; *The Oscar Chinn case*, United Kingdom of Great Britain and Northern Ireland v. Belgium, PCIJ Series A/B No. 63 (1934), at 82-84.

¹⁹⁷ Case concerning Factory at Chorzów, Germany v. Poland, Merits, 1928, PCIJ Series A No. 17, at 48.

¹⁹⁸ ASR, *supra* note 50, art. 35.

¹⁹⁹ Walter Fletcher Smith case, II UNRIAA (1929), 915, at 918; Government of Kuwait v. American Independent Oil Company, 66 *ILR* 1982, 529, at 533.

²⁰⁰ ASR, *supra* note 50, art. 36.

²⁰¹ *Gabčíkovo-Nagymaros case*, *supra* note 64, §152; *Chorzów Factory case*, *supra* note 197, at 27.

²⁰² The Lusitania case (USA v. Germany), VII UNRIAA (1923), 32, at 39.

²⁰³ The M/V Saiga (No. 2) (Saint Vincent and the Grenadines v. Guinea), ITLOS judgment of 1 July 1999, §170; Papamichalopoulos v. Greece, ECHR, Series A, No. 330-B (1995), §36; Velásquez Rodríguez, Inter-Am.Ct.H.R., Series C, No. 4 (1989), at 26-27, 30-31; Tippetts, Abbett, McCarthy, Stratton v. TAMS-AFFA Consulting Engineers of Iran and Others, 6 Iran-U.S.C.T.R. 1984, at 225.

²⁰⁴ Stephan Wittich, *Compensation*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, §25, www.mpepil.com (last visited Nov. 10, 2014).

gain²⁰⁵ from an unhindered operation, thus entitling the injured State to lost profits²⁰⁶ claims.

It should be noted, at this point, that since under Article VI of the OST all activities in space are national State activities, the injured State could bring forth all of the above claims, even on behalf of its nationals, by substitution without actually having to follow the traditional path of diplomatic protection. Indeed, as the ICJ²⁰⁷ and PCIJ²⁰⁸ have held, injury of a national is harm to the State itself, generating a *parens patriae* right of the State.

The next issue, which needs to be addressed, is clarifying the responsibility and/or liability situation when a State is acting wrongfully not of its own accord, but while acting under the authorisation of an international organization, in the case of use of force, the Security Council or a regional defensive organization upon which the Security Council delegated relevant jurisdiction. Such an authorisation to use force would actually be an exercise of the “sovereign powers” of the organization.²⁰⁹ Under modern international law, immunity is also granted to international organisations,²¹⁰ under the context of functional necessity.²¹¹ This, however, does not mean that an international organisation cannot be held responsible, should it violate international law. It only signi-

²⁰⁵ Robert May case (USA v. Guatemala), 1900 Foreign Relations, 648; Amco Asia Co v Republic of Indonesia (Resubmitted Case: Award of 31 May 1990), ICSID Case No ARB/81/1, §178; Sapphire International Petroleum Ltd v. National Iranian Oil Company, 35 ILR 1963, 136; Libyan American Oil Company (LIAMCO) v. Government of the Libyan Arab Republic, 62 ILR 1977, 140.

²⁰⁶ The Cape Horn Pigeon Case (USA v. Russia), IX UNRIAA (1902), 63; The Yuille Shortridge and Co. case (Great Britain v. Portugal), de Lapradelle & Politis (arbitrators), II Recueil des arbitrages internationaux (1861), 78.

²⁰⁷ Nottebohm case, Liechtenstein v. Guatemala, ICJ Reports 1955, §4; Interhandel case, Switzerland v. United States of America, Jurisdiction, ICJ Reports 1959, §27.

²⁰⁸ Mavrommatis Palestine Concessions case, Greece v. United Kingdom of Great Britain and Northern Ireland, PCIJ Series A No. 2 (1924), §12; Panevezys-Saldutiskis Railway Co. case, Estonia v. Lithuania, PCIJ Series A/B No. 76 (1939), §18.

²⁰⁹ DAN SAROOSHI, INTERNATIONAL ORGANIZATIONS AND THEIR EXERCISE OF SOVEREIGN POWERS 64 (Oxford 2005).

²¹⁰ Christian Dominicé, *L'immunité de juridiction et d'exécution des organisations internationales*, 187 R.C.A.D.I. 145 (1984).

²¹¹ Chanaka Wickremasinghe, *International Organisations or Institutions, Immunities before National Courts*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, §§14-23, www.mpepil.com (last visited Nov. 10, 2014); Antonio. Cassese, *L'immunità de juridiction civile des organisations internationales dans la jurisprudence italienne*, 30 ANNUAIRE FRANÇAISE DE DROIT INT'L 556 (1984).

fies that the organisation cannot be prosecuted before the domestic courts of the injured State, unless the organisation itself chooses to waive its immunity. Since international organisations do not have *locus standi* before the ICJ,²¹² an *ad hoc* arbitral tribunal is most often the preferred option for adjudicating such cases.

The same complications as the ones in the case of independent State action, in relation to responsibility and/or liability under the space treaties, appear in the case of international organisation actions as well. Article VI of the OST demands that “responsibility for compliance with this Treaty shall be borne both by the international organisation and by the States Parties to the Treaty participating in such organisation.” Article XII of the OST further clarifies that “the provisions of this Treaty shall apply to the activities [...] carried on within the framework of international intergovernmental organisations.” The second paragraph of the same Article obligates States to resolve their disputes “either with the appropriate international organisation or with one or more States members of that international organisation, which are Parties to this Treaty.”²¹³ The exact same argumentation as the one presented above relating to the use of ASAT weapons and the liability of the State, can be *mutatis mutandis* used in the case of international organisations. The fall back provision of Article III of the OST would have to be activated again, this time however pointing towards a different codification of international rules: the ILC’s Draft Articles on the Responsibility of International Organisations.²¹⁴

Articles 1, 3 and 4 of DARIO provide the conditions for the existence of international responsibility of an international organisation. There must be some kind of conduct, which is unlawful under international law and can be attributable to the international organisation. For attribution to the organisation, all that is necessary is that the conduct is performed by an organ of the organisation,²¹⁵ or by a State or entity at its disposal.²¹⁶ The destruction of a satellite by a State or States acting on behalf of the

²¹² ICJ Statute, art. 34,§1, annexed to the UN Charter.

²¹³ See OST, *supra* note 1, art. 13 §2.

²¹⁴ *Supra* note 180.

²¹⁵ DARIO, *supra* note 181, art. 6.

²¹⁶ *Id.* art. 7.

organisation following a relevant mandate, in violation of the rules of necessity and proportionality, can be considered action in excess of authority or contravention of instruction, which, nevertheless, would still engage the international responsibility of the organisation.²¹⁷ The consequence of a wrongful act of an international organisation would be its obligation to make reparations to the injured State.²¹⁸ Once again, for the same reasons as the aforementioned, compensation²¹⁹ would be preferred over restitution,²²⁰ the relevant justification and legal basis being unaltered.

There is one last point which needs to be discussed before moving on to the next part of this Article. It is none other than the question of who takes responsibility by the damage caused by a piece of space debris created from the unlawful use of force in space, as analysed above, to a space object in space or other property of a third Party not in space, in application of the “pinball effect.” If the piece can be recognised as belonging to the ASAT weapon that hit the originally targeted satellite or space object, then it would be clear that either the State or the international organisation on behalf of which the weapon was launched would be responsible and/or liable for the damage, according to the aforementioned rules of responsibility and/or liability. But if the piece belongs to the targeted space object, then the situation is completely different. For one, the provisions of the Liability Convention could be applied, since in this scenario a component part of a space object of the injured State causes damage to the space object of another State, or the property of another State not in space. Article III of the Liability Convention establishes fault liability for damage caused in space, while Article II establishes absolute liability for damage caused anywhere but in space. It would seem that, if the damage is caused in space, the original injured State could prove that it is not at fault for the creation of the piece of space debris and not be liable for the damage. But in the case of Article II of the Liability Convention, the only possible way for the original injured State to avoid liability, would be to claim *force*

²¹⁷ *Id.* art. 8.

²¹⁸ *Id.* art. 31.

²¹⁹ *Id.* art. 36.

²²⁰ *Id.* art. 35.

majeure as a condition precluding the wrongfulness²²¹ of its involuntary action of causing damage to a third State.

PART II: CONTEMPORARY PERSPECTIVES AND NEW APPROACHES
TO THE MILITARISATION OF OUTER SPACE.

Part I of this Article focused on analysing the current legal regime with regards to the correlation of use of force under public international law in general and peaceful uses of outer space under space law in particular. By examining the rules applicable under each circumstance relating to the use of satellite or space technology in general for military purposes, the framework of lawfulness was drawn, as it stands with the current legal regime.

Part II of this Article will examine instances of State practice, either nascent, recent or already dated, which have somehow challenged the legal *status quo* and either served as obstacles or as inspiration for the development of law of outer space. These challenges graphically depict the contemporary perspectives of States, scholars and academics as to what constitutes a “peaceful” use of space, its protection and the overall movement of the international community pendulum towards the issue of militarisation and weaponisation of outer space.

A. Challenging the current regime: the recent ASAT tests.

On 11 January 2007, China launched a ballistic missile targeting its almost defunct Feng-Yun 1-C weather satellite, achieving collision in space and the destruction of the satellite.²²² The conducted operation was, in fact, an Anti-Satellite (ASAT) test that surprised the unsuspecting international space community and caused a plethora of reactions,²²³ not only because of the cloud of orbiting space debris created by the collision, but also because of the dawn of a new age in space relations.²²⁴ A relatively newly-

²²¹ ASR, *supra* note 50, art. 23.

²²² William J. Broad & David E. Sanger, *Flexing Muscle, China Destroys Satellite in Test*, N.Y. TIMES, Jan. 19, 2007, at A1.

²²³ David E. Sanger & Joseph Kahn, *U.S. Tries to Interpret China's Silence Over Test*, N.Y. TIMES, Jan. 22, 2007, at A3; Joseph Kahn, *A New Player at Star Wars: China Shows Assertiveness In Reported Weapons Test*, N.Y. TIMES, Jan. 20, 2007, at A7.

²²⁴ K. K. Nair, *China's ASAT Test: A Demonstrated Need for Legal Reform*, 33 J. SPACE L. 191, 191 (2007).

emerging space-faring nation demonstrated in the most explicit way possible that it possessed the capability to target orbiting satellites, whether functional or not. The agitation experienced by the international community on the face of this potential threat towards the space assets of different States was unprecedented since the discontinuation of the US and Soviet ASAT programmes in the 1980s.²²⁵

Just little over a year after the Chinese test, on 20 February 2008, the USA also performed an ASAT test. Codenamed “*Operation Burning Frost*,” the USA mission targeted a non-functional American reconnaissance satellite, which was quickly losing altitude and threatened to re-enter the Earth’s atmosphere and crash, while still carrying significant amounts of the highly toxic hydrazine fuel.²²⁶ The USA Navy used an SM-3 anti-ballistic missile to hit the falling satellite, a weapon that cannot yet reach satellites in Low Earth Orbit, but which can still be upgraded to do so. The international community once again reacted vividly to this development, for it was understood that the test was not only aimed at safeguarding the public’s health from a possible hydrazine exposure, but also to send a clear message to China, and possibly other States too, with regards to the American capacities.²²⁷ A point of particular interest though is that, despite the protests of various States, no State made any direct reference to the illegality of such tests, preferring to use broader negative terms, but certainly not the characterisation “illegal.”²²⁸ It was only Japan that once used this specific terminology with regards to the 2007 Chinese ASAT test.²²⁹

This new escalation of events in the field of space weaponisation is considered to lead to a reinvigorated arms race in space. The prospect of trying to secure peace and safety in space by the

²²⁵ Allan S. Krass, *Verification: How much is enough?* 103 (Stockholm International Peace Research Institute 1985).

²²⁶ Jamie McIntyre, et al., *Navy Missile Hits Dying Spy Satellite, Says Pentagon*, CNN, Feb. 21, 2008, <http://www.cnn.com/2008/TECH/space/02/20/satellite.shootdown/>.

²²⁷ *US Spy Satellite Plan “A Cover”*, BBC NEWS, Feb. 17, 2008, <http://news.bbc.co.uk>; Kristin Roberts, *Pentagon Plans to Shoot Down Disabled Satellite*, REUTERS, Feb. 14, 2008, <http://www.reuters.com/article/2008/02/14/us-usa-satellite-missile-idUSN1447206620080214>.

²²⁸ David A. Koplow, *ASAT-isfaction: Customary International Law and the Regulation of Anti-Satellite Weapons*, 30 MICH. J. INT’L L. 1187, 1237 (2008-2009).

²²⁹ *Id.* at 1241.

increase of ASAT weapons of all parties concerned, almost in a way of mutual check and balance, as was the case with nuclear weapons during the Cold War Era,²³⁰ is not really considered attractive by the international community. Instead, suggestions have been made for the negotiation and signing of a comprehensive ASAT Ban treaty, as the only reasonable and fail-safe way to protect the space assets of various States.²³¹ However, the ongoing development and testing of ASAT weapons, whether Kinetic Energy ASAT (KEASAT) or Direct Energy Weapons (DEW), by a series of States does not provide a favourable background for the adoption of such an instrument.²³²

The fundamental problem with the conducted ASAT tests is that they increase dramatically the number of orbiting space debris, thus endangering the space assets of other States, especially with the “pinball effect” they set in motion from a future collision of said debris amongst itself or with other satellites.²³³ In fact, a potential collision between a piece of debris created by an ASAT test and a third party’s satellite could very well violate the *ius ad bellum* and the *ius in bello*, especially if the satellite hit by the debris is of civilian use. And although it is arguable that most civilian satellites can be potentially used for military applications too, it remains a fact that those used for purely civilian applications, such as those for exclusively scientific research, should never be targeted.²³⁴

B. Ballistic missiles and other (“smart”) weapons.

Being the means to an end, arms control treaties aim at a peaceful international environment through the reduction of potential conflicts and the management of threats to international

²³⁰ Herbert F. York, *Nuclear Deterrence and the Military Uses of Space*, in F. LONG, D. HAFNER & J. BOUTWELL (EDS.), *WEAPONS IN SPACE* 17-32 (1986).

²³¹ See Frank M. Walsch, *Forging a Diplomatic Shield for American Satellites: The Case for Re-evaluating the 2006 National Space Policy in Light of a Chinese Anti-Satellite System*, 72 J. AIR L. & COM. 759 (2007).

²³² Bhupendra Jasani, *Military Use of Outer Space*, 27 ANNALS AIR & SPACE L. 347, 357 (2002).

²³³ Henry T. Scott, *Improving the Shield: Mitigating the Danger of Space Debris by Enforcing and Developing Already Existing Space Law*, 34 ANNALS AIR & SPACE L. 713, 728 (2009).

²³⁴ Brandon L. Hart, *Anti-Satellite Weapons: Threats, Laws and the Uncertain Future of Space*, 33 ANNALS AIR & SPACE L. 344, 362 (2008).

peace and security resulting from over-weaponisation.²³⁵ One of the most significant arms control instruments is the 1972 Treaty on Anti-Ballistic Missile Systems²³⁶ negotiated between USA and USSR. The fundamental idea behind the adoption of the ABM Treaty was that “security is enhanced and the stability of the strategic balance strengthened if both sides in the Cold War forswear defensive systems [under] a widely accepted doctrine of nuclear deterrence.”²³⁷ By limiting the development and deployment of ABM systems a reduction of the raise in offensive arms could be achieved. Thus, the ABM Treaty imposed an obligation on both the contracting States “not to develop, test or deploy ABM systems or components which are sea-based, air-based, space-based or mobile land-based.”²³⁸ The Treaty basically outlawed not only the placement of ABM systems in outer space, but also the development and testing of such systems *ab initio*.²³⁹ With the exception on only one limited system being allowed per contracting Party near its capital city and one to protect an Intercontinental Ballistic Missile (ICBM) launch area, both of which had to be at least 1300 kilometres apart so as not to create an effective regional defence zone or the beginning of a worldwide system,²⁴⁰ the whole Treaty was constructed on a Mutual Assured Destruction system philosophy. Article VI of the ABM Treaty imposed a fairly comprehensive prohibition of enhancement of capabilities of the existing ABM systems, of their testing in ABM mode and the deployment of radars for early warning of strategic ballistic missile attack other than along the periphery of the national territory of the State and oriented outwards.²⁴¹

²³⁵ Michel Bourbonnière, *Legal Regime for Keeping Outer Space Free of Armaments: Prospects?*, 27 ANNALS AIR & SPACE L. 109, 110 (2002).

²³⁶ 1972 Treaty on Anti-Ballistic Missile Systems, 23 U.S.T. 3435, T.I.A.S. 7503 [hereinafter ABM Treaty]; Complemented by the 1972 Interim Agreement on Certain Measures with Respect to the Limitation of Strategic Offensive Arms, 23 U.S.T. 3463, T.I.A.S. 7504 [hereinafter SALT-I].

²³⁷ Jankowitsch, *supra* note 21, at 104.

²³⁸ ABM Treaty, *supra* note 236, art. V, §1.

²³⁹ Sune Danielsson, *Examination of Proposals Relating to the Prevention of an Arms Race in Outer Space*, 12-I J. SPACE L. 1, 3 (1984).

²⁴⁰ ABM Treaty, *supra* note 236, art. III.

²⁴¹ Article VI ABM Treaty reads as follows:

To enhance assurance of the effectiveness of the limitations on ABM systems and their components provided by the Treaty, each Party undertakes: (a) not to give missiles, launchers, or radars, other than ABM interceptor missiles, ABM launch-

Article VIII of the ABM Treaty dictated the destruction of excess numbers of or of prohibited under the Treaty ABM systems and their components, or of ABM Systems and their components outside the territory of the States, under agreed procedures as soon as possible.²⁴²

According to the rule contained in Article IX of the ABM Treaty, the Parties were under the obligation “not to transfer to other States, and not to deploy outside [their] national territory, ABM systems or their components limited by the Treaty.” There were certain worries that this provision would actually be an obstacle to the potential retirement of ABM radars and equipment for civilian use, if ever the use of ABM systems for their primary cause became obsolete.²⁴³

Article XII was a ground-breaking provision, recognising for the first time the role of national technical means of verification. An extensive analysis of the importance of verification for the purpose of maintaining outer space peaceful is to be found under title (E) of the present part of this Article. Suffice it to mention, for the time being, that the whole verification system envisioned by the ABM Treaty was a mutual confidence building mechanism between the two States, which greatly affected the perception of the international community as to how international peace and security can be guaranteed.

Under Article XV thereof, the ABM Treaty was of unlimited duration. It nevertheless allowed for the withdrawal of a Party in the exercise of its national sovereignty, under the precondition of a determination that extraordinary events related to the subject

ers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode; and

(b) not to deploy in the future radars for early warning of strategic ballistic missile attack except at locations along the periphery of its national territory and oriented outward.

Id. art. VI.

²⁴² Article VIII of the ABM Treaty reads as follows: “ABM systems or their components in excess of the numbers or outside the areas specified in this Treaty, as well as ABM systems or their components prohibited by this Treaty, shall be destroyed or dismantled under agreed procedures within the shortest possible agreed period of time.” *Id.* art. VIII.

²⁴³ F. Kenneth Schwetje, *They Shall Beat Their Swords into Plowshares (In Accordance with All Relevant Arms Control Agreements)*, 27-I ANNALS AIR & SPACE L. 383, 391 (1992).

matter of the Treaty have gravely affected its national interests. Such determination and subsequent withdrawal decision was to be notified to the other Party in written form, explaining the reasons for the withdrawal, six months in advance of the desired withdrawal date.²⁴⁴

In the mid-1980s in the USA, active discussions were held with regards to the creation of a Strategic Defence Initiative (SDI). This system was basically an ABM system, and the Department of Defence made sincere efforts to broaden the scope of interpretation of the ABM Treaty, so as to render the development of a space-based SDI permissible.²⁴⁵ The discussions for the development of the programme continued during the Clinton administration, the only difference being that it was portrayed as a national defence system. The plan was not abandoned by the George W. Bush administration either, which followed a narrow interpretation of the ABM Treaty. Recognising that the development of the SDI system would violate the provisions of the Treaty, the USA preferred in December 2001 to withdraw from the ABM Treaty citing Article XV thereof, instead of cancelling the programme. The reasons put forth as justification of the “extraordinary events” causing the withdrawal were not immediately explained as required by Article XV, but given the attack on the World Trade Centre earlier in the same year, the argument of self-defence against non-State actors is greatly supported by the reinvigoration and placement on high alert of all relevant sections of the American armed forces.²⁴⁶ The continuous development of space weapons has led to an equally continuous development, or suggestion for development, of sophisticated defence initiatives, creating, thus, what could be described as a vicious circle of

²⁴⁴ The precise wording of Article XII is: “1. This Treaty shall be of unlimited duration. 2. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from the Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.” ABM Treaty, *supra* note 236, art. XII.

²⁴⁵ See Daniel Goedhuis, *Some Observations on the Attitude of West European Governments to the Development of Defensive Weapons in Outer Space*, 15-II J. SPACE L. 101 (1987).

²⁴⁶ Wolfgang K. H. Panofsky, *The President's Decision to Withdraw from the ABM Treaty* (March 2002), www.eisenhowerinstitute.org/presscenter/release06-02.htm.

weaponisation. The USA in particular have shown great interest in developing a National Missile Defence programme, to ensure protection from last-minute modified civilian space objects of enemy States targeted against it.²⁴⁷ Soon after the denunciation of the ABM Treaty negotiations started between the USA and various former Soviet States, for the creation of a ABM system based in Eastern Europe, whose purpose according to the USA is the defence against rogue States located in the Middle East, a position not shared, however, by Russia that sees such a system as a direct threat to its interests in the area.

The denunciation of the ABM Treaty has led to a swift in the subject of the discussion, from the militarisation of outer space to the weaponisation of outer space, with numerous States designing, and as shown above, testing ASAT systems and other space-related weapons. However, this is not the only contemporary challenge the international community is facing.

In May 2011 the US Department of Defence announced that henceforth it would consider all attempts of “cyber-attacks” against its facilities, installations and major contractors as an armed attack against the USA and react accordingly.²⁴⁸ While not specifically mentioning who the perpetrators of these cyber-attacks were, lots of hints led to the recognition of China as being on the receiving end of the American statement. And indeed, just two days after this announcement, a paper written by two Chinese Military School Professors was published, ascertaining China’s position that it would react to any challenge posed and that it was in fact the USA that engaged in a shadow war of hacking and electronic system infiltration.²⁴⁹ Whatever the truth may be behind both these statements, it is evident that satellite military or military-related systems are in the front line of these cyber-attacks,

²⁴⁷ Patrick A. Salin, *Space Law, The U.S. National Missile Defense Initiative and The Common Concern for Global Security*, 27 ANNALS AIR & SPACE L. 535, 542 (2002).

²⁴⁸ Siobahn Gorman & Julian E. Barnes, *Cyber Combat: Act of War – Pentagon Sets Stage for U.S. to Respond to Computer Sabotage with Military Force*, WALL ST. J., (May 31, 2011, 12:01 AM), <http://online.wsj.com/articles/SB10001424052702304563104576355623135782718>.

²⁴⁹ Associated Press & Lambraki Journal Corporation, *Beijing Accuses Washington of a “Shadow Internet War”*, June 3, 2011, www.in.gr [in Greek] (citing a relevant article published in *China Youth Daily* by Professors of the Chinese Military Sciences Academy).

thus causing completely new concerns about international peace and security. It would thus be prudent to briefly address the issue of cyber-attacks against satellites and other space-related systems.

“Cyber-attack” is an attack on or through cyberspace,²⁵⁰ i.e. the Global Information Infrastructure,²⁵¹ and constitutes part of what is commonly known in the armed forces as “informative warfare.”²⁵² Commercial satellites also used for military purposes are considered prime targets for this kind of warfare, since no direct confrontation with a traditional organised army is required, while the results of a successful attack are anything but negligible.²⁵³

But as already discussed in Part I of the present Article, in order for a State to lawfully exercise its right to self-defence, it must be faced with an armed attack. The question at hand is whether a cyber-attack can be considered as an armed attack, under the *Nicaragua* rationale. It has been suggested that since a cyber-attack against a satellite, if not performed in self-defence or under Security Council authorisation,²⁵⁴ can effectively incapacitate it,²⁵⁵ thus infringing the sovereign rights of the launching State.²⁵⁶ The combination of these three elements suffices for a cyber-attack to be considered an armed attack.²⁵⁷ If that is the case, for which the present author is highly sceptical, then the following considerations must be taken into account.

First, what is the status of the programmers engaged in hacking enemy systems? The traditional *ius in bello* recognises only two categories of persons: combatants and civilians. As already discussed in Part I of the present Article, combatants must be distinguished from civilians at all times, and military targets must not be concealed among civilian property, so as to respect the

²⁵⁰ *The Use of Force in Response to Cyber Attack on Commercial Space Systems*, *supra* note 22, at 1220.

²⁵¹ US National Defence Panel, *Transforming Defence: National Security in the 21st Century*, www.dtic.mil/ndp/FullDoc2.pdf.

²⁵² *The Use of Force in Response to Cyber Attack on Commercial Space Systems*, *supra* note 22, at 1221.

²⁵³ See James Adams, *Virtual Defense*, 80 FOREIGN AFF. J. 105 (2001).

²⁵⁴ G.A. Res. 3314 (XXIX), art. 6, U.N. Doc. A/RES/3314 (Dec. 14, 1975).

²⁵⁵ *Id.* art. 2.

²⁵⁶ *Id.* art. 3(b).

²⁵⁷ *The Use of Force in Response to Cyber Attack on Commercial Space Systems*, *supra* note 22, at 1258.

principle of distinction. Are these requirements met in the case of hacking teams engaging in cyber-attacks against satellite systems of various States under the directions of their State? Little is known as to where the “base” of such persons is located, if they are military or civilian personnel, if they are wearing uniforms and carry visible military insignia, as per the requirements of Article 48 of the First Additional Protocol to the Geneva Conventions. The fact remains that, if we accept that a cyber-attack constitutes an armed attack, then the persons responsible for perpetrating such attack are to be considered combatants, with all the protection and hazards that such a characterisation entails under International Humanitarian Law.

Second, the principles of necessity and proportionality must be taken into consideration when deciding on what action to take against these cyber-attacks. Only the action that is necessary for the defence against the specific attack must be taken. The action must be proportionate to the objective the military seeks to achieve, meaning that it must not create excessive suffering or collateral damage to civilians and other non-military objectives.²⁵⁸ That being the case, it would seem that an armed response to a cyber-attack would be disproportionate and unnecessary, unless it can be restricted only against the programmers/combatants engaged in the informative warfare and only within the walls of their base, for it is doubtful that their combatant status follows them throughout the day, even after they have left their work station. A more adequate measure would seem to respond to cyber-attacks by cyber-attacks, introducing thus an element of reciprocity in the treatment of the situation and the personnel involved therein. However, even these cyber-attacks must be proportionate. A State cannot order the destruction of the complete network of another State, if that is even possible, in response to a cyber-attack. Actions must remain restricted to the extent of the loss suffered or the injury attempted, at least for as long as international law does not directly address these newly emerging issues.

²⁵⁸ See Part I for relevant bibliography.

C. Proposals for dewateronisation: the Russian-Chinese Draft PPWT.

Following the completion of the most recent ASAT tests, China and Russia decided to come together and propose a draft for a new space treaty. In March 2008 they proposed a draft treaty, whose title was “Treaty on the Prevention of Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects.”²⁵⁹ In its Preamble the drafters of the PPWT recognise the right of every nation to freely explore and use outer space and by implication that the existence of weapons in space might threaten the rights of others. They also note that outer space should be kept as a sphere outside any military confrontation, thus assuring the survival of satellites. Finally, the importance of the commitments achieved through PAROS for the proper use of space by all nations is also recognised. The draft PPWT aims to address and resolve some issues that the two proposing States felt remained unanswered by the current legal regime governing outer space.

The first issue that the PPWT takes note of is the need to have a fixed delimitation of the air space / outer space boundary. Article 1 (a) of the PPWT sets this boundary at approximately 100 km over the ocean level of the Earth. In fact, this suggestion is nothing more than a repetition of an informal agreement reached amongst States, while official discussions on the matter remain open within the COPUOS.

The second very important definition provided by the PPWT is that of “weapons in outer space.”²⁶⁰ The proposed definition includes “any device placed in outer space, based on any physical principle, specially produced or converted to eliminate, damage or disrupt normal function of objects in outer space, on the Earth or in its air, as well as to eliminate population, components of biosphere critical to human existence or inflict damage to them.”²⁶¹ However, a careful reading of this definition will show that the issue of earth-based ASAT weapons is not dealt with at all. If the

²⁵⁹ 2008 Draft Treaty on the Prevention of Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects, www.reachingcriticalwill.org/political/cd/papers08/1session/Feb12%20Draft%20PPWT.pdf [hereinafter PPWT].

²⁶⁰ *Id.* art. 1(c).

²⁶¹ *Id.*

purpose of the PPWT is indeed to prevent the use of force in outer space, then ASAT weapons cannot be left outside the regulatory scope of its provisions, as that would create a significant loophole undermining the very philosophy of the treaty from the inside. The truth of the matter is that a fixed and agreed upon definition of what constitutes a space weapon, or for that matter simply a weapon, has not yet been reached, although scholars have made various suggestions and interpretations.²⁶² Furthermore, “a weapon will be considered as “placed” in outer space if it orbits the Earth at least once, or follows a section of such an orbit before leaving this orbit, or is stationed on a permanent basis somewhere in outer space.”²⁶³ This definition also does not cover earth-based ASAT weapons, although one could argue that the clause about following just a section of an orbit might be a hint to that direction.

Last but not least, as far as the definitions go, the PPWT provides a definition for the term “space object,” which is admittedly rather obscure under the current legal regime. The proposed definition reads as follows:

The term “outer space object” means any device, designed for functioning in outer space, being launched into an orbit around any celestial body, or being in the orbit around any celestial body, or on any celestial body except the Earth, or leaving the orbit around any celestial body towards this celestial body, or moving from any celestial body towards another celestial body, or placed in outer space by any other means.²⁶⁴

The proposed definition is fairly comprehensive and encompassing of all potential scenarios of the use of a space object. From the definition it is made clear that objects such as ballistic missiles or sounding rockets are not covered by the PPWT, which could, again, be proven detrimental to the purposes of the treaty.

²⁶² See Theresa Hitchens, *Monsters and Shadows: Left Unchecked American Fears Regarding Threats to Space Assets Will Drive Weaponization*, 5 DISARMAMENT FORUM 15 (2003); Justin McClelland, *The Review of Weapons in Accordance with Article 36 of Additional Protocol I*, 850 INT'L REV. RED CROSS 397, 404 (2003).

²⁶³ PPWT, *supra* note 259, art. 1(d).

²⁶⁴ *Id.* art. 1(b).

Article II of the PPWT introduces the basic prohibition of placement of weapons in space and of their use or threat of use. In particular, it reads as follows:

States Parties undertake not to place in orbit around the Earth any objects carrying any kind of weapons, not to install such weapons on celestial bodies, and not to station such weapons in outer space in any other manner; not to resort to the threat or use of force against outer space objects; not to assist or encourage other states, groups of states or international organizations to participate in activities prohibited by the Treaty.²⁶⁵

The issue mentioned in the definitions is yet again noted here. The prohibition only includes those weapons that are placed in space, the emphasis being solely put in this domain. No mention is made as to earth-based, sea-based or air-based ASAT weapons, which could still be used by the member States of the treaty, if it were to be adopted. A potential solution to this problem could be given by the provision of Article III of the PPWT, according to which State Parties “shall take all necessary measures to prevent any activity prohibited by the Treaty on its territory or in any other place under its jurisdiction or control.”²⁶⁶ However, this provision too seems problematic, as States can still act from places beyond any national jurisdiction or control, such as the high seas or the international air space. It could be argued that “place” would also include State aircraft and warships found in these locations; however an interpretation according to the ordinary meaning of the word²⁶⁷ would preclude such an assumption. Additionally, the prohibited use of force is directed only against space objects and not other States in general. This would mean that an attack with an earth-based, fixed or mobile, weapon operating through space against another State would not be covered by the PPWT. Despite this, one should not fail to notice that the prohibition of weapons contained in both Articles II and III encompasses all kinds of weapons, not just nuclear and weapons of mass

²⁶⁵ *Id.* art. 2.

²⁶⁶ *Id.* art. 3.

²⁶⁷ VCLT, *supra* note 99, art. 33,§1.

destruction, as is the case with the relevant provisions of the Outer Space Treaty and the Moon Agreement.

Articles IV and V act as the fall-back provisions for the application of general public international law alongside those of the PPWT. They respectively read as follows:

Article IV: Nothing in this Treaty can be interpreted as impeding the rights of the States Parties to explore and use outer space for peaceful purposes in accordance with international law, which include but are not limited to the Charter of the United Nations and the Outer Space Treaty.

Article V: Nothing in this Treaty can be construed as impeding the realization by the States Parties of the sovereign right for self-defense in accordance with Article 51 of the Charter of the United Nations.

These provisions seem to be in accordance with the existing legal regime, both of general public international law and of space law in particular. The choice of separation in two articles, one making a general reference to the rights recognised under the Charter and the Outer Space Treaty and one with explicit reference to the right of self-defence, is presumably aimed to clarify any confusion created with the obligation to use outer space for peaceful purposes.

Article VI of the PPWT is perhaps the most poorly drafted article contained in the proposal. It addresses the issue of verification in the following words:

With a view to facilitate assurance of compliance with the Treaty provisions and to promote transparency and confidence-building in outer space activities the States Parties shall practice on a voluntary basis, unless agreed otherwise, agreed confidence-building measures.

Measures of verification of compliance with the Treaty may be the subject of an additional protocol.²⁶⁸

This Article more or less proposes that verification of the spatial activities of the other State Parties to the treaty is done

²⁶⁸ PPWT, *supra* note 259, art. 6.

through voluntary measures, after a relevant agreement. The whole mechanism is rather confusing and it obviously leaves a rather wide margin of negotiations for the States to resolve any pertinent issues at a later time, with an additional protocol. To be noted, that such a protocol may, and not shall, be adopted, meaning that the States could very well turn a blind eye on the obligation to agree upon the measures of verification to be voluntarily used under the PPWT.

Last but not least, the draft PPWT envisions the creation of an Executive organisation of the treaty, with, among others, dispute settlement resolution powers. The relevant provisions are included in Articles VII and VIII, the text of which follows:

Article VII: When a dispute arises between States Parties concerning the application or the interpretation of the provisions of this Treaty, the parties concerned shall first consult together with a view to settling the dispute by negotiation and cooperation.

When the parties concerned do not come to an agreement after consultation, the disputed situation that has arisen may be referred to the Executive organization of the Treaty along with provision of the relevant argumentation.

Each State Party shall undertake to cooperate in the settlement of the disputed situation that has arisen with the Executive organization of the Treaty.

Article VIII: To promote the implementation of the objectives and the provisions of the Treaty, States Parties shall establish the Executive organization of the Treaty which shall:

- a) receive for consideration inquiries by any State Party or a group of States Parties related to the grounds that have arisen to believe that the violation of the Treaty by any State Party is taking place;
- b) consider matters concerning the compliance with the obligations taken by States Parties;
- c) organize and conduct consultations with the State Parties with the view to settle down the situation that has

arisen in connection with the violation of a State Party of the Treaty;

d) take measures to put an end to the violation of the Treaty by any State Party.

The title, status, specific functions and forms of work of the Executive organization of the Treaty shall be the subject of an additional protocol to the Treaty.²⁶⁹

The most important issue with regards to the proposed treaty though, is that it provides no solution as to what is to happen to the already existing military satellites in outer space carrying non-prohibited weapons. There is no replacement, mutual destruction or other kind of mechanism in the treaty towards this end. Perhaps if such a provision was included, States that already possess such satellites would refuse from the outset any kind of discussion over this draft. On the contrary, as it currently stands, the draft has caught the attention of numerous States, who have submitted relevant comments with regards to the proposed measures.²⁷⁰ However, not all major space-faring nations are amenable to the conclusion of such a treaty. The USA in particular oppose any restrictions that might limit its access to or use of space, including any potential arms control agreements, testing or other operations in outer space.²⁷¹

D. Proposals for denuclearisation: the 2010 European Draft Code of Conduct for Outer Space Activities.

The European Union has always been active in the exploration and use of Outer Space, having within its members really active space-faring nations, such as France, Germany, the United Kingdom etc. However, the European Union Member States still maintain a rather high degree of individuality when it comes to their space activities, which has so far not allowed for the creation of a coherent European Space Policy, although it is greatly desired

²⁶⁹ *Id.* arts. 7 & 8.

²⁷⁰ Ram S. Jakhu, *Law of Space Applications, Documents and Materials 1852-1898* (McGill Institute of Air and Space Law, Montreal 2011).

²⁷¹ Paul Stephen Dempsey, *The Evolution of US Space Policy*, 33 *ANNALS AIR & SPACE L.* 325, 334 (2008); USA National Security Presidential Directive, *National Space Policy 2006*, at 2, available at www.ostp.gov.

by everyone.²⁷² Consequently, despite substantial efforts towards the creation of a common European Space Military, this option has not yet come to be.²⁷³

The European Union has not remained passive, however, on the face of challenges such as the ones presented above. Like Russia and China, the European Union has presented its own international instrument addressing some of the issues caused by the militarisation of outer space. Unlike Russia and China though, the European Union has opted for a non-binding instrument, and has hence presented a draft Code of Conduct for Outer Space Activities.²⁷⁴ The draft Code is an attempt to minimize the negative impact of certain activities, to make space more sustainable and indirectly control the militarisation and weaponisation of outer space. It has been agreed upon by the European Union, revised following consultations with other space faring nations and presented to the Conference on Disarmament, as an alternative method of regulating existing issues with regards to space. It reflects the fundamental premise of the European Union for the strengthening the security of activities in outer space in the context of expanding space activities that contribute to the development and security of States.²⁷⁵ The first purpose of the draft Code is to encourage participation on a voluntary basis in measures for transparency, confidence building etc., not exclusively by the European Union States, but also by as many States as possible in general.²⁷⁶ The ultimate purpose is to maintain international peace and security,²⁷⁷ through the freedom of access to space for all, for peaceful purposes and the preservation and security of space objects, taking into account the considerations for legitimate defence of States.²⁷⁸ The drafters of the Code made an effort to show that it was actually a codification of new best practices,²⁷⁹

²⁷² Isabelle Soubrière-Vergier, *La militarisation de l'espace: perspective européenne*, 29 ANNALS AIR & SPACE L. 357, 359 (2004).

²⁷³ *Id.* at 374.

²⁷⁴ European Council Document 14455/10 (2010), *Council Conclusions concerning the revised draft Code of Conduct for Outer Space Activities* [hereinafter Draft Code of Conduct].

²⁷⁵ *Id.* at 2.

²⁷⁶ *Id.* art. 1, §4.

²⁷⁷ *Id.* art. 1, §1.

²⁷⁸ *Id.* art. 2.

²⁷⁹ *Id.* art. 1, §3.

though in fact it is, as the following analysis of the most important provisions will demonstrate, a reiteration of the current legal regime governing outer space.

In particular, under Article 3 of the Draft Code of Conduct, Subscribing States take to re-affirm their commitment to the existing legal framework and take steps of progress, application and adherence to the following international instruments:

(a) the existing framework regulating outer space activities, inter alia:

- the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967);
- the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1968);
- the Convention on International Liability for Damage Caused by Space Objects (1972);
- the Convention on Registration of Objects Launched into Outer Space (1975);
- the Constitution and Convention of the International Telecommunications Union and its Radio Regulations (1995), as amended;
- the Treaty banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water (1963) and the Comprehensive Nuclear Test Ban Treaty (1996); and
- the International Code of Conduct against Ballistic Missile Proliferation(2002).

(b) Declarations and Principles, inter alia:

- the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space as adopted by UNGA Resolution 1962 (XVIII), (1963);

- the Principles Relevant to the Use of Nuclear Power Sources in Outer Space as adopted by UNGA Resolution 47/68 (1992);
- the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries as adopted by UNGA Resolution 51/122 (1996); and
- the Recommendations on the Practice of States and International Organisations in Registering Space Objects as stated in UNGA Resolution 62/101 (2007).²⁸⁰

Emphasis should be given to the characterisation of States just before the listing of the aforementioned instruments. States are called “subscribing,” for they are not bound by the Code of Conduct, nor do they have to be Parties or signatories to the aforementioned instruments. It should also be noted that the Moon Agreement does not form part of the list of instruments of Article 3, whereas non-binding documents, such as the 1962 Legal Principles Resolution, which was later incorporated in the Outer Space Treaty, or the principles relevant to the use of nuclear power sources and the declaration on international cooperation, are included in this enumeration. It is doubtful that the inclusion of this soft law instruments in another soft law document, such as the Code of Conduct, will somehow strengthen their legal value. Without being too cynical about it, one would have to assume that there must be some kind of intention behind this inexplicable choice, for it would be too easy to just think of this selection as the result of “clumsy” drafting.

Article 5 of the Draft Code of Conduct addresses the issue of space debris, in providing that States should “refrain from the intentional destruction of any on-orbit space object or other activities which may generate long-lived space debris.”²⁸¹ Reference is also made to the UN Space Debris Mitigation Guidelines²⁸², however it makes no further references to what States should do to

²⁸⁰ *Id.* art. 3.

²⁸¹ *Id.* art. 5, §1.

²⁸² G.A. Res. 62/217, U.N. Doc. A/RES/62/217 (Feb. 1, 2007).

remove the existing debris, or indeed provide any tangible example of best practices in this field.

Last but not least, some special attention should be paid to the provisions of Articles 6, 8 and 9, which are all included under the general title “Cooperation Mechanisms” and respectively read as follows:

Article 6. Notification of outer space activities

6.1. The Subscribing States commit to notify, in a timely manner, to the greatest extent feasible and practicable, all potentially affected Subscribing States on the outer space activities conducted which are relevant for the purposes of this Code, *inter alia*:

- scheduled manoeuvres which may result in dangerous proximity to the space objects of both Subscribing and non-Subscribing States;
- pre-notification of launch of space objects;
- collisions, break-ups in orbit, and any other destruction of space objects generating measurable orbital debris which have taken place;
- predicted high-risk re-entry events in which the re-entering object or residual material from the re-entering object either likely would survive to cause potential significant damage, or might cause radioactive contamination; and
- malfunctioning of orbiting space objects which could result in a significantly increased probability of a high risk re-entry event or a collision between space objects in orbit.

6.2. The Subscribing States commit to provide the notifications described above through diplomatic channels, or by any other method as may be mutually agreed.

Article 8. Information on outer space activities

8.1. The Subscribing States resolve to share, on an annual basis, where available and appropriate information on:

- their space policies and strategies, including basic objectives for security and defence related activities in outer space;
- their space policies and procedures to prevent and minimise the possibility of accidents, collisions or other forms of harmful interference;
- their space policies and procedures to minimise the creation of space debris; and
- efforts taken in order to promote universal adherence to legal and political regulatory instruments concerning outer space activities;

8.2. The Subscribing States may also consider providing timely information on space environmental conditions and forecasts to the governmental agencies and the relevant nongovernmental entities of all space faring nations, collected through their space situational awareness capabilities.

Article 9. Consultation mechanism

9.1. Without prejudice to existing consultation mechanisms provided for in Article IX of the Outer Space Treaty of 1967 and in Article 56 of the ITU Constitution, the Subscribing States have decided on the creation of the following consultation mechanism:

- A Subscribing States that may be directly affected by certain outer space activities conducted by one or more Subscribing State(s) and has reason to believe that those activities are, or may be contrary to the core purposes of the Code may request consultations with a view to achieving mutually acceptable solutions regarding measures to be adopted in order to prevent or minimise the inherent risks of damage to persons or property, or of potentially harmful interference to a Subscribing State's outer space activities.
- The Subscribing States involved in a consultation process commit to:

- consulting through diplomatic channels or by other methods as may be mutually determined; and
 - working jointly and cooperatively in a timeframe sufficiently urgent to mitigate or eliminate the identified risk initially triggering the consultations.
- Any other Subscribing State(s) which has reason to believe that its space activities would be affected by the identified risk and requests to take part in the consultations is entitled to take part, with the consent of the Subscribing State(s) which requested consultations and the Subscribing State(s) which received the request.
 - The Subscribing States participating in the consultations are to seek mutually acceptable solutions in accordance with international law.

9.2. In addition, the Subscribing States may propose, on a voluntary basis, to create a mechanism to investigate proven incidents affecting space objects and to collect reliable and objective information facilitating their assessment. The mechanism, to be determined at a later stage, should utilize information provided on a voluntary basis by the Subscribing States, subject to national laws and regulations, and a roster of internationally recognised experts to undertake an investigation. The findings and any recommendations of these experts are to be advisory, and are not binding upon the Subscribing States involved in the incident that is the subject of the investigation.²⁸³

Presented in their entirety, these provisions clearly demonstrate the intention of recirculating, or perhaps even duplicating, already existing information, exchanged among States through COPUOS, by the creation of completely new and different mechanisms, such as biannual meetings of the subscribing States. The creation of an additional layer of international dialogue, as a means of solving the existing problem resulting from the various

²⁸³ Draft Code of Conduct, *supra* note 274, arts. 6, 8 & 9.

military uses of outer space, appears to the more sceptical eyes as a further attempt to by-pass the UN institutions and segregate outer space from its jurisdiction.

E. The issue of verification of space objects.

The issue of verification has been almost synonymous to the effort to control an arms race at a global level ever since World War II. At first aimed primarily towards monitoring the compliance of disarmament of nuclear weapons, verification has nowadays gone a long way from the 1962 proposals of both the USSR and the USA about a “general and complete disarmament” that included relevant verification procedures.²⁸⁴ As a process tied to an arms control instrument, verification takes place in three different stages: first, the activities of the parties to the disarmament treaty have to be mutually monitored; second, the information resulting from such monitoring procedure must be interpreted and analysed; and third, an assessment must be made as to what kind of risk the activities of the monitored State parties pose for the security of the monitoring and assessing State.²⁸⁵ It is evident that the greatest burden of the verification process falls upon the shoulders of the intelligence services worldwide, as they are expected to perform all three stages before final action, if any, is to be taken. For indeed, even in cases where violations of a disarmament treaty have been discovered through the verification process, it is not necessary that action was taken against the violating State. Disarmament treaties are a prime example of international law working on the basis of reciprocity: if one State does not fulfil its international obligation *vis-à-vis* its contractual counterparts, then they in return can delay the fulfilment of theirs, action which could be easily described as taking countermeasures against the offending State.²⁸⁶ In fact, a State or the States towards this obligation is owed can assert the international respon-

²⁸⁴ See Nicolas Mateesco Matte, *International Verification Procedures: Past and Future Prospects*, 11 ANNALS AIR & SPACE L. 237 (1986).

²⁸⁵ ISABELLA H. PH. DIEDERIKS-VERSCHOOR & VLADIMIR. KOPAL, AN INTRODUCTION TO SPACE LAW 138 (Kluwer Law International 2008).

²⁸⁶ Linos-Alexandre Sicilianos, *Les réactions décentralisées à l'illicite: Des contre-mesures à la légitime défense* 501-525 (Librairie générale de droit et de jurisprudence, Paris 1990).

sibility of the State violating the provisions of the disarmament instrument, as its non-compliance “[i]s of such a character as radically to change the position of all the other States to which the obligation is owed with respect to the further performance of the obligation.”²⁸⁷ Additionally, the affected State or States can in fact suspend or even terminate the disarmament treaty, even towards those other Parties that were at all times acting lawfully,²⁸⁸ since the obligation of lawful performance is effectively conditioned upon and requires the performance of all the other parties as well.²⁸⁹ A strong interest on behalf of all State parties in the cessation and the reparation of the unlawful act is a precondition to claiming such international responsibility,²⁹⁰ which evidently exists in the case of reducing space arsenals in a significant manner.

Verification is indeed believed to be a *conditio sine qua non* for the concluding of an arms control agreement.²⁹¹ Scholars have been actively advocating the need to enhance the equipment available, mostly on military satellites, so that more accurate and precise data can be collected, making it thus easier to discover violations of the agreement and leaving little room to the violating State to conceal its unlawful conduct.²⁹²

Therefore, one of the most important provisions of the ABM treaty and the SALT-I is that prohibiting any interference with the “national technical means”²⁹³ of the other party, used for treaty compliance verification purposes.²⁹⁴ Although not defined in

²⁸⁷ ASR, *supra* note 50, art. 42(b)(ii).

²⁸⁸ VCLT, *supra* note 99, art. 60, §2.

²⁸⁹ ASR, *supra* note 50, at 119.

²⁹⁰ *Id.*

²⁹¹ Carl Q. Christol, *The Use of Outer Space for Peaceful Purposes, Legal and Political Considerations*, in PROCEEDINGS 28TH COLLOQUIUM 4-7 (Stockholm 1985); A. S. Piradov & B. C. Maiorsky, *On the Question of the Non-Use of Force in Outer Space and from Space Against the Earth (components of an international legal regime)*, in PROCEEDINGS 27TH COLLOQUIUM 349-353 (Lausanne 1984); Nicolas Mateesco Matte, *International Verification Procedures: Past and Future Prospects*, 11 ANNALS AIR & SPACE L. 237 (1986); Ivau Kotlyarov, *Space Law and International Control*, 3 SPACE & L. 147 (1985).

²⁹² HE QIZHI, I TOWARDS LEGAL CONTROL OF SPACE ARMS, A DIFFICULT PROCESS, ARMS CONTROL AND DISARMAMENT IN OUTER SPACE 125-141 (1985).

²⁹³ David A. Koplow, *Arms Control Inspection: Constitutional Restrictions on Treaty Verification in the United States*, 63 N.Y.U. L. REV. 229, 240 (1988); Louis Haeck, *Le droit de la guerre spatiale*, 16 ANNALS AIR & SPACE L. 307, 329 (1991).

²⁹⁴ ABM Treaty, *supra* note 236, art. XII; SALT I, *supra* note 236, art V.

these instruments, it was understood that “national technical means” referred to the intelligence capacities of a State used to collect data from outside the monitoring State,²⁹⁵ including land-based and mobile radar, various kinds of sensors and reconnaissance satellites and space-based sensors.²⁹⁶ A similar provision was also included in the Treaty on Conventional Armed Forces in Europe,²⁹⁷ concluded between the then NATO States and six former States of the Warsaw Pact, the only exception being that the protection from interference is also granted to multinational technical verification means.²⁹⁸ The CFE Treaty nowadays has been amended to include as many as 30 States, preventing them from interfering purposefully with the national technical means of the other signatories, unless acting in self-defence or under a Security Council authorisation.²⁹⁹

It should be noted however that the ABM Treaty and the SALT-I were not the only effort to address the issue of disarmament verification. In fact, in 1978 France proposed the creation of an International Satellite Monitoring Agency (IMSA)³⁰⁰ for the purposes of verifying the progress of arms control and disarmament agreements,³⁰¹ a suggestion which was most welcome by the academic community.³⁰² Despite the positive reaction of the academic world and the fact that nothing in international law in general and space law in particular prevents the establishment of such an international monitoring organisation, the French proposal was dropped, as the USA considered the project financially unattractive, with the USSR making no comments at the time.³⁰³

²⁹⁵ Christopher M. Petras, “Eyes” on Freedom – A View of the Law Governing Military Use of Satellite Reconnaissance in US Homeland Defense, 31-I J. SPACE L. 81, 91 (2005).

²⁹⁶ Koplow, *supra* note 293.

²⁹⁷ 1990 Treaty on Conventional Armed Forces in Europe, 30 I.L.M. 1 [hereinafter CFE Treaty].

²⁹⁸ *Id.* art. XV.

²⁹⁹ Christopher Petras, *The Debate over the Weaponization of Space – A Military-Legal Conspectus*, 28 ANNALS AIR & SPACE L. 171, 194 (2003).

³⁰⁰ G.A. Devoted to Disarmament, *French Proposal for Establishment of Int’l Satellite Monitoring Agency (ISMA)*, U.N. Doc. A/S-10/AC.1/7 (June 1, 1978).

³⁰¹ Ram Jakhu & Riccardo Trecroce, *International Satellite Monitoring for Disarmament and Development*, 5 ANNALS AIR & SPACE L. 509, 511 (1980).

³⁰² He Qizhi, *Space Arms Control and International Verification*, in AN ARMS RACE IN OUTER SPACE, PROCEEDINGS OF A SYMPOSIUM 119-125 (McGill University 1985).

³⁰³ DIEDERIKS-VERSCHOOR, *supra* note 285, at 139.

A little more than a decade later though, and just before its collapse, the USSR proposed the creation of a monitoring organ within the UN for the purposes of arms control and disarmament treaty compliance verification purposes.³⁰⁴ In the meantime, the USSR had made repeated proposals to the UN about the adoption of an international instrument of complete space disarmament.³⁰⁵ All proposals included verification processes, which would be realized by the use of national technical means,³⁰⁶ which were to be protected.³⁰⁷ In fact, these proposals echoed to a great extent the provisions already included in the ABM Treaty and the SALT-I and SALT-II, which were however binding only between the USA and the USSR. Despite any weaknesses, scholars seemed amenable towards the adoption of the instruments proposed by the USSR, since they believed “it could serve the cause of strengthening confidence among States in the process of demilitarization of outer space,”³⁰⁸ as the use of force anywhere in space and against any space object placed anywhere in space (space, orbit, celestial body) was expressly prohibited.³⁰⁹ The Soviet proposals were further supported by the very optimistic plan proposed in the mid-1980s by the USSR to eliminate nuclear weapons by the beginning of the new millennium, which would combine the creation of a nuclear free world with the maintenance of a peaceful outer space.³¹⁰ None of the proposals made by the USSR managed to acquire sufficient support in the UN so as to be adopted. Instead, throughout the

³⁰⁴ G. P. Sloup, *Arms Control Verification – The Poor Person’s Approach*, in PROCEEDINGS 29TH COLLOQUIUM 77-83 (Innsbruck 1986); Bhupendra Jasani, *ISMA – Will it ever happen?*, 8 SPACE POL’Y 13 (1992).

³⁰⁵ G.A. Res. 36/192, U.N. Doc. A/36/192 (Dec. 17, 1981); G.A. Res. 38/194, U.N. Doc. A/38/194 (Dec. 20, 1983).

³⁰⁶ Sune Danielsson, *Examination of Proposals Relating to the Prevention of an Arms Race in Outer Space*, in NANDASIRI JASENTULIYANA (ED.), MAINTAINING OUTER SPACE FOR PEACEFUL PURPOSES – PROCEEDINGS OF A SYMPOSIUM HELD BY THE UNITED NATIONS UNIVERSITY 277-289, at 281 (The Hague 1984).

³⁰⁷ Article 4 Draft Treaty on the Prohibition of the Stationing of Weapons of Any Kind in Outer Space: Article 4 Draft Treaty on the Prohibition of Use of Force in Outer Space and From Space against the Earth.

³⁰⁸ Carl Q. Christol, *Arms Control and Disarmament in Space: The Rough Road to Vienna 1984*, 1 SPACE POL’Y 26, 41 (1985).

³⁰⁹ Yuri M. Kolossov, *Non-Use of Force in Outer Space*, in PROCEEDINGS 26TH COLLOQUIUM 205-209 (Budapest 1983).

³¹⁰ Vladlen S. Vereshchetin, *Strategic Defense Initiative and International Law*, in PROCEEDINGS 29TH COLLOQUIUM 94-99 (Innsbruck 1986).

1980s and henceforth, the UN had entered the soft law era of space law. Just in 1981 as many as 48 Resolutions were adopted by the General Assembly with regards to disarmament. For the purposes of the present Article, the most important of them was the Resolution Preventing an Arms Race in Outer Space,³¹¹ for it was the beginning of the PAROS era.

EPILOGUE

The present Article attempted to highlight some of the problems that the rapid increase of and dependence upon military applications of outer space has created. While voices have been heard that the current legal regime is vulnerable to the challenges posed by the ever-developing State practice in the field of space militarisation,³¹² it is my contention that the current legal regime, if applied correctly and consistently, can address the majority of these problems.

Under Part I, it was demonstrated that general space law and general public international law can coexist harmoniously, in order to maintain international peace and security, an aspect of which is safeguarded by demanding the use of outer space for peaceful purposes. While the term “peaceful” has been considered as rather nebulous,³¹³ its true meaning can be understood better when put in context. The oxymoron of allowing non-aggressive military uses of space is in fact perfectly rational: if we accept that measures utilising force can be taken down on Earth for the maintenance, or even restoration, of international peace and security, then we have to accept that similar measures should be considered permissible under international space law. Examples of military uses of civilian/commercial space assets,³¹⁴ especially when under the auspices of the UN, such as those of INMARSAT during the early 1990s,³¹⁵ further prove this point. General international law has developed over the years to a sufficient degree to

³¹¹ G.A. Res. 36/97, U.N. Doc. A/RES/36/97C (Dec. 9, 1981).

³¹² DIEDERIKS-VERSCHOOR, *supra* note 285, at 144.

³¹³ Stephen Gorove, *Arms Control Provisions in Outer Space Treaty: A Scrutinizing Reappraisal*, 3 GA. J. INT'L & COMP. L. 114, 120 (1973).

³¹⁴ See Morgan, *supra* note 150.

³¹⁵ Wolf D. von Noorden, *INMARSAT Use by Armed Forces: A Question of Treaty Interpretation*, 23-I J. SPACE L. 1, 8 (1995).

allow for specific prerequisites to determine the lawfulness of State action with regards to outer space,³¹⁶ prerequisites that contemporary (defensive) technology can in fact meet, or should at least strive to meet through improvement.

Part II addressed some of the contemporary challenges to the current legal regime,³¹⁷ by providing specific examples of action and the proposed methods of resolving the problematic situations. The proposals submitted by various States and the reluctance or enthusiasm with which they were treated by the international community prove in the clearest way possible that the prospect of amending the current legal framework in order to modernise it, will be nothing short of a cumbersome and time-consuming endeavour. With the situation in outer space changing so rapidly, it is questionable whether the international community can afford the wait and the quantities of ink to be spilled, before a compromising solution can be reached. And indeed, a compromise would be necessary, in order to balance the conflicting interests of actual and potential space-faring Nations, which do not partake in the space race on an equal financial, technological and capacity footing.³¹⁸ The antagonism demonstrated with the recent ASAT tests is just the tip of what could be a really big iceberg of a Cold-War-reminiscent arms race between incumbent and emerging space powers.³¹⁹ It would seem more prudent for States to re-evaluate their own conduct, so as to make it compatible with both the letter and the spirit of the law as it stands, instead of seeking to bend the law to their will.³²⁰ It is true that what is urgently needed is the standardisation of terms and expression in the legal instruments currently in effect; however the current state of things shows that States lack the political will to engage in such a fruitful and meaningful discussion, all being preoccupied and focused on their individual interests.

³¹⁶ See Ricky J. Lee, *The Jus ad Bellum in Spatialis: The Exact Content and Practical Implications of the Law on the Use of Force in Outer Space*, 29-I J. SPACE L. 93 (2003).

³¹⁷ See Nair, *supra* note 224.

³¹⁸ Stephen Gorove, *Arms Control in Space: Issues and Alternatives*, 33 ZEITUNG FÜR LUFT UND WELTRAUMRECHT 191, 194 (1984).

³¹⁹ Maogoto, *supra* note 11, at 17.

³²⁰ See Major David L. Willson, *An Army View of Neutrality in Space: Legal Options for Space Negation*, 50 A.F. L. REV. 175 (2001).

If anything, what I believe is really needed in outer space, is closer, international, honest and meaningful cooperation among all States,³²¹ in order to safeguard the continuous enjoyment of space-related benefits. It is important to remember that such cooperation is not a eulogy, but in fact an international legally binding obligations upon States, pursuant to Article IX of the OST.³²² The new conditions created by the increasing correlation between civilian and military applications of outer space will continue to challenge the current legal framework, due to the (presumed) implications created for national security.³²³ States must face these new developments on a multilateral, global level, even more so when they are, actually or potentially, affecting international peace and security.

³²¹ See Eilene Galloway, *Maintaining International Space Cooperation for Peaceful Uses*, 30-II J. SPACE L. 311 (2004).

³²² Michael C. Mineiro, *FY-1C and USA-193 ASAT Intercepts: An Assessment of Legal Obligations Under Article IX of the Outer Space Treaty*, 34-II J. SPACE L. 321, 340 (2008).

³²³ See Captain Michael R. Hoversten, *U.S. National Security and Government Regulation of Commercial Remote Sensing from Outer Space*, 50 A.F. L. REV. 253 (2001); Major Christopher M. Petras, "Space Force Alpha": *Military Use of the International Space Station and the Concept of "Peaceful Purposes"*, 53 A.F. L. REV. 135 (2004); Major Elizabeth S. Waldrop, *Integration of Military and Civilian Space Assets: Legal and National Security Implications*, 55 A.F. L. REV. 157 (2006).

NEW HABITS AND HARD LAW: PUTTING OLD SOFT LAW “SANCTIONS” AND THE SPACE DEBRIS EPIDEMIC OUT TO PASTURE

*George T. Lyons III**

INTRODUCTION

On January 11, 2007, the People’s Republic of China undertook an Anti-Satellite Technology (ASAT) interception of the FY-1C weather satellite at an altitude of approximately 525 miles above the earth’s surface. Although there have been numerous criticisms advanced concerning the actual interception and its ineffectiveness in minimizing the amount of debris this event created, the largest body of international disapproval has come from the events leading up to the actual test. China provided absolutely no method of notification or justification to the rest of the world prior to their ASAT test. This lack of notification was seen by many as a direct violation of Article IX of the Outer Space Treaty (OST). Although a direct violation of Art. IX of the OST was not established or sought for sanction by the international community, a large number of critics classified the actions of China, undeniably, as in opposition to the spirit of the OST.

Almost a year later, the United States commenced what would be viewed by many as a more responsible ASAT engagement in their interception of the US-193. Prior to the interception of US-193, the U.S. undertook numerous actions to insure that the international community, many of which whom still adhere strict-

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ly to the fundamentals of the OST, would be on alert of the United States' intentions and justifications for the interception of US-193. While the U.S. could be applauded for their efforts in attempting to lead by example in following closer to the requirements of Art. IX of the OST, their adherence has done little to resolve the ambiguities presented at the core of the language contained in Art. IX of the OST.

This paper will serve to analyze the most beneficial domestic and international response that might be conjured in the wake of the interceptions of FY-1C and US-193. Part I of this paper will serve to establish some historical context of exactly what measures were implemented by the U.S. and China before conducting their interceptions of US-193 and FY-1C respectively. Part II of this paper will serve to provide an analysis of the concepts of hard vs. soft international law, as well as some respective strengths and weaknesses of both. Part III will provide what might be the best-case scenario for handling the ambiguities and varying interpretations of the modern OST schedule and the subsequent responsible space exploration standards. Finally, Part IV will provide a sort of "test case" of implementing such solutions presented in Part III, in order to discuss the realistic costs, as well as supposed benefits that would be gained by implementing such legal remedies.

The concept of competitive interests within the realm of international law and politics is not a novel one, but at this point, clarity must be provided immediately. The proliferation of space debris caused by improper and inconsiderate ASAT testing, as well as decades of irresponsible launching tactics, has led to an epidemic that grows larger every day. International standards and clarity must be established soon in order to mitigate the damages constantly proliferated by such an enormous problem.

The United States has the opportunity, privilege, and obligation to lead humanity into the next generation of responsible ASAT testing, and apply those responsible testing tactics to the gamut of launching activities pursued by spacefaring nation-states abroad. Although the reformation of ASAT testing that will be facilitated by a more stringent analysis of the events in US-193 vs. FY-1C, such an analysis is only one cog in the machine drives the discussion of responsible space exploration, however, it is ab-

solutely vital to its success. The U.S. has grasped the helm of space exploration since its inception and should absolutely hold fast to it now.

I. FY-1C, US-193, AND ART. IX OF THE OST

A. The Outer Space Treaty

In 1965 and 1966, the United States, in pursuance of a solution to the ever-growing weapons proliferation that was occurring between it and the U.S.S.R, looked in part to the construction of the most relevant internationally-binding treaty.¹ After lengthy negotiation, drafting, and redrafting efforts between the U.S. and the U.S.S.R, this solution would eventually become the Outer Space Treaty (OST). Upon unanimous Senate ratification approval, the OST went into effect on October 10th, 1967.² Although the OST contains the most in-depth and comprehensive legal obligation and analysis ever created by an internationally-binding space exploration treaty, the focus of this paper will be constrained simply to a discussion of Art. IX of the OST. Art. IX states simply,

In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference

¹ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

² *Id.*

with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, may request consultation concerning the activity or experiment.³

While the language of Art. IX looks exceedingly clear in the expectations it purports to establish in examining the proper notification that should be delivered to other State Parties before any space exploration might be conducted, the vast majority of problems have been derived from two phrases contained within Art. IX. These phrases are “reason to believe”⁴ and “potentially harmful interference”⁵ and both seem pretty soft, comparatively, in their exact obligation requirements. This legal softness has allowed a virtual gamut of interpretation internationally. Varying interpretations have been influenced slightly by conversations surrounding the true “spirit of the treaty” that should be considered in attempting to narrow the actual expectations of Art. IX. Such attempts, however, often create more complex and convoluted subsequent discussions, spurring more confusion than clarity. There have also been attempts internationally by current space powers to “lead by example” and create a narrowing of exactly what expectations are mandated by Art. IX, however, such efforts are often viewed as more illustrative than impactful on the nations that need the most immediate sanctions for irresponsible space activity. One such comparison is illustrated by the Art. IX notification actions conducted by China in their interception of FY-1C compared to those conducted by the U.S. in their interception of US-193.⁶

³ *Id.* at art. 9.

⁴ *Id.*

⁵ *Id.*

⁶ This analysis, provided in the subsequent sections “B) The Interception of FY-1C” and “C) The Interception of US-193” were originally, in large part, included in the background analysis section of the paper, George T. Lyons III, *Orbital Debris: A Scien-*

B. *The Interception of FY-1C*

On January 11th, 2007, China intercepted the Fengyun 1C (FY-1C) geostationary weather satellite, utilizing long range Anti-Satellite Weaponry (ASAT) technology.⁷ The FY-1C was initially launched on December 8, 2006, and was to be primarily used in providing images of “cloud conditions, typhoons and storms every half an hour, and data to infer sea temperatures and winds parking over 86.5 E longitude.”⁸ China gave no warning to other nations of their intentions to destroy the FY-1C.⁹ This lack of notification provided no risk assessment to other nations concerning the potential threat to such nations’ space assets.¹⁰ Although there is some debate as to the functional status of FY-1C at the time of its interception, such a discussion lends itself to an entirely different body of legal analysis. For the purposes of this paper, it will be assumed that the FY-1C was in fact inoperable at the time of its interception and thus its interception might be justified under relevant international interpretations. There is also a large potential discussion to be had concerning the legitimacy of China’s *realistic positive expectations* in intercepting the FY-1C at such a high altitude, but, for the purposes of this paper, it will also be assumed that China had the utmost hope of a successful interception of FY-1C.¹¹ In any event, after the interception of FY-1C,

tific Approach to an International Diplomatic Problem (2013) [available upon request]; moreover, while it is strictly the purpose of the author to include these sections for further clarity and depth surrounding factual events that precluded the international diplomatic efforts this paper strives to discuss, candor and transparency concerning their origins must be included as well.

⁷ *OASD Satellite Engagement Communications Plan* (Feb. 14, 2008), USA-193: Selected Documents, Special Topics in Aerospace Law, No.1, page 28, 37 (compiled by P.J. Blount, 2009).

⁸ *SPACEWARN Bulletin, No. 638* (Jan. 1, 2007), USA-193: Selected Documents, Special Topics in Aerospace Law, No.1, page 5, 8 (compiled by P.J. Blount, 2009).

⁹ *OASD Satellite Engagement Communications Plan* (Feb. 14, 2008), USA-193: Selected Documents, Special Topics in Aerospace Law, No.1, page 28, 37 (compiled by P.J. Blount, 2009).

¹⁰ *Id.*

¹¹ This is a not assumption that the author personally adheres to. In fact in writing *Orbital Debris: A Scientific Approach to an International Diplomatic Problem* (2013) [available upon request], the author outlines the scientific impossibility of conducting a space debris conscious ballistic ASAT interception at this altitude. Because this isn’t the primary focus of this paper, however, the discussion will be limited to China conducting a “good-faith” interception of the FY-1C satellite.

China created an estimated 2,841 pieces of new orbital debris.¹² China's interception of FY-1C ranks number one on the list of the top ten space junk causing missions of all time, surpassing the runner-up mission on the list by almost 250 percent.¹³

In the wake of China's interception of FY-1C, Gordon Johndroe, speaking for the National Security Council, said "[t]he U.S. believes China's development and testing of such weapons is inconsistent with the spirit of cooperation that both countries aspire to in the civil space area."¹⁴ Responding to the international criticism, Liu Jianchao, the Chinese foreign ministry spokesman, also held a press conference to reiterate that "China has always advocated the peaceful use of space, opposes the proliferation of weapons in space... has never and will never participate in an arms race in space."¹⁵ Jianchao reiterated that "[t]his test was not directed at any country and does not constitute a threat to any country.... [a]fter various parties expressed concern we explained this test in outer space to them."¹⁶ Jianchao summed up blatantly, "China has nothing to hide."¹⁷ Many saw the actions of China, and the lack of any notification required under Art. IX of the OST, as a direct slap in the face to those notification requirements mandated by the OST. Again, the outcome of this test and the justifications China used in explain their adherence to Art. IX of the OST hinged on their careful explanation of just what they assumed was mandated by Art. IX and their adherence to it. Although many international OST parties disagreed, China saw itself within the requirements of Art. IX because they did not foresee any potential "reason to believe"¹⁸ that their interception of FY-1C could result in any "potentially harmful interference"¹⁹ with other nation-

¹² NASA IDENTIFIES TOP TEN SPACE JUNK MISSIONS, <http://www.networkworld.com/community/node/64242> (last visited Nov. 31, 2013).

¹³ *Id.*

¹⁴ Marc Kaufman, *China Criticized for Anti-Satellite Missile Test*, THE WASHINGTON POST (Jan. 19, 2007), <http://www.washingtonpost.com/wp-dyn/content/article/2007/01/18/AR2007011801029.html>.

¹⁵ CHINA CONFIRMS ANTI-SATELLITE MISSILE TEST, <http://www.theguardian.com/science/2007/jan/23/spaceexploration.china> (last visited Nov. 31, 2013).

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ Outer Space Treat, *supra* note 1, at art. 5.

¹⁹ *Id.*

states space assets.²⁰ Although China had arguably violated the spirit of the OST, even in spite of their attempts to carefully couch their justifications for doing so in the ambiguities created by Art. IX, no direct violations of the OST could be established in order to pursue sanctions against China.²¹

C. *The Interception of US-193*

Almost a year after China's interception of FY-1C, the U.S. decided to intercept its own military reconnaissance satellite, the US-193. On February 20, 2008, at approximately 10:26 p.m. EST, the USS Lake Erie launched a single modified SM-3 towards the USA-193.²² A few minutes later, a collision was detected between the SM-3 and the USA-193 that would later be confirmed as the successful interception of USA-193²³ at approximately 153 miles above the earth's surface.²⁴ The mission was marked as successful and initial reports estimated that as a result of its success, "nearly 100 percent of the debris safely burned-up during reentry within 48 hours the remainder would safely re-enter within the next few days."²⁵ Because, however, the interceptions of the FY-1C and US-193 were fundamentally, physically, and pragmatically very different, the events leading up to the interceptions are of the utmost

²⁰ The language of the OST is included here to reiterate the ambiguity that might be illustrated by potential violating parties to the OST and the justifications that said ambiguity might be used to illustrate in their attempted release from liability under the OST.

²¹ *Contra* George T. Lyons III, *Orbital Debris: A Scientific Approach to an International Diplomatic Problem* (2013) [available upon request] (This assumption that no direct violation of OST Art. IX occurred during China's interception of FY-1C is an assumption made strictly to facilitate the international comparative law discussion of this paper. In fact, the author personally does not subscribe to this view and has written a paper in which the direct violation of OST Art. IX by China is illustrated by utilizing a physics-based analysis. This analysis attempts to prove that any outcome other than a large contribution to orbital debris was physically impossible and China, being the hyper-advanced technological state that they are, knew this from the beginning of their endeavor).

²² ONE-TIME MISSION: OPERATION BURNT FROST, http://www.mda.mil/system/aegis_one_time_mission.html (last visited Nov. 31, 2013).

²³ *Id.*

²⁴ *American Forces Press Service*, "Navy Missile Hits Decaying Satellite Over Pacific Ocean" (Feb. 20, 2008), USA-193: Selected Documents, Special Topics in Aerospace Law, No.1, page 121 (compiled by P.J. Blount, 2009).

²⁵ ONE-TIME MISSION: OPERATION BURNT FROST, http://www.mda.mil/system/aegis_one_time_mission.html (last visited Nov. 4, 2013).

importance, even when compared to the actual interception tactics of the two satellites.²⁶

The U.S. went to great lengths in alerting its domestic and international communities of not only the notification of its intentions to intercept US-193, but also provided a host of justifications in doing so. Primarily, the US-193 was in low earth orbit at its time of interception and was poised to re-enter earth's atmosphere "on or about March 6, 2008."²⁷ Early models predicted that a satellite with the size and mass of US-193 would only lose about half of its mass to atmospheric disintegration as it reentered the atmosphere.²⁸ This problem was compounded by the fact that US-193 would reenter with approximately 1000 lbs. of toxic frozen hydrazine, which by all estimates would likely not melt or burn up as it reentered earth's atmosphere.²⁹

While some have criticized the validity of the actual dangers of US-193 reentering the earth's atmosphere³⁰, the U.S. government conveyed to the world that "although the risk from a natural reentry is not high, we cannot rule out the possibility that the hydrazine fuel could cause casualties on the ground."³¹ While this candor seems to be detrimental to reiterating the absolute need to intercept US-193, further good-faith and justification were provided when the U.S. sought simply to restate that "[w]e will do whatever we can to mitigate this risk."³² Notification of USA-193's in-

²⁶ See George T. Lyons III, *Orbital Debris: A Scientific Approach to an International Diplomatic Problem* (2013) [available upon request].

²⁷ *Statement by Ambassador Christina Rocca, Permanent Representative of the United States to the Conference on Disarmament* (Feb. 15, 2008), USA-193: Selected Documents, Special Topics in Aerospace Law, No.1, page 63 (compiled by P.J. Blount, 2009).

²⁸ DOD NEWS BRIEFING WITH DEPUTY NATIONAL SECURITY ADVISOR JEFFREY, GEN. CARTWRIGHT AND NASA ADMINISTRATOR GRIFFIN, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4145> (last visited Nov. 31, 2013).

²⁹ See Robert L. Kelley & William C. Rochelle, *Atmospheric Reentry of a Hydrazine Tank*, NASA White Paper (undated), USA-193: Selected Documents, Special Topics in Aerospace Law, No.1, page 17 (compiled by P.J. Blount, 2009).

³⁰ ANALYST: U.S. SATELLITE STRIKE WAS JUSTIFIABLE; CRITICS SUCH AS CHINA, RUSSIA, ARE OFF-BASE, <http://www.satellitetoday.com/publications/st/2008/02/25/analyst-u-s-satellite-strike-was-justifiable-critics-such-as-china-russia-are-off-base/> (last visited Nov. 31, 2013).

³¹ *OASD Satellite Engagement Communications Plan* (Feb. 14, 2008), USA-193: Selected Documents, Special Topics in Aerospace Law, No.1, page 28, 35 (compiled by P.J. Blount, 2009).

³² *Id.*

terception was conveyed to “the United Nations Committee on the Peaceful Uses of Outer Space, the Conference on Disarmament, and members of the United Nations Security Council.”³³

The availability and readiness of the U.S. to actively seek out the notification and consultation of such a diverse panel of parties potentially privy to the OST, was a strong illustration of the type of conduct Art. IX purports to mandate. It is also important to notice that the U.S. was quick to note that all U.S. diplomatic posts would be available to “answer host government questions regarding the engagement and consequence management preparations.”³⁴ This is an important assertion by the U.S. because it reiterated an often overlooked portion of Art. IX. That portion is the part that creates an option for “consultation concerning the activity or experiment” for all nations who have “reason to believe that an activity or experiment planned by another State Party in outer space” might in fact “cause potentially harmful interference with activities in the peaceful exploration and use of outer space.”³⁵ Basically, the U.S. took the opportunity to say *you have the option to consult with us about anything we do that you might view as potentially harmful, and better yet, our diplomatic posts’ doors are wide open!* Again, this is maybe a little rhetorical, but it just provided one more good-faith effort to notify the parties privy to the OST of the U.S.’s intentions in intercepting US-193.

One final tactic implemented by the U.S. in preparing for OST party response, the U.S. reiterated that it would be absolutely liable for any damages caused by on earth or to other object in flight that resulted from its interception of US-193.³⁶ While this could be viewed as outside of the scope of Art. IX, it was just one more cog in the wheel of good-faith notification the U.S. was establishing pursuant to Art. IX.

While the U.S.’s interception of US-193 looks immensely more successful when held in comparison to China’s interception

³³ *Id.* at 39.

³⁴ *Id.*

³⁵ Outer Space Treaty, *supra* note 1, at art. 5.

³⁶ *OASD Satellite Engagement Communications Plan* (Feb. 14, 2008), USA-193: Selected Documents, Special Topics in Aerospace Law, No.1, page 28, 39 (compiled by P.J. Blount, 2009) (this seemingly new obligation was just a reiteration and affirmation of the U.S.’s continued involvement in the 1972 Convention on International Liability for Damage Caused by Space Objects).

of FY-1C, it is more important to reiterate again, that the true success of the U.S. was seen in the extensive measures it sought to undertake in notifying parties to the OST of its intentions to intercept US-193 pursuant to Art. IX expectations. No matter how successful the U.S. could hold its technical capabilities and accomplishments to be, no real precedent or binding authority could be enforced against China and their seemingly irresponsible interception of FY-1C in light of the U.S.'s interception of US-193 because the two events were conceptually and physically so distant. Simply stated, it was not the U.S.'s employment of some magical missile or striking technology that made their engagement of US-193 more successful, it was strictly the altitude at which each party chose to engage.

This struggle for authority, applicability, and enforceability is one that continues to plague the two countries (as well as the many other parties to the OST) today. What would ultimately be the most comprehensive, fair, and enforceable result to insure that the horrific proliferation of space debris is not a problem that continues to grow every year? The answer is extremely complex and before the discussion can even begin, some ground rules must be laid out in order to facilitate a fair discussion concerning the benefits and costs of several international law conclusions.

II. HARD LAW VS. SOFT LAW

Although the title implies otherwise, the conversation surrounding what would constitute the most appropriate international law measures requires more than a verdict between two polar concepts; moreover, the interpretation of concepts such as hard law vs. soft law, must not be viewed as an either/or decision. Instead, the two concepts should be viewed as two components at two different ends of a sliding scale, among which the appropriate solution will be the product of constantly reevaluating precisely where the most appropriate solution falls on such a sliding scale. To simplify such a hard law/soft law dichotomy, recall the concept of a number line. On one end of the number line lies the concept of hard law and on the other lies the concept of soft law. In evaluating the measure appropriate to deal with each circumstance, you must continuously evaluate what the highest priorities of the nation and its citizens are, compared to the greater good of all of

humanity. Every decision will bear an effect on your position on the number line and a summation of these decisions will ultimately constitute your final position on the number line. Some varying considerations and examples of hard law/soft law can ultimately help to determine what would be the most effective domestic and international solution to the problematic ambiguities created in the range of interpretations and treatments of Art. IX of the OST.

A. Hard Law

The concept of hard law might be most easily illustrated by a few phrases that are constantly thrown around when describing such hard laws. Such terms include: binding, most restrictive, clearly defined, sanctionable, multilateral, precise, and other such phrases. Perhaps another way to illustrate hard law is to look to some examples of international diplomacy that are considered hard law. Treaties are often interpreted as some of the “hardest” international law available to the international legal psyche. This is due in large part to the supposed binding authority that a treaty enforces on all parties who are signers. Typically, a treaty also authorizes or creates a governing body that oversees the adjudication of violations and their subsequent sanction for violation. The simple need to create an international body that strives to enforce and sanction subsequent violations of such international law led to the formation of the United Nations in 1942.³⁷ It is also worth noting that while many countries have authorized one leader or diplomat who is authorized to sign off for his/her respective nation in order to join whatever treaty they see as in the best interest of their country, this, however, is not the case in the U.S.³⁸ Although such countries who have authorized one figurehead to establish their commitment to whatever UN treaty they see fit might have an easier time in getting their nation-state signed off on a treaty, a treaty commitment from a country that requires a vastly complex democratic process before ratifying and joining any interna-

³⁷ HISTORY OF THE UNITED NATIONS, <http://www.un.org/en/aboutun/history/> (last visited Nov. 31, 2013).

³⁸ *Treaties, Ch.1: The Senate's Role in Treaties*, available at <http://www.senate.gov/artandhistory/history/common/briefing/Treaties.htm> (last visited Nov. 31, 2013).

tional obligation will most certainly constitute a firmer commitment to such international hard law.³⁹

While this list of hard law attributes is not exhaustive, it is helpful to consider factors that lend themselves the qualifications of what makes international hard law. These factors will come at a cost and the potential benefit gained will have to be calculated when compared to the alternative ideals that encompass a body of law known as “soft law.” It is also equally important to consider the opposite end of the spectrum, soft law, which serves as a viable antithesis to the ideals that compose hard law, and the possible compromises that lie somewhere in the middle.

B. Soft Law

When considering the language that typically surrounds hard law (binding, precise, restrictive, etc.), the easiest way to imagine soft law is to break out your trusty thesaurus. Soft law is typically described using words that are almost direct antonyms of the language that describes hard law. Words that include: voluntary, compromise, non-binding, suggestive, self-regulating, loose, and the like. Soft laws are often hashed out through more diplomatic and less binding “agreements” or “coalitions” as opposed to the binding treaties that are typically reserved for hard law. By its very definition, soft law is more suggestive and persuasive towards a favorable result as opposed to a strict body of hard law that has been created to enforce and sanction violations of a specific standard or ideal. Its power is almost totally derived from its ability to persuade, rather than require mandatory adherence.

Some of the most famous bodies of soft law that have been created in the past few decades are the various Codes of Conduct created throughout the formation of the European Union (EU). These Codes of Conduct are non-legally binding documents that do not enforce any certain standard upon the parties that party to the document; instead, they operate on a clear contingency of voluntariness from parties that seek to adhere to higher standard of

³⁹ See *Treaties*, available at <http://www.senate.gov/artandhistory/history/common/briefing/Treaties.htm> (last visited Nov. 4, 2013) (such is the case for a country like the United States that authorizes that the United States Senate “shall have Power, by and with the Advice and Consent of the Senate, to make Treaties, provided two-thirds of the Senators present concur” U.S. CONST. art. 2 § 2).

better self-regulation and practices.⁴⁰ It is important to reconsider, however, that very rarely do you find parties that adhere solely to soft law, simply because there will always be a temptation for direct influence to control the outcome of a market, no matter how self-regulated that market may become. This case is illustrated again by the current state of the Codes of Conduct in the EU's Business Regulations and Corporate Tax. Even though the primary mechanism for taxing non-resident workers has been by providing "recommendations" of a proper tax rate to businesses, these "recommendations" are deeply ensconced in a vast body of harder regulatory law that makes up the majority of the EU's Business Regulations and Corporate Tax structure.⁴¹ This regulatory entrenchment tends to put a little pressure on businesses through other available channels and adds to the ability of regulatory markets to undercut the spirit of the seemingly voluntary and self-regulating soft-law markets. This is a direct example of what may be the most effective way of defining soft law. Soft law is simply any measure of international law that falls short of hard law. This may be an overgeneralization, but is illustrative of what could be defined on the sliding scale of hard/soft law. If, perhaps, the number line analogy is too simplified to incorporate the multi-tiered facets of diplomacy that contribute to the discussion of hard vs. soft law, a more complex, and often-used analogy is available.

C. *The Abbott/Snidal Model*

In their pivotal work, *Hard and Soft Law in International Governance*, Kenneth Abbott and Duncan Snidal addressed the vast complexities that drive the determinations over what exactly defines hard/soft law.⁴² Opting to pursue a more detailed abbreviation than hard or soft law, Abbott breaks down the three main characteristics that vary in the conversations surrounding hard/soft law into a discussion of obligation, precision, and delega-

⁴⁰ Mariola Seeruthun-Kowalczyk, *Hard Law and Soft Law Interactions in EU Corporate Tax Regulation: Exploration and Lessons for the Future*, 25 (University of Edinburgh 2011) available at <https://www.era.lib.ed.ac.uk/bitstream/1842/6409/2/Seeruthun-Kowalczyk2012.pdf> (last visited Nov. 31, 2014).

⁴¹ *Id.* at 58.

⁴² Kenneth W. Abbott and Duncan Snidal, *Hard and Soft Law in International Governance*, International Organization, Vol. 54, No. 3, Legalization and World Politics, 421 (The MIT Press 2000).

tion.⁴³ By instituting a shorthand that follows the [O{bligation}, P{recision}, D{elegation}] form, that is defined by varying degrees of intensity for each variable, Abbott created a mechanism that can drive the discussion of hard vs. soft law in a way that is not binary, but instead, descriptive of the varying degrees of the contributing factors that make up the hard vs. soft discussion.⁴⁴ The hardest of laws would be defined by [O, P, D] because a body of hard law, like a treaty, typically calls for strong obligations from the treaty seeking parties, a lot of precision within the language of the treaty, and a strong delegation body that could adjudicate any possible violations and enforce subsequent sanctions.⁴⁵ Soft law measures such as international coordination standards (akin to the Codes of Conduct discussed above) are typically defined by [-, P, d].⁴⁶ This designation again defines the typical goals and ambitions of such a type of soft law in that it would require little to no obligation, because they are voluntary, high precision, because the definitional language is narrow, and some delegation, because some monitoring may occur between participatory nations, but with no real mechanism for deterrence.⁴⁷

Although this model is helpful in describing key considerations in each of a variety of scenarios in which international law might be molded, the most important consideration for the purposes of this paper is to consider that as any variable increases in the model, so do transactional costs and time consumption. Abbott articulates this idea very concisely,

“In sum, we argue that [nation-]states face tradeoffs in choosing levels of legalization. Hard agreements reduce the costs of operating within legal framework – by strengthening commitments, reducing transaction costs, and the like – but they are hard to reach. Soft agreements cannot yield all these benefits, but they lower the costs of achieving (some) legalization in the first place.

⁴³ *Id.* at 424.

⁴⁴ *Id.* (This shorthand is further supplemented by varying degrees of intensity for each variable, ie. O = very strong obligation, o = some obligation, - = no obligation, etc. for each variable).

⁴⁵ *Id.*

⁴⁶ *Id.* at 429.

⁴⁷ *Id.*

Choices along this continuum of tradeoffs determine the “hardness” of legalization, both initially and over time.”⁴⁸

Again, this model may yield a more comprehensible discussion of what implications will flow from any decision that is implemented within the next steps taken to mold international law, but the costs and benefits of any future model must be at the forefront of any discussion and must be weighed completely before any decision can be made. This continual reevaluation of the applicability and interpretation of this model will hopefully serve as a continual means of driving subsequent discussions towards an international solution.

D. Driving Discussion

Although the conversations that surround what exactly will be the most impactful and cost-effective means of drafting the new frontier of international space law are vastly complex and at times extremely frustrating, these complexities must not dampen the drive to attempt such efforts. Hard law will surely come at a high cost initially. It will take time, collaboration, and monetary commitment from a host of potential participatory parties. On the other hand, by establishing a treaty of detailed language and international expectations, as well as a governing body to oversee and enforce such a treaty, there could be a very distinct line drawn in the sky concerning what standards will be expected and enforced. By creating such a regulatory body, any ambiguities that have been created in any number of OST pseudo-violations could be cleared up and prosecuted with clearer consistency and ease. It should be noted that softer forms of law also have some very distinct advantages as well. By implementing a sort of voluntary code of conduct, initial formative costs could be minimized because it would require little negotiation or construction time/effort in that it would be a completely voluntary program, to which anyone might join.

The effects of these initial savings would be more than evidenced however on the backside of any attempt to enforce any violation of some code of conduct that is as easy to voluntarily leave as it was to join. Although there hasn't been a clearly defined solu-

⁴⁸ *Id.* at 436.

tion to emerge yet, there are a couple of tactics that could be pursued in order to reconsider the ever-present problem of existing space debris, as well as the continual addition and proliferation of new space debris from irresponsible launching practices of several spacefaring nation-states. These solutions should be well defined, well thought out, and in the spirit of a nation that should continue to lead the charge for a new generation of responsible space exploration, the United States.

III. SOLUTIONS AND COMPROMISES

Although there have been many projected solutions to dealing with the ambiguities skirted by many international powers attempting to not fall victim to OST violations, there are a couple of ways that the U.S. should drive the discussion forward immediately. All of these solutions will have to be presented on the back of a strong national desire to correct an internationally devastating series of irresponsible space exploration tactics. There has never been an opportunity to guide the national psyche like the present and much of this discussion might be spurned by the smash success of the international hit, *Gravity*.⁴⁹ It is always best to strike while the iron is hot, and that time is now. The United States has to lead the charge for the reformation of international space law, and there is no doubt that charge will have to begin with policy reform on American soil. Once it has established its own pinnacle standards, it would be hard, if not impossible, for the rest of the world to take note and possibly follow suite. The influence that America has wield over international discussions, surrounding international space policy, must always be at the forefront of the American diplomat's mission. The U.S. has the opportunity drive discussions of reform and improvement and should always pursue such discussions with great fervor.

⁴⁹ GRAVITY (Warner Bros. Pictures 2013) (*Gravity* is a motion picture that deals directly with the proliferation of space debris and the potential harm it possesses to damage international assets in the earth's orbit; *Gravity* was released to international success and grossed over \$218 M dollars in U.S. movie theaters alone), <http://www.imdb.com/title/tt1454468/> (last visited Nov. 31, 2014).

A. Domestic Reform

1. Definition

Although many scholars have alluded to the primary necessity of defining what exactly constitutes “space debris,” most all of those conversations turn to an international mandate and reformation of existing treaty language.⁵⁰ The most important realization concerning a hesitancy to reach any sort of definitional clarity at an international level is that no party really wants to take responsibility for debris they’ve already created. Essentially, any time one party wants to classify what constitutes space debris, the initial force of the conversation will be driven by having to define already existing space debris. Therefore, to accomplish such a definition, you would have to take into account many factors that would tend to make responsible parties increasingly hesitant about taking responsibility.⁵¹ The problem with this rationale is that it is completely self-defeating. Essentially, such parties have created a very real and a very devastating problem and because no one wants to take responsibility for their part in creating the problem, everyone sits around, attempting to avoid liability for the magnitude of space debris already in existence. This is especially problematic in the present case because there is absolutely no denying that even if there was never another object launched into earth’s orbit, the current state of orbital debris will continue to have detrimental and self-proliferating effects on existing space assets into the future.⁵² Therefore, there is absolutely no scenario of inaction appropriate in this circumstance.

One tactic the U.S. might explore in this area would be to go ahead and take responsibility for its contributions to existing

⁵⁰ See Carl Q. Christol, *Scientific and Legal Aspects of Space Debris*, 34 ACTA ASTRONAUTICA 367 (International Academy of Astronautics 1994).

⁵¹ *Id.* at 368 (Christol points out that one would have to analyze every piece of existing orbital debris by determining first “where the debris is located, ‘the circumstances under which it came to be situated there, the intent of the...[launching entity] which placed the... space object into orbit, the physical characteristics of the debris... the range of responses available to the... [launching entity]”).

⁵² Daniel Gregory, JF Mergen, & Aaron Ridley, *Space Debris Elimination (SpaDE) Phase I Final Report*, NASA NIAC—11- 11NIAC-0241, 3 (Dec. 12, 2012), http://www.nasa.gov/pdf/716066main_Gregory_2011_PhI_SpaDE.pdf (the self-proliferation of existing orbital debris is commonly known as the Kessler Syndrome).

space debris and pursue fully the gamut of options to mitigate and retract potential future harm from such debris. The counterargument here obviously becomes, *Well, how do we know what is ours?* Although the major monitoring nations, the U.S. and the U.S.S.R., are able to constantly track objects as small as four inches in diameter, it is impossible to distinguish exactly what objects belong to what nations.⁵³ In the vast sea of orbital space debris, however, lies several satellites that are very easily identifiable as to their country of origin. This is due in large part to the running lists of launched satellites and their operational statuses maintained by NASA, Roscosmos, and the United Nations Office for Outer Space Affairs (UNOOSA).⁵⁴

These satellites, although the most easily tracked and assigned ownership, are the least dangerous for the same reasons. That is to say that if there were only a few big pieces to worry about, the planet would be in a lot better shape logistically because astrophysicists could track, identify, and alter any flight plans accordingly. The more dangerous circumstance is the one presently brewing in not being able to adequately track and anticipate collisions with smaller pieces of orbital debris. Although it is hard to fathom on earth, colliding with a 5 lb. chunk of space debris orbiting at 125 miles above the earth's surface would be energetically equivalent to getting hit by a full-size seventy two passenger International school bus traveling at 240 miles per hour.⁵⁵ It is easily seen that these small and seemingly untrackable pieces of space debris have the potential to cause some real damage. It should absolutely be the priority of the U.S. to accept responsibility for such inactive satellites and pursue recovery immediately before those big chunks of garbage collide with highly energetic chunks of smaller garbage and the problem further self-proliferates. This discussion, however, mandates that the issues

⁵³ Nola Taylor Redd, *Space Junk: Tracking & Removing Orbital Debris*, available at <http://www.space.com/16518-space-junk.html>.

⁵⁴ SPACE DEBRIS GUIDELINES OF THE COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE, http://www.osa.unvienna.org/pdf/publications/st_space_49E.pdf (last visited Nov. 31, 2014).

⁵⁵ This statement utilizes the Kinetic Energy equation $\Delta KE = (\frac{1}{2})mv^2$ and assumes that the International school bus weighs 25,000 lbs. empty and that the 5 lb. chunk of space debris is traveling at 17,000 mph in order to maintain a steady orbit around the earth at an altitude of 125 miles above the earth's surface.

surrounding what exactly constitutes space debris must stop being skirted around. It is time for the United States to have a call to arms and answer for the debris it has created and follow every avenue of recovery possible.

2. Liability

One avenue that might accelerate a discussion of what exactly needs examined to be on the home front would be a dialogue surrounding potential liabilities of errand space debris that belongs to the U.S. Although the U.S. has been quick to accept responsibility for any liabilities sounding recent ASAT interceptions and subsequent issues that might arise internationally,⁵⁶ no case has been afforded to test the waters of exactly how the U.S. might react if an inactive satellite or U.S. owned space debris were to collide and injury another party.⁵⁷ In looking at the spirit of how the U.S. handled the liability notifications preceding the interception of US-193, the U.S. should go ahead and explicitly assume the responsibility for identifiable, U.S. owned, orbital debris. This also assumes that a clear definition of orbital debris has been reached, but the ultimate realization here is that because the U.S. has the most expansive and elaborate system of space assets in the world it obviously has the most to lose. Take for example, the U.S.'s ownership of the Global Positioning Satellite (GPS) network. The GPS network is perhaps the most relied upon and useful telecommunications network of all time.⁵⁸ An interruption of such a network, intentional or otherwise, would prove to be a complete catastrophe to the way of life that all Americans know and depend

⁵⁶ *OASD Satellite Engagement Communications Plan* (Feb. 14, 2008), USA-193: Selected Documents, Special Topics in Aerospace Law, No.1, page 28, 39 (compiled by P.J. Blount, 2009).

⁵⁷ See Michael Listner, *Iridium 33 and Cosmos 2251 Three Years Later: Where Are We Now?*, Safety Space Magazine (Feb. 12, 2013), <http://www.spacesafetymagazine.com/2012/02/10/iridium-33-cosmos-2251-years-later-learned-then/> (last visited Nov. 31, 2013) (although this collision between a Russian satellite, Cosmos 2251, and a U.S. satellite, Iridium 33, might be partially instructive as to how the two nations would settle space asset conflicts through internal negotiation, it didn't provide much instruction for OST Art. VII/1972 Liability Convention interpretation between the two countries).

⁵⁸ BRIEFING ON THE IMPORTANCE OF GPS TO U.S. CIVILIAN AND ECONOMIC INFRASTRUCTURES (Apr. 28, 2009), available at <http://www.gps.gov/multimedia/presentations/2009/04/hill/invite.pdf>.

upon. The question that begs to be answered is, *If we're not willing to take responsibility for liabilities that might result from collisions with U.S. owned/created space debris, how could we ever ask another country to take possession and liability for theirs if it were to effect American assets?* This simple scenario illustrates what many Americans take for granted every day, not fully understanding the current need for immediate action in mitigating and resolving potential threats from above to American security.

3. Backlash

Many scholars, however, have proclaimed threats to American security are what have driven the need to pursue ambiguous language because narrower language leaves America open to security threats in that it ties the U.S.'s hands from pursuing appropriate military research, development, and reaction.⁵⁹ Those same scholars, however, often reiterate the extent of exactly how many budding space capable nations, who have never been space capable in the past, are proliferating currently.⁶⁰ Obviously, these same scientists also view this proliferation as a threat to space security.⁶¹ This stance creates a sort of a paradox in that the U.S. doesn't want to bind itself with specific language or liability in order to maintain national security, but also views this lack of responsible space exploration from budding space programs by not accepting liability for potential space debris, as a threat to national security as well. This *do as I say, not as I do* form of international influence has never and will never work effectively in the long term. Instead, the U.S. should push to narrow the definition of space debris from a domestic point of view and then become stewards of the improved term to the rest of the world. The same tactic should be employed as a blanket acceptance of the space debris the U.S. currently has floating throughout the earth's orbit. Again, this just illustrates good faith to the rest of the international space community and would drive discussions to reform and

⁵⁹ *United States Space Systems: Vulnerabilities and Threats*, Ensuring America's Space Security, 14 (Federation of American Scientists 2004), http://www.fas.org/pubs/_docs/10072004163734.pdf.

⁶⁰ *Id.* at 15.

⁶¹ *Id.*

amend the ambiguities created by the language of Art. IX of the OST and its lack of definition of what constitutes space debris.

B. International Influence

1. Mission: Planning, Design, Manufacture, and Operation

This title language comes directly from the *Space Debris Guidelines of the Committee on the Peaceful Uses of Outer Space* issued by the United Nations Office of Outer Space Affairs (UNOOSA).⁶² It is not typically the policy of American diplomacy to take on the language of an international code of conduct and make it the U.S.'s own⁶³, however, in this case it would seem to be a prudent and responsible strategy to usher in the dawn of American space exploration in this manner. As U.S. space exploration becomes more and more privatized, the U.S. has to create more hardline boundaries for private companies who wish to participate in the market, in order to retain some shield from potential liability.⁶⁴ In accepting stricter language from internationally driven documents like those routinely published by UNOOSA, the U.S. could simultaneously dodge two bullets, one from the international community at large, and one domestically from the potential liability it could face if associated sufficiently with private parties it authorized to act.

One specific example that might be implemented domestically could be the legal requirement that all American satellites launched into orbit contain some retrorocket capability. In doing so, the potential problems that are implicated about exactly how companies are supposed to retrieve their satellites after launch

⁶² SPACE DEBRIS GUIDELINES OF THE COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE, http://www.oosa.unvienna.org/pdf/publications/st_space_49E.pdf (last visited Nov. 31, 2014).

⁶³ *Contra* Kenneth W. Abbott and Duncan Snidal, *Hard and Soft Law in International Governance*, International Organization, Vol. 54, No. 3, Legalization and World Politics, 428 (The MIT Press 2000) (One exception to this rule can be seen in the Congressional provisions making “violations of the Whaling Convention and the Convention on International Trade in Endangered Species (CITES) constitute violations of U.S. law”).

⁶⁴ *See* Dalehite v. U.S., 346 U.S. 15 (1953) (Under the Federal Trade Claims Tort Act (FTCA), 28 U.S.C. § 1346(b), the U.S. may be sued, just like a private party, if it sufficiently shown that the party in litigation was acting on behalf of the U.S. government (with certain exceptions)).

are dissolved. By the simple flick of a switch, the satellite is able to slow down its stable orbital velocity and return naturally to earth, utilizing only the gravitational forces that are present on earth every day. Complications that arise under scenarios where communications have been lost with such satellites could also be mitigated with the implementation of a simple “dead man’s switch” circuit.⁶⁵ Although neither one of these scenarios accounts for what could be done in the case where the satellite loses power, this would only be of concern if the satellite had already reached stable orbit before it failed.⁶⁶ Either way, it would provide a better scenario than currently employed by U.S. space exploration-centric actors.

There is no end to the number of hypotheticals that could be explored in order to increase the U.S.’s ability to safely conduct domestic space activity, but a willingness to utilize international codes of conduct in formulating our own domestic policy would provide a greater good-will showing to the rest of the international space law regimen. It would send a clear message to the rest of the world that the U.S. wants not only what’s best domestically, but also what is best for the greater good of the international community as a whole. This showing would most certainly also lead to a bevy of subsequent talks and international policy reform.

2. Interpreting The OST

Another tactic that the U.S. could readily employ would be to take international treaty language, that has been well established and signed off on by a number of countries it holds in high regard, and implement that language verbatim, or maybe an even more strict interpretation, into its own domestic law. No single body of law could be as potentially important and impactful to the international spacefaring community at large that the OST. Looking at the semantics of the language included in the OST, argua-

⁶⁵ A “dead man’s switch” is a mechanical circuit that recognizes a lack of electronic activity and subsequently activates an alternative circuit path to engage a failsafe mechanism built into the machine’s schematic.

⁶⁶ Otherwise it would probably fall back to earth naturally due to its inability to reach a stable orbital velocity.

bly the last major multi-national treaty on the subject⁶⁷, even its “binding language” is soft by comparison to what it could have been.

Calls for action under Art. IX are appropriate when there is “a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space... would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space.”⁶⁸ This “reason to believe” language is arguably self-defining, as seen in the actions of China in the wake of their 2007 ASAT, and thus potentially highly ineffective. Alternatively, if the launching country feels they “might be potentially harmful,” then “it shall undertake appropriate international consultations before proceeding with any such activity or experiment.” These “appropriate international consultations” are never fully defined, but instead are sort of defined in the alternative in the remainder of Art. IX. The language of Art. IX basically says that if any country has reason to believe that another country could be potentially harmful, then they should ask them to consult as well. Again, the ineffectiveness of this definition was seen in China essentially saying, *We didn't think creating 3,000 new pieces of orbital debris would be potentially harmful.*

Any interpretation under the Reasonable Person (RP) standard observed in American and English tort law would mark this assertion of innocence to be a complete fallacy.⁶⁹ Because treaties that America has signed onto have historically been interpreted as the “law of the land,”⁷⁰ an easy transition might be made from the language contained in Art. IX like “reason to believe” and “might

⁶⁷ This assertion is based on the assumption that the 1972 Liability Convention dealt directly with the liabilities and ramifications that might stem from conduct performed in the scope of the OST and that the 1976 Convention on Registration of Objects Launched into Outer Space dealt directly with specific registration requirements that precede the actual launch.

⁶⁸ *Supra* note 1.

⁶⁹ Throughout American and English common law, the Reasonable Person standard asks, “What would a reasonable person do in the same of similar circumstances?” Although this seems largely as ambiguous as the OST language, there are literally tens of thousands of cases evaluating the RP standard that could help guide discussions of the RP standard in Space Torts.

⁷⁰ See Carlos Manuel Vázquez, *Treaties as Law of the Land: The Supremacy Clause and the Judicial Enforcement of Treaties*, 122 HARV. L. REV. 599 (2009).

be potentially harmful” to something more analogous to the RP standard currently observed in the U.S. and abroad. This transition would be a seemingly stress-free one that might facilitate the incorporation of existing international law into our own domestic law, all while retaining the strength and purpose of legions of American tort law. By introducing the more stringent RP standard into the U.S. interpretation of Art. IX domestically, the U.S. might then levy their interpretation back to the U.N. for an international reassessment of Art. IX, effectively strengthening the validity and enforcement of both simultaneously.

Another approach might be to include something a little closer to the language seen in Art. XII of the OST. When discussing potential visits to the moon, Art. XII mandates “[s]uch representatives shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited.”⁷¹ This language avoids definitional ambiguity and requires absolute reciprocity in projected actions from nation-states attempting to visit the moon. A similar mechanism could easily be implemented domestically and applied to private companies seeking to launch or intercept satellites. A successful domestic program in dealing with orbital debris effectively would no doubt spur the discussion for responsible orbital debris recovery, with the U.S. leading the way.⁷²

IV. BRINGING IT ALL BACK HOME: THE TEST CASE

Presently, the U.S. should take the immediate opportunity to create and declare two documented assertions. First, the U.S. should come up with a national standard of what it considers to be “space debris.” In doing so, the U.S. stands to bring about a discussion, albeit a heated one (no pun intended), that could spur an international adoption of a definitional standard that would once and for all define space debris. Second, the U.S. should step up

⁷¹ Outer Space Treaty, *supra* note 1, at art. 12.

⁷² Although it is the opinion of the author that there are also a number of other sections of the OST, namely Art. IV and Art. VII that could be interpreted through our domestic legal system in order to provide greater clarity for what constitutes responsible space exploration and ASAT testing, this is not the focus of this paper.

and claim responsibility for objects it has clearly contributed to the pool of space debris that currently hovers over our planet. In doing so, it would no doubt expose itself to a sea of potential litigation surrounding the liabilities of such debris in orbit. However, under the Convention on International Liability for Damage Caused by Space Objects of 1972, a treaty to which the U.S. is a party, such liability probably already exists.⁷³ In all reality, declaring such a liability wouldn't expose to any more liability than it is already liable for, but, instead would just serve to illustrate good-faith to the rest of the space-faring world.⁷⁴ It is important to realize that both of these tactics would only bring the U.S. into the realm of responsibility for objects that are already in space.

This conversation remains extremely important, however, in that it must be accomplished before any hope of future judicial realms of international law might be negotiated. In terms of the U.S.'s hard law vs. soft law commitment here, the stakes aren't really that high. The U.S. effectively would be trading the international "semi-hard" law seen in its current obligations to the OST and Liability Convention for a hard version of domestic law with little substantive change or impact. The direct advantage would come when the U.S. eventually attempted to levy its "best practices" hard law back against the OST and Liability Convention in order to "harden" what it expect out of the rest of the world. This tactic would allow the U.S. to be in the driver's seat to steer further "hardening sessions" concerning the OST and Liability Convention because it would illustrate a willingness from the U.S. to ratify UN treaty language as the official "law of the land." Under the Supremacy Clause of the U.S. Constitution, this seems to clearly be the case already.⁷⁵

The implementation of international law and codes of conduct might be problematic, but a few examples have been illustrated that hopefully will make this assimilation more appealing than complete inaction. As space exploration in the U.S. becomes increasingly privatized, the U.S. government will not be able to as-

⁷³ Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention].

⁷⁴ *Supra* note 34.

⁷⁵ *Supra* note 63.

sume a backseat role in interpreting the standards of space exploration that govern private industries in space, especially if the U.S. portends to seek immunity under the FTCA. The U.S. government will have to establish regulatory committees to outline, establish, and enforce violations of such private actors if it ever hopes to maintain a shred of credibility in the eyes of its international space comrades. This set of regulatory standards will be beneficial to the market, the actors, and the nation, all while establishing an international precedent and “shining example” of what other space faring nations should strive to be. Again, this is an example of domestic hard law that could be fabricated in order to later “harden” established international treaty commitments.

The other example provided in Part III of this paper, the example of reinterpreting OST language domestically into the creation of new U.S. law, would be by far the hardest sale in the bunch. This is true for a number of reasons. Firstly, the U.S. has historically been averse to joining any treaty that includes specific binding language that governs the U.S.’s conduct.⁷⁶ This sentiment rings especially true when you begin to threaten the U.S.’s ability to adequately defend itself and thrive in its security efforts. While these ideals seem to be in almost direct conflict with the practices of the U.S. in heralding the OST and its adherence to the language of such a treaty, the case is not so opposite. In fact, the semi-ambiguous language of the OST typically weighs itself in favor of American diplomacy. This is one of the biggest reasons the U.S. ever signed onto it in the first place. These ambiguities, and several countries propensity to expose them and take advantage of them, has kind of left the U.S. standing around with its proverbial hands in its pockets when it comes to sanction or reprimand of violating countries. In fact, if the U.S. were to try to impose sanctions or international scolding on such parties, it might currently look a little more pious than it should perhaps strive to be. By incorporating well-established international legal standards into its own domestic interpretation of the OST, like those discussed in respect to the RP standard, the U.S. might just gain a more ground with its international counterparts, and subsequently be

⁷⁶ See Kenneth W. Abbott and Duncan Snidal, *Hard and Soft Law in International Governance*, International Organization, Vol. 54, No. 3, Legalization and World Politics, 421 (The MIT Press 2000).

able to inject a little more domestic hard law into the increasingly soft law of the OST. These diplomatic undertakings wouldn't really change the U.S.'s current commitment, but the direction the U.S. might take in being truly diplomatic by incorporating law created internationally into its own law, could produce some benefit to all parties involved in the discussion, most of all the U.S. These benefits would be easily observed domestically by the "best practices" standards the U.S. should strive to achieve applied directly to the private actors and corporations that represent it internationally and by the effect those international actors could serve to have on the rest of the spacefaring nations of the world.

CONCLUSION

The biggest question that has to always be answered when discussing the U.S.'s ability to influence international actors with its own policy remains, *How realistic is it that the U.S. will ever take foreign policy in as its own?* Before answering that question, however, remember also, that the policy tactics proposed in this paper tend to lend themselves towards narrowing the ambiguities of policy that the U.S. typically enjoys exploiting. Therefore, by adding up these grim, but important factors, it is hard to see a probable outcome in which these policies will be adopted in U.S. law. More importantly, however, it must be remembered that at this point, there aren't any other options other than to spur the conversation for international policy reform and implementation. The U.S. and the U.N. have continuously balked at numerous OST violations in the past couple of decades, and the earth's orbital environment has paid the high price. Even with all environmental and international considerations cast aside, however, it still must be realized that domestic threats will continue to plague the U.S. without reform. The U.S. has the most sophisticated and extensive network of space assets in the world and its high time it started acting like it. The U.S. enjoys a firm seat as the head of space exploration and should wield that power accordingly, with boldness and authority it possesses now; because in the end, like everything else, such power will have its season. The U.S. better utilize its seat at the head of the table that governs international space exploration standards while it still has a chance, and that ultimately means it must start now before its loaded hand has been folded.

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