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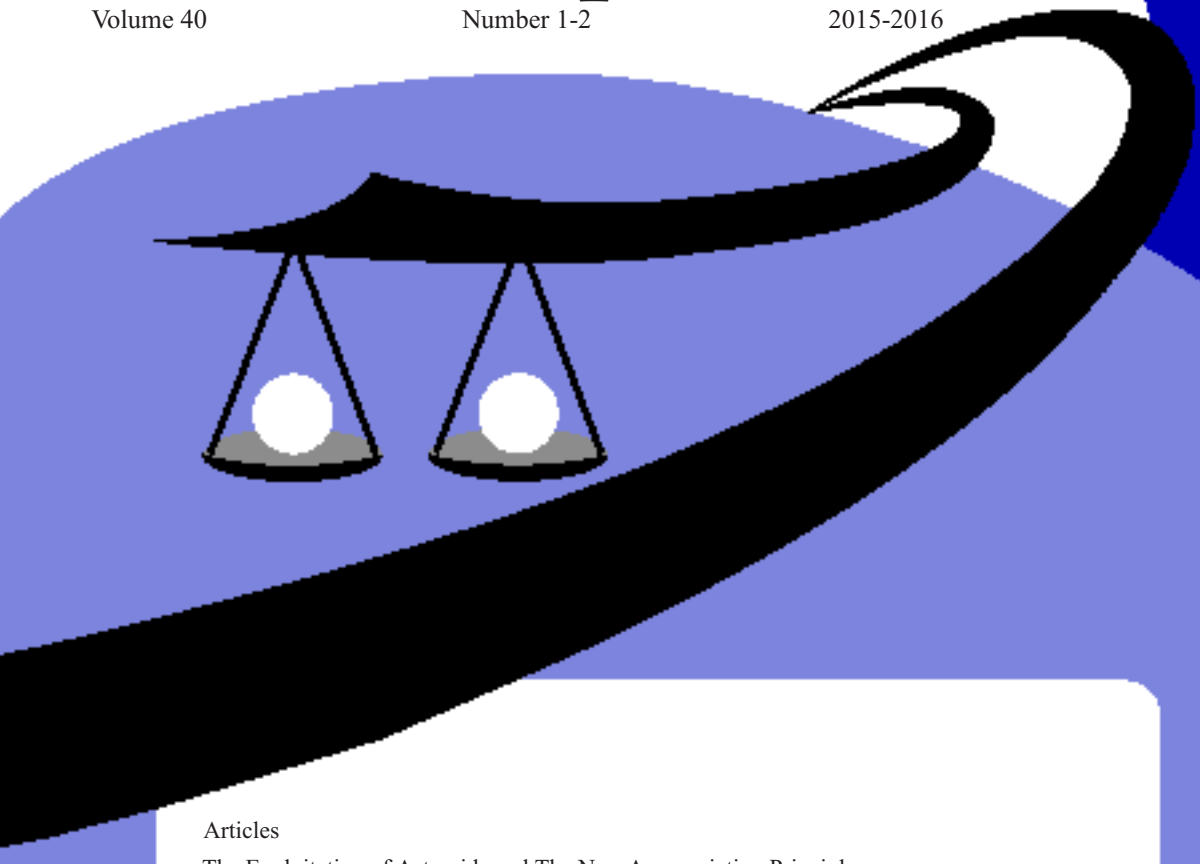

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ARTICLES

THE EXPLOITATION OF ASTEROIDS AND THE NON-APPROPRIATION PRINCIPLE: REFLECTIONS ON THE NATURE OF PROPERTY RIGHTS IN LIGHT OF THE US SPACE RESOURCE ACT OF 2015

Philip De Man[*]

I. THE SPACE RESOURCE ACT AND THE INTERNATIONAL OBLIGATIONS OF THE UNITED STATES

A number of recent initiatives revolving around the exploration and utilization of the Moon and asteroids, both public and private, have reintroduced space law doctrine to the pressing issue of natural resource appropriation.[1] In direct response to the budding development of an American space mining industry, the US

[*] Senior Researcher, Leuven Centre for Global Governance Studies, University of Leuven, Belgium; member of the official delegation of Belgium to the 55th Session of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space, 4-15 April 2016, Vienna. The opinions expressed in this article are the personal views of the author.

[1] The most high-profile of these initiatives are Planetary Resources, www.planetaryresources.com (last visited July 19, 2016), Deep Space industries, deepspaceindustries.com (last visited July 19, 2016), Shackleton Energy, www.shackletonenergy.com (last visited July 19, 2016), and Kepler Energy and Space Engineering, www.kesellc.com (last visited July 19, 2016). *See* also the "Asteroid Redirect Mission," NASA, http://www.nasa.gov/mission_pages/asteroids/initiative (last visited July 19, 2016).

adopted, in November 2015, the Commercial Space Launch Competitiveness Act.[2] If primarily occupied with streamlining the US legal regime for commercial space launch activities, the act also includes, at the very end, a brief title on Space Resource Commercial Exploration and Utilization (Space Resource Act).

The historic significance of the Space Resource Act lies in the fact that it is the first legal instrument, at any level of governance, to explicitly grant property rights to private enterprises over resources extracted from asteroids and other celestial bodies. In particular, the act provides that

> [a] United States citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States.[3]

Previous versions of the act included a proposal for resolving civil action for relief from harmful interference, in case a US legal entity engaging in asteroid mining would suffer from such interference caused by another entity subject to American jurisdiction. In that case, it was argued that the court should find in favour of the plaintiff if it finds that the activity is "reasonable for the exploration and utilization of asteroid resources", the plaintiff was first in time to conduct this activity and "acted in accordance with all existing international obligations of the United States."[4]

The condition of respect for the existing international obligations of the United States, retained in the aforementioned provision of the final version of the 2015 Act, complicates matters significantly in light of the current state of international space law and the ratification status of the Outer Space Treaty. Counting all major spacefaring actors among its signatories, the US, too, is held by

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[2] Commercial Space Launch Competitiveness Act, Pub. L. No. 114-90 (Nov. 25, 2015).

[3] *Id.* at Title IV, §402, proposed §51303 'Asteroid resource and space resource rights.'

[4] Sub (c) and (d) of §51303 of the proposed bill for an ASTEROIDS Act. Space Resource Exploration and Utilization Act of 2015, H.R. 1508, 114th Cong. (2015) [hereinafter CSLCA].

the requirement in Article II of the Outer Space Treaty that "[o]uter space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means." Natural resources are neither explicitly included in, nor expressly excluded from the text of this provision; indeed, they are not even once mentioned in the set of United Nations (UN) space treaties binding upon the United States.[5] International discussions on the regulation of the utilization of natural resources will only be taken up, for the first time ever, at the next session of the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space (COPUOS) in 2017.[6] Hence, during the congressional hearings for the US Space Resource Act, it could rightly be noted that resource extraction represents "a very volatile and contentious issue at the international level."[7]

In tandem with the above developments, the US Federal Aviation Administration (FAA) dealt with an issue closely related to the regulation of property rights over asteroid and other resources from space. In 2014, Bigelow Aerospace, the company responsible for launching inflatable habitats into space, asked the FAA to "recognize ownership by the company and other US firms of extracted resources" in space, as it is planning to land its modules on the Moon.[8] On 22 December 2014, the FAA responded favourably to the

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[5] Natural resources are included in the text of the 1979 Moon Agreement. Infamously, however, this treaty has not been signed or ratified by the US. 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].

[6] Proposed by Belgium and supported by a number of other states, including the Russian Federation and the United States, the agenda of the 56th session of the Legal Subcommittee will include a single issue/item on the "General exchange of views on potential legal models for activities in exploration, exploitation and utilization of space resources". See the UNCOPUOS Leg. Subcomm., *Legal Subcommittee's Draft Report of 13 April 2016*, UN Doc. A/AC.105/C.2/L.298/Add.4, §20 (Apr. 13, 2016).

[7] Remarks by Prof. Joanne Gabrynowicz quoted in Jeff Foust, *Hearing Raises Wuestions about Asteroid Mining Bill*, SPACE NEWS (Sept. 10, 2014) http://spacenews.com/41825hearing-raises-questions-about-asteroid-mining-bill/. See also Michael Listner, *Asteroid Resource Rights Will Require White House Support*, SPACE NEWS (Sept. 22, 2014) http://spacenews.com/41954letter-asteroid-resource-rights-will-require-white-house-support/.

[8] Wayne White, *The Space Pioneer Act*, SPACE NEWS, (Nov. 1, 2014) http://spacenews.com/42436the-space-pioneer-act/.

company's request.[9] However, the administration stressed that "[w]e're not talking about property rights at this point . . . . What we're talking about is having the US government have a regulatory framework that provides some certainty so they will be free to proceed with their plans and raising of funds."[10] Rather than dealing with property rights, this framework primarily aims to give mining companies solid guarantees that they will not be harmfully interfered with by other companies licensed by the FAA during their extraction activities.

By focusing on the harmful interference angle and making reference to the international obligations of the United States, both the FAA and US Congress appear to acknowledge the legal uncertainty in terms of international law concerning property rights over natural resources extracted from celestial bodies. Nevertheless, the 2015 Space Resource Act is unambiguous in declaring the rights acquired by private enterprises engaging in such activities 'property rights.' To be sure, it explicitly adds the proviso that

> It is the sense of Congress that by the enactment of this Act, the United States does not thereby assert sovereignty or sovereign or exclusive rights or jurisdiction over, or the ownership of, any celestial body.[11]

Whether this proviso is sufficient to meet the international obligations of the US is unclear, however, for we already noted that these obligations do not distinguish anywhere between the legal regime applicable to celestial bodies as a whole and their natural resources. We therefore consider it opportune to offer some thoughts on the contentious issue of space resource appropriation by deconstructing the notion of property rights in an international legal context. In so doing, we hope to arrive at an alternative approach for aligning the ambitions of the space mining industry with the apparently intransigent space law framework at the international level.

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[9] See Jeff Foust,, *FAA Review a Small Step for Lunar Commercialization Efforts*, SPACE NEWS (Feb. 6, 2015) http://spacenews.com/faa-review-a-small-step-for-lunar-commercialization-efforts/.

[10] *Id*.

[11] CSLCA, *supra* note 4, §402 at 'Disclaimer of extraterritorial sovereignty.'

II. PROPERTY THEORIES

Though the exploitation of resources is generally considered a lawful form of use of outer space,[12] the extraction and destructive use of minerals from asteroids and other celestial bodies is often deemed problematic from a legal point of view to the extent that it presupposes or necessarily entails the creation of property rights over the used resource or celestial body from which it hails.[13] For this particular activity, the freedom to use outer space enshrined in Article I, para. 2 of the Outer Space Treaty thus appears difficult to reconcile with the strict language of the non-appropriation principle in Article II.[14]

Compounding a clear analysis of this issue is the inherently novel nature of the national appropriation concept in international

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[12] *See*, *for example*, Ernst Fasan, *Basic Principles Regarding the Celestial Bodies*, 6 PROC. COLLOQUIUM L. OUTER SPACE *s.p.* (1963); E. Brooks, *Control and Use of Planetary Resources*, 11 PROC. COLLOQUIUM L. OUTER SPACE 344 (1968) ; O. Fernández-Brital, *Activities on Celestial Bodies, Including Exploitation of Natural Resources*, 12 PROC. COLLOQUIUM L. OUTER SPACE 196 (1969); A. Kiss, *Le régime juridique applicable aux matériaux provenant de la Lune et des autres corps célestes*, 16 ANN. FR. DR. INT'L 765 (1970); E.G. Vassilievskaya, *Notions of "Exploration" and "Use" of Natural Resources of Celestial Bodies*, 20 PROC. COLLOQUIUM L. OUTER SPACE 473, 475-476 (1977) ; A. BÜCKLING, DER WELTRAUMVERTRAG 41 (1980); S. HOBE, DIE RECHTLICHEN RAHMENBEDINGUNGEN DER WIRTSCHAFTLICHEN NUTZUNG DES WELTRAUMS 66 (1992); Stephan E. Doyle, *Using Extraterrestrial Resources under the Moon Agreement of 1979*, 26 J. SPACE L. 114 (1998); K.N. METCALF, ACTIVITIES IN SPACE: APPROPRIATION OR USE? 163, 221 (1999); and THOMAS GANGALE, THE DEVELOPMENT OF OUTER SPACE: SOVEREIGNTY AND PROPERTY RIGHTS IN INTERNATIONAL SPACE LAW 41-42 (2009). Some authors even consider use and exploitation to be synonymous*, see* FABIO TRONCHETTI, THE EXPLOITATION OF NATURAL RESOURCES OF THE MOON AND OTHER CELESTIAL BODIES: A PROPOSAL FOR A LEGAL REGIME 233 (2009).

[13] Fernández-Brital, *supra* note 12, at 197; Ernst Fasan, *Celestial Bodies and the Exploitative Use of Outer Space*, 12 ANN. AIR & SPACE L. 232 (1987); K.V. Cook, *The Discovery of Lunar Water: An Opportunity to Develop a Workable Moon Treaty*, 11 GEORGE. INT'L ENVTL. L. REV. 664 (1999); and R.J. LEE, LAW AND REGULATION OF COMMERCIAL MINING OF MINERALS IN OUTER SPACE 13-14 (2012). Kerrest agrees that "[a]uthorising the mining of consumable non-renewable goods is undisputedly a way of appropriation, therefore the [Outer Space Treaty] forbids it." A. Kerrest, *Exploitation of the Resources of the High Sea and Antarctica: Lessons for the Moon?*, 47 PROC. COLL. L. OUTER SPACE 534 (2004) , cited in P.M. Sterns and L.I. Tennen, *Private Enterprise and the Resources of Outer Space*, 48 PROC. COLL. L. OUTER SPACE 246 (2005).

[14] 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].

law.[15] The notion has sparked numerous discussions, often compounded by muddied accounts mixing private property with national sovereignty.[16] As an international legal concept, property is dealt with only in the context of very specific fields of law, such as intellectual rights[17] and cultural heritage,[18] or as a basic human right against expropriation.[19] Other than that, private international law largely underscores the irreconcilable differences between various conceptions of property rights as notions of purely national origin, whose interactions inevitably result in conflicts that need to be resolved through an overarching set of international rules of mediation.

There is no autonomous international definition of property or appropriation, let alone national appropriation that could be transposed to clarify the use of the term in the treaties on international space law. To understand property as a universal notion, then, one quickly drifts into the realm of legal philosophy, which, like any self-respecting branch of law or philosophy, is burdened with an overlapping and ever-evolving set of conflicting theoretical approaches to the same concept. If anything, the philosophy of property teaches us that the meaning of the notion is anything but universal and immutable, as it strongly depends on the legal system observed and the specific situation, social relation and resource considered.[20]

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[15] *See id.* at Art. II and Moon Agreement, supra note 5, Art. 11 (2).

[16] On the relationship between property rights and international law in general, *see* R. BARNES, PROPERTY RIGHTS AND NATURAL RESOURCES 10-16 (2009).

[17] *See* the Berne Convention for the Protection of Literary and Artistic Works, Sept. 9 1886, 1161 U.N.T.S. 3 and the instruments developed by the United International Bureaux for the Protection of Intellectual Property and the World Intellectual Property Organization.

[18] *See* the Convention Concerning the Protection of the World Cutural and Natural Heritage, Nov. 16 1972, 1037 U.N.T.S. 151 and other treaties.

[19] *See* Art. 17 of Universal Declaration of Human Rights, G.A. Res. 217 A (III), Art. 17, U.N. DOC. A/RES/217 A (III) (Dec. 10, 1948 and Art. 1 First Additional Protocol to the European Convention on Human Rights and Fundamental Freedoms, Art. I, Mar. 20, 1952, E.T.S. No. 009.

[20] *See* in general C.B. Macpherson, *The Meaning of Property*, in PROPERTY: MAINSTREAM AND CRITICAL POSITIONS 1-14 (C.B. Macpherson, ed., 1978). Waldron notes that there are "as many ambiguities in the term 'ownership' as there are legal systems . . . leaving the concept of ownership without any essential content at all." J. WALDRON, THE RIGHT TO PRIVATE PROPERTY 29 (1988). *See also* J. Waldron, *What is Private Property?*, 5 OXFORD J. LEGAL STUD. 313-316 (1985).

However, even if property, as a concept, is inevitably contaminated by a plethora of socio-political and economic connotations that evolve over time, the very identification and discussion of property as a separate legal notion implies that it is imbued with one or more discernible features that distinguish it from other, comparable concepts.[21] Moreover, this article is one on international space law, not property law. We need not tackle all of the vexing problems that hinder a universal understanding of property rights in order to ascertain the place of the notion within the confines of the present contribution. If the specific meaning of the concept depends on the context, our discussion should be limited to property in the context of international space law.

Therefore, in order to settle whether the rights of states, companies or private individuals in space resources under the currently applicable regime can or should lawfully rise to the level of property rights, we must first isolate those characteristics of property that render it an identifiable legal concept. These features will then be transposed to the existing legal regime in outer space, to assess whether the property notion can be reconciled with the general tenets of said regime, as revealed by the corresponding provisions of free use and non-appropriation. By closely circumscribing the exact meaning of the national appropriation concept in international space law, we will be able to determine to what extent the exploitative use of tangible resources from celestial bodies really entails or requires the creation of property rights. If this approach is necessarily construed on a less than exhaustive account of property, we trust it will not want for accuracy.[22]

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[21] This point is also stressed in A.M. Honoré, *Ownership*, in OXFORD ESSAYS IN JURISPRUDENCE: A COLLABORATIVE WORK 108-109 (A.G. Guest, ed., 1961).

[22] For a more comprehensive discussion of the notion, the reader is referred, in addition to the writings covered in the following pages, to the excellent legal analyses of property in F.S. Cohen, *Dialogue on Private Property*, 9 RUTGERS L. REV. 357-87 (1954); Waldron, *What is Private Property?*, *supra* note 20; and J.E. PENNER, THE IDEA OF PROPERTY IN LAW (1997).

B. Diverging Approaches

1. Property as a Bundle of Rights

The apparent complexity and versatility of the property notion, as described above, has inspired many authors to approach it from a 'legal realist' perspective, characterizing the concept as a composite bundle of rights exercised by the holder with respect to a certain thing, object, commodity, or resource. According to this theory, the combined presence or absence of a number of rights, in varying degrees, determines the existence of ownership with respect to a certain tangible thing or intangible phenomenon, as a set of relations between the owner and non-owners, including prospective users of the thing owned.[23] The approach has been adopted by many scholars, but is most commonly traced back to Hohfeld and Honoré.[24] In direct opposition to the previously articulated intuition that property can only exist as a fixed concept with one or more uniquely determining characteristics, Hohfeld approached the notion, not in direct relation to the owned thing, but as "a complex aggregate of rights . . . , privileges, powers, and immunities" that determine the relationships between the owner and all others with respect to a certain thing.[25] Honoré further concretized this conception of property as a set of societal relations through a comprehensive list of so-called standard incidents of ownership, eleven in total, which "are not individually necessary, though they may be together

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[23] See the thorough discussion of this concept by Penner and the list of authors approaching property rights from such a perspective in J.E. Penner, *The "Bundle of Rights" Picture of Property*, 43 UCLA L. REV. 711, fn. 1 (1996). *See* also L. Katz, *Exclusion and Exclusivity in Property Law*, 58 U. TORONTO L.J. 275-316, fn. 2 (2008); J. CHRISTMAN, THE MYTH OF PROPERTY: TOWARD AN EGALITARIAN THEORY OF OWNERSHIP 19-20 (1994); Barnes, *supra* note 16, at 23; P. Delville, *Re□flexions sur le principe de non appropriation de l'espace extra atmosphe□rique et des corps ce□lestes*, 63 REV. FR. DR. AÉR. & SPATIAL 139 (2009). The conception is also adhered to in philosophical writings on property. *See* F. Snare, *The Concept of Property*, 9 AM. PHIL. Q. 200 (1972); L.C. BECKER, PROPERTY RIGHTS - PHILOSOPHIC FOUNDATIONS 18 (1977).

[24] W.N. Hohfeld, *Some Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 23 YALE L.J. 16-59 (1913); W.N. Hohfeld, *Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 26 YALE L.J. 710-770 (1917); Honoré, *supra* note 21. The pedigree of the approach is discussed in Becker, *supra* note 23, at 7-23; S.R. MUNZER, A THEORY OF PROPERTY 23 (1990); Penner, *supra* note 23, 724-738.

[25] W.N. HOHFELD, 1917, *supra* note 25, 746.

sufficient, conditions for the person of inherence to be designated 'owner' of a particular thing in a given system."[26]

The considerable impact of these authors' writings has culminated in the widespread endorsement of what is sometimes also referred to as the 'Blackstonian trilogy' of property rights, after the influential philosopher whose ideas have been claimed by competing schools in property philosophy, among which the legal realist or bundle of rights theorists.[27] The trilogy typically encompasses the rights of "possession, use and disposition,"[28] though it is often translated into a composite right that combines use, enjoy and transfer.[29] There is no single catalogue of property components that is supported by all legal realists, and the bundle is often adapted to the philosophical needs of the particular theory elaborated by the author at hand. As such, the umbrella of ownership has been expanded to cover such diverse rights as the right to possess, use, manage, waive, transfer, exclude, abandon, consume, and destroy, along with the duty not to use harmfully.[30] Similar bundles have been compiled over the years by some of the highest national courts in western jurisprudence. The US Supreme Court has many times insisted on the characterization of property rights as a bundle of rights to "possess, use, transport, sell, donate, exclude, or devise."[31] The same elements can be distilled from the case law of the European Court of Justice,[32] which recognizes property as an integral part of the general principles of Community and Union law, based

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[26] *See* Honoré, *supra* note 21, 112-113. The list comprises "the right to possess, the right to use, the right to manage, the right to the income of the thing, the right to the capital, the right to security, the rights or incidents of transmissibility and absence of term, the prohibition of harmful use, liability to execution, and the incident of residuarity." *Id.* at 113.

[27] *See*, however, also *infra*, §II.A.2.

[28] E.g. T.W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 736 (1998).

[29] Snare, *supra* note 23, 202-204; Becker, *supra* note 23, p. 18; L.S. Underkuffler, The Idea of Property: Its Meaning and Power 14, 25 (2003); K.N. Murray, *Of Gardens and Streets: A Differentiated Model of Property in International and National Space Law*, 32 J. SPACE L. 374 (2006); J. PURDY, THE MEANING OF PROPERTY 16 (2010). *See also* Barnes, *supra* note 16, at 22-24.

[30] Munzer, *supra* note 24, at 22 (referring to the landmark analysis of the concept in Honoré, *supra* note 21).

[31] See the case law cited in Underkuffler, *supra* note 29, at 19.

[32] S. PAVAGEAU, LE DROIT DE PROPRIÉTÉ DANS LES JURISPRUDENCES SUPRÊMES FRANÇAISES, EUROPÉENNES ET INTERNATIONALES 83-129 (2006).

on the constitutional traditions of the Member States of the European union and Article 1 of the First Protocol to the European Convention on Human Rights.[33]

Many authors writing on international space law single out the bundle of rights theory as the defining theory on property, painting it as the closest to a consensus that can realistically be expected to emerge from polarizing discussions on an elusive, shape-shifting concept.[34] According to Fasan, appropriation refers to property, the establishment of which gives the right "(a) to make use of the owned thing according to one's own and alone will, including the right of destroying, (b) to exclude every other legal subject, (c) to maintain or to hand over or even to abandon every right regarding the thing in question including property itself."[35] Baca lists the power to exclude, use and transfer as constitutive elements of property.[36] Pop confirms that property is a bundle of rights that encompasses "the right to use, to enjoy the fruits and to abuse one's own good insofar as law allows this."[37] Delville lists as one of the main attributes of property rights that the owner has all prerogatives over the thing, including the right to "l'usus, le fructus et l'abusus,"[38] referencing the famous formulation of the French *Code Civil*.[39] Finally, Lachs notes that, as the legal expression of a basic form of appropriation, property confers "the right to use or dispose of an object and exclude all others from doing so."[40]

The success of the bundle of rights theory outside the field of legal philosophy can be explained by its malleable nature and easy

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[33] First Protocol to the ECHR, s*upra* note 19. *See* Case 44/79, Hauer v. Rhineland, Case 44/79, 1979 E.C.R. 3727.

[34] Apart from the authors cited in the following footnotes, *see* also A.A. Cocca, *Property Rights on the Moon and Celestial Bodies*, 39 PROC. COLL. L. OUTER SPACE 17 (1996) and D. COLLINS, *Efficient Allocation of Real Property Rights on the Planet Mars*, 14 B.U.J. SCI. & TECH. L. 206 (2008).

[35] Ernst Fasan, *Law and Peace for the Celestial Bodies*, 5 PROC. COLL. L. OUTER SPACE 9 (1962). For an overview of interpretations of the appropriation notion as conveyed to the author in private correspondence by several authoritative space law scholars, *see* Fasan, *supra* note 13, at 231-233.

[36] K.A. Baca, *Property Rights in Outer Space*, 58 J. AIR L. & COM. 1049-51 (1993).

[37] VIRGILU POP, WHO OWNS THE MOON? EXTRATERRESTRIAL ASPECTS OF LAND AND MINERAL RESOURCES OWNERSHIP 62 (2009).

[38] Delville, *supra* note 23, at 138.

[39] *See* Pavageau, *supra* note 32, at 83.

[40] M. LACHS, THE LAW OF OUTER SPACE: AN EXPERIENCE IN CONTEMPORARY LAW-MAKING 41 (1972).

adaptability to a host of widely diverging philosophical, economic, and societal undercurrents. For these very same reasons, however, the theory is increasingly being questioned as a valid theory on property *qua* theory as such. If the relativistic approach to property supported by the so-called legal realists accurately reflects the factual divergence of interpersonal relations encompassed by the notion, its conception of property as an empty vessel whose contents cannot be accurately described *in abstracto* fails to satisfy the basic requirements of a workable theory. In this regard, we may refer to the writings of Thomas Grey, for whom the evolution of property from an easily identifiable concept relating to ownership over land and other material things to a fragmented bundle of rights covering innumerable specialized, and at times conflicting, legal, societal, and economic relations, has resulted in nothing less than the disintegration of property. The concept thus "ceases to be an important category in legal and political theory."[41] A similar radicalization of the relativistic tenets inherent in the bundle of rights theory can be seen in the writings of Kevin Gray, who contends that "the ultimate fact about property is that it does not really exist: it is mere illusion. It is a vacant concept - . . . rather like thin air."[42]

Though it is nowhere challenged that property is an elusive concept with many different facets, overly broad denunciations of property as an inapproachable notion without proper legal content should be dismissed forthright, for they rely on a level of relativity that can be invoked to render any type of discussion impossible *ab initio*. As such, Merrill correctly derides the bundle of rights approach for incorrectly interpreting property as a "purely conventional concept with no fixed meaning."[43] Grey in particular is heavily criticized by Smith as being myopic, inflexible, unworkable, and ultimately failing to provide a theory of property at all.[44] Rather than transcending ostensible aporias in the application of property through the formulation of an overarching theory, the bundle of

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[41] T.C. Grey, *The Disintegration of Property* in NOMOS XXII: PROPERTY 81 (J.R. Pennock & J.W. Chapman, eds., 1980). *See* also H.E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1697 (2012).

[42] K. GRAY, *Property in Thin Air*, 50 CAMBRIDGE L.J. 252 (1991). The author goes on to label the notion "rhetorical nonsense" and "an emotive phrase in search of a meaning." *Id.* at 305. *Compare* Waldron, THE RIGHT TO PRIVATE PROPERTY, *supra* note 20.

[43] Merrill, *supra* note 28, at 737.

[44] Smith, *supra* note 42, at 1692, 1694-1700.

rights approach descends into largely descriptive enumerations, masquerading its conceptual shortcomings as 'realism.' While the bundle of rights theory may be more exhaustive in describing the social relations that flow from property, its descriptive nature ultimately adds little to our understanding of the concept as a legal notion. Worse still, its descriptive approach effectively clouds the conceptual characteristics that distinguish property from other rights.

2. Property as the Right to Exclude

In traditional dialectic fashion, the critique on the bundle of rights theory has given rise to a strand at the opposite side of the philosophical spectrum, one populated with authors equating property, not with an ever-changing amalgamate of rights, duties, privileges and other forms of social relationships, but with a single core formed by the right to exclude others from the thing owned.[45] Ironically, this strand, too, is often typified as a modernization of the ancient philosophy of Blackstone, since the author once famously characterized property as "that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe."[46] The aforementioned trilogy of property rights, also attributed to Blackstone, already reveals that the philosopher adhered to a more nuanced view of property than is implied by the isolated quote on despotic dominion. Nevertheless, it is frequently cited by property lawyers as a rhetorical statement of substantial pedigree, in order to counter the overly amorphous 'realistic' conception of property by the bundle of rights theorists, as it earmarks the right to exclude as the single characteristic that distinguishes property from other, similar institutions in law, and stands out as the one feature that binds all social interactions described by the legal realists.

The arguments put forth by the adherents of the right to exclude against the bundle of rights theorists are manifold and need

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[45] For a highly insightful attempt to marry both conceptions of property, *see* Smith, *Property and Property Rules*, 79 N.Y.U.L. REV. 1791-1793 (2004).

[46] W. BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND: A FACSIMILE OF THE FIRST EDITION OF 1765-1769 (1979).

not be repeated here in full. Rather, they are accurately summarized by what Merrill has termed the 'logical primacy' argument.[47] In the words of the author, the logical primacy argument elevates the right to exclude above all other sticks in the property bundle, for,

> if one starts with the right to exclude, it is possible to derive most of the other attributes commonly associated with property through the addition of relatively minor clarifications about the domain of the exclusion right. On the other hand, if one starts with any other attribute of property, one cannot derive the right to exclude by extending the domain of that other attribute; rather, one must add the right to exclude as an additional premise.[48]

From this perspective, it becomes clear that the owner's rights to usufruct, use and transfer, as well as any other characteristic of property rights that may be included in the composite bundle, in essence rely on the right to exclude all others from doing so with respect to the thing owned, and the obligation of all others to withhold from such behaviour.[49]

The exact implications of the right to exclude have been the source of much misunderstanding. To illustrate its content, we may turn to Hohfeld's famous catalogue of rights as an eight-part scheme of opposites and correlatives.[50] The scheme strongly relies

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[47] Other arguments raised by the author refer to the ubiquity of the right to exclude and the historical primacy of this right. The latter is based on the observation that, in primitive societies, the right to exclude is always the first aspect of property to evolve over time. Merrill, *supra* note28, at 745-747. It is interesting to note, in this respect, that international space law may be characterized as a legal environment in the early stages of development.

[48] *Id*. at 740. The author then proceeds to analyse the rights to use, transfigure, transfer during life and devise upon death from the angle of the right to exclude. *Id.* at 740-745.

[49] Penner, *supra* note 23, at 754-767. Smith makes a similar argument, noting that the law specifies "an open-ended set of uses implicitly by giving the owner the right to exclude others from the asset." Smith, *supra* note 46, at 1759 (emphasis omitted). Of all sticks in the property bundle, perhaps the most far-reaching is the right to transfer the owned resource. Difficult though it may initially appear to understand from the vantage point of the right to exclude, the argument is easily made if we accept that the right to exclude also comprises the owner's right to include others, while excluding himself. Penner, *supra* note 22, at 80-97 and Merrill, *supra* note 28, at 743.

[50] Hohfeld, 1913, *supra* note 24, at 30-32. The theory is further developed in Hohfeld, 1917, *supra* note 24.

on a correlation between rights and duties, the latter of which is defined as the legal opposite of a privilege. The nature of the relation between rights and duties is such that the content of one's right is mirrored in the correlative duty that is thereby imposed on all others. A privilege should be distinguished from a right on the basis that it allows one to do something quite independently from anything that is expected from others.[51] From this categorization, it follows that, if one accepts that the right to exclude all others constitutes the core of property, the correlative duty thereby imposed on all others is one not to interfere with the use of the thing owned. Proponents of the right to exclude theory therefore often define property in terms of the negative duty of non-owners to keep from interference. Balganesh argues that, "[w]hen individuals view themselves as being placed under a duty (or obligation) to stay away from a resource, its owner is said to be vested with the claim-right to exclude,"[52] Likewise, Merrill notes that "the core of the property right is the right to exclude others from interfering with or using the right in specified ways."[53] Coval bluntly equates property with a duty of non-interference.[54]

Either on its own or through the mirror image of the duty not to interfere, the right to exclude is commonly recognized as the most

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[51] *Id*. at 31-32. *See also* S. BALGANESH, *Demystifying the Right to Exclude: of Property, Inviolability, and Automatic Injunctions*, 31 HARV. J.L. & PUB. POL'Y 603 (2008).

[52] Balganesh, *supra* note 52, at 612. The author adds that "[t]he right to exclude becomes a perfectly logical idea if understood entirely in its primary or correlative right conception - through the lens of the duty it imposes on others. The duty in turn derives its normative content from the moral notion of inviolability embodied in the institution of ownership." *Id.* at 19.

[53] Merrill, *supra* note 28, at 749. The author is talking about intellectual property rights, though the sentiment applies to property in general. Detractors of the right-to-exclude approach also conceive of the right in terms of non-interference on the part of non-owners. See, for example A. Dorfman, PRIVATE OWNERSHIP, 16 LEGAL THEORY 5-6 (2010) ("[t]hus the notion that ownership is essentially the exercise of a right to the exclusive use of an object implies that nonowners incur a duty to keep off objects owned by others and thus indirectly to sustain use by owners"). However, the author then proceeds to argue, incorrectly, that "actual possession, rather than ownership, is the ground of the common-law duty of non-interference" *Id.* at 8. This approach to property is the exact opposite of the relationship between possession, use and exclusion that will be developed in the following sections of this article.

[54] "Property rights, or rights of non-interference, may be held in anything which functions as means in an action." S. Coval, J.C. Smith, and S. Coval, *The Foundations of Property and Property Law*, 45 CAMBRIDGE L.J. 461 (1986).

important distinguishing feature of property.[55] As such, Penner's influential approach to property is based entirely on an analysis that takes the perspective of exclusion. The author views property as a "right to exclude others from things which is grounded by the interest we have in the use of things."[56] Another writer sums up a detailed Hohfeldian analysis of property by noting that "[t]he right to exclude, then, remains the defining ideal of property."[57] Even Gray, who equated property with thin air, concedes that the core of the right, if it can be identified, is one of exclusion, by recognizing that "the criterion of 'excludability' gets us much closer to the core of 'property' than does the conventional legal emphasis on the assignability or enforceability of benefits."[58] And though the case law of the US Supreme Court appears to lean toward the bundle of rights theory, its judges have many times insisted on the importance of the right to exclude as one of the most essential sticks in the whole bundle.[59] Noting that, in fact, the Court has never singled out any other aspect of property as being of equal import, Merrill argues that

> the right to exclude others is more than just 'one of the most essential constituents of property' - it is the *sine qua non*. Give someone the right to exclude others from a valued resource, *i.e.*, a resource that is scarce relative to the human demand for it, and you give them property. Deny someone the exclusion right and they do not have property.[60]

The author therefore concludes that "property means the right to exclude others from valued resources, no more and no less."[61]

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[55] M.R. Cohen, *Property and Sovereignty*, 13 CORNELL L.Q. 12 (1927) ("the essence of private property is always the right to exclude others"). *See also* Munzer, *supra* note 24, 22; Gray, *supra* note 42, 252; Penner, *supra* note 22, Chap. 4; W.N. White, *Real Property Rights in Outer Space*, 40 PROC. COLL. L. OUTER SPACE 380 (1997); Barnes, *supra* note 16, 15, 24-29.

[56] Penner, *supra* note 22, 71. On this approach, *see* further *infra*, II.B.

[57] Balganesh, *supra* note 52, 661.

[58] Gray, *supra* note 442, 294. To be sure, the author is mainly talking about the factual possibility of exclusion. Nevertheless, the link between excludability and exclusion as the core of property as a legal concept is clear.

[59] *See* the analysis of US case law in Merrill, *supra* note 29, 735 and Balganesh, *supra* note 51, 596.

[60] Merrill, *supra* note 28, 730.

[61] *Id*. at 754. The paramount importance of the right to exclude to characterize property also surfaces in Purdy, *supra* note 29, 16.

3. Property as Authority

The exclusive use theory of property is appealing for its clarity and robust implications, especially when compared to the non-committal strand of legal realism. At the same time, the theory's apparent rigidity has opened it up to scrutiny as well. Among the detractors are those who hastily point out that the right to exclude others, like all other sticks in the bundle of rights of property, is not impervious to restrictions either.[62] The exclusivist approach is assailed for elevating the right to exclude above all others, while failing to account for the fact that an owner's exclusive use of a resource is itself highly relative.[63] The main sentiment behind the argument appears to be that the comparable relativity of the right to exclude and the other sticks in the property bundle somehow deprives the former of its distinguishing characteristics. To illustrate the point, reference is often made to rules on fair housing and fair use of copyrighted works that significantly curb the right of house owners and authors to exclude others from their property.[64] The right to exclude would therefore not deserve the absolutist position allegedly attributed to it by those that equate property with exclusive use.

While grounded in factually correct observations, the arguments of the detractors unfairly misinterpret the position attributed to the right to exclude in an exclusivist conception of property. Nowhere do proponents of the exclusive use theory contend that the right to exclude others is absolute; they merely note that all rights commonly attributed to property can be reduced to the right to exclude others, thereby singling out the distinguishing feature that guides the application of property to a multitude of situations. It is not because the reach of an owner's exclusionary power is curbed in order to blunt its societal impact that exclusivity ceases to be the defining element of property. In other words, "the thesis . . . is not that property requires a certain quantum of exclusion rights. It is simply that to the extent one has the right to exclude, then one has property; conversely, to the extent one does not have

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[62] H. DAGAN, PROPERTY - VALUES AND INSTITUTIONS 37 (2011).

[63] Dorfman, *supra* note 53, 7.

[64] Dagan, *supra* note 62, 50-54.

exclusion rights, one does not have property."[65] The sentiment is reflected by Cohen, who notes that property "must at least involve a right to exclude others from doing something."[66]

If anything, the exceptional nature of the measures adopted to soften the exclusive impact of property, such as those on fair use and fair housing, confirm the right to exclude as the defining element of property.[67] For it is clear that these and other supplemental measures exist only in order to soften the exclusionary core of property rights, without which there would be no need for counteracting inclusive measures in the first place. The discussion is aptly summarized by Merrill and Smith, who note that,

> starting with the Legal Realists, the dominant assumption has been that the need to refine the exclusionary regime calls everything into question. A better view would be that efforts to supplement exclusion with various devices governing proper use respond to moral considerations that supplement those backing exclusion, but that exclusion retains its presumptive moral and legal force.[68]

It is self-evident that a society can only exist on the condition that all rights enjoyed by its individual members, whether property or other, be exercised with a modicum of respect for the position of others, lest society cease to exist and the rules governing social interactions be rendered empty and utterly meaningless. Arguing

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[65] Merrill, *supra* note 28, 753. The author clarifies that "[m]y claim is simply that in demarcating the line between 'property' and 'nonproperty' - or 'unowned things' - the right to exclude others is a necessary and sufficient condition of identifying the existence of property." *Id.* at 731. Likewise, Balganesh explains that his objective is not to argue "that the right to exclude is all that there is in property. Although the idea of property most certainly consists of more than just exclusion, to be meaningful it must contain, at a minimum, some element of exclusion." Balganesh, *supra* note 51, 600. Also *compare* Gray, *supra* note 42, 295 ("[t]he differentiation of excludable and non-excludable resources points up the irreducible elements which lie at the core of the 'property' notion").

[66] Cohen, *supra* note 22, 371. Dagan concedes to this point but discards it as a trivial truism that does not explain the true nature of property. Dagan, *supra* note 62, 37.

[67] Honoré notes that the existence of limitations to the right to use property at one's own discretion does not detract from the cardinal importance of this right, "since the standard limitations are, in general, rather precisely defined, while the permissible types of use constitute an open list." Honoré, *supra* note 21, 116. *See* further Smith, *supra* note 45, 1759-1760.

[68] T.W. Merrill and H.E. Smith, *The Morality of Property*, 48 WM. & MARY L. REV. 1891 (2007).

that the very restrictions needed to allow these rights to operate effectively in a societal context would deprive them of their content, is nothing short of nihilistic.

If the focus on exclusive use thus remains, in our view, sound from a legal perspective, the morally questionable nature of an approach that ostensibly reduces a pre-eminently social institution to yet another exponent of antisocial individualism with pernicious implications for wealth distribution, continues to raise doubts.[69] However, it is axiomatic that property does not equal wealth.[70] Socially inspired corrections to overly broad claims of exclusive use, the very existence of which prompted the argument that the relativity of the right to exclude somehow invalidates the exclusivist account of property, operate to ensure that the most objectionable moral consequences of exclusionary property rights are remedied.

Moreover, those decrying the antisocial implications of an approach that couches property in terms of the right to exclude all others, appear to confound the discussion on the exclusive content of the right with the exercise thereof. As such, they ignore the possibility of multiple holders of property, or, even worse, wrongly argue that such multiplicity of claimants would invalidate the exclusive nature of property itself. This argument unfairly trades on an ambiguity inherent in 'private' property as referring to the concept as a notion of private or civil law, on the one hand, and property that is enjoyed by one individual, on the other.[71] In the present discussion, as in the general discourse on property rights, 'private property' of course refers to the former.[72] The fact that more than one person has the authority to decide on the use of the thing owned

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[69] Dagan, for one, concedes that his opposition to the exclusivist theory is partly due to a fear that "[e]ntrenching an understanding of property as an exclusive right might misrepresent owners' social responsibility and nonowners' right to entry as suspicious intrusions to property, rather than necessary entailments of property." Dagan, *supra* note 62, 44.

[70] MERRILL, *supra* note 28, 754. On the disconnect between property and wealth, or poverty, *see* Becker, *supra* note 23, 88-94.

[71] This is evident in the case of Dagan, who contends that marital property invalidates the exclusive view of property. DAGAN, *supra* note 62, 42.

[72] *Compare* WALDRON, *What is Private Property?*, *supra* note 20, 327 ("[o]wnership, then, . . . is a term peculiar to systems of private property").

does not change the nature of property as being grounded in exclusivity; it merely renders divisible the exercise of the right to exclude.[73]

Even if those who criticize the exclusivist viewpoint appear to mistake, either wilfully or out of neglect, theoretical simplicity for simple-mindedness, they offer an alternative perspective that merits closer inspection, if only to avoid the common misconception that the right to exclude necessarily implies absolute and automatic exclusion of all non-owners. In an apparent refutation of both legal realism and exclusivism, Dorfman argues that private property should be understood as

> a three-place relationship between owner, nonowners, and an object that can be described in the following manner. Being an owner involves a special normative power—that is, the power to change (in some nontrivial measure) the rights and duties that nonowners have toward the owner with respect to an object. More precisely, private ownership comes into being when society vests practical authority in an individual (the owner) to fix in some measure the normative standing of others in relation to an object.[74]

Likewise, Katz notes that "[w]hat it means for ownership to be exclusive is just that owners are in a special position to set the agenda for a resource. Ownership's exclusivity is simply an aspect of its nature as a position of agenda-setting authority, rather than, in itself, the essence of ownership."[75] Both apparent corrections to the exclusivist perspective go back to Waldron, who noted that "in the case of each object, the individual person whose name is attached to that object is to determine how the object shall be used and by whom. His decision is to be upheld by the society as final."[76]

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[73] The detractors of the exclusivist theory apparently suppose „that any author who defines property as an exclusionary right is thereby denying the logical possibility of common property." J.W. HARRIS, PROPERTY AND JUSTICE 156 (1996). Or, in the words of Balganesh, "[t]he idea of exclusion, in one form or the other, tends to inform almost any understanding of property, whether private, public, or community. The only variation tends to be the person or group in whom it is vested." Balganesh, *supra* note 51, 596.

[74] Dorfman, *supra* note 53, 17.

[75] Katz, *supra* note 23, 277-278, 290. *See also* Smith, *supra* note 45, 1754 ("the right to exclude from a thing . . . is the result of second-order delegation to the owner to choose among any uses, known or unknown, of the thing").

[76] Waldron, *What is Private Property?, supra* note 20, 327.

With respect to ownership of a resource in particular, the authority of the owner is clarified as "the option of using the resource in such a way as to exclude others from it".[77] If such an option does not exist, there is no property, for there can be no exclusion that follows from a discretionary decision of the owner. To be sure, the authority to exclude may temporarily be devolved to others without ownership being transferred, as is the case for tenants and lessees. However, even in those instances, the exclusionary power of the latter would still find its origin in the agenda set by the owner for the use of the thing owned.

The account that emerges from the above 'critique' on the exclusivist take on property is one that conceives of property, not so much as an institution automatically implying exclusion of all non-owners, but as an authority to exclusively determine the use of the thing owned, which may or may not result in the actual exclusion of non-owners. The authority perspective is helpful for it focuses our attention on the 'right' component of property and its innate link with the utilitarian goal of property rights, whose exclusive impact is, after all, justified with a view of using the owned resource.[78] Both aspects are usually ignored in the entire property debate.[79] Through its apparent criticism of the exclusionary viewpoint, the authority theory completes the property debate, by moving it from the exclusive *impact* of property rights for non-owners to the discretionary exercise of the owner's right to determine the use of his resource as the *source* of such exclusion. By advertising itself as a correction to the right to exclude theory, however, authoritarians unfairly misrepresent the former account as one that is built on exclusion rather than the right to exclude as justified by the actual use of the object; it wilfully confuses the exclusive means of property with the construct's goal of actual and undisturbed use.

The relevance of the distinction can be illustrated with reference to the writings of Katz.[80] Though the author is by no means the only one to misrepresent the assumptions of the exclusivist

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[77] Balganesh, *supra* note 51, 613.

[78] For an excellent overview of the various social, philosophic, and legal justifications of (private) property, *see* Becker, *supra* note 23.

[79] Balganesh, *supra* note 51, 597.

[80] Katz, *supra* note 23.

property theory to facilitate her own approach by contrast, the author's arguments are singled out for the welcome opportunity they offer to further clarify the exact contours of the right to exclude in property. The author argues, first, that exclusivists trade on an ambiguity in the meaning of the word 'exclusive' by "conflating the concept of an exclusive right with that of the right to exclude."[81] It should be clear, however, that, if an error has crept into the discussion, it is on the part of the authoritarians. No proponent of property as exclusion has ever argued that the holder of the right to exclude must actually and continually exercise it so as to be considered the rightful owner. Though thrust into focus by the authoritarians, the normative element of ownership is already present in the *right to* exclude component of the exclusive use theory. As such, Penner, one of the most influential proponents of property *qua* right to exclude, has commonly characterized the right to exclude as 'the right to exclusively determine how particular things will be used.'[82]

A second problem arises with Katz's typification of the exclusivist account as contending that "the ability of the owner to use and dispose of her thing is simply the effect of her right to exclude others generally. It does not, on this view, represent any additional power or require any separate justification."[83] This is a wilfully myopic take on exclusivism as property, and one that unjustly represents the theory as propagating exclusion as the ultimate goal and justification of property, rather than a means to the end of actual use by the owner. Again, it should be pointed out that proponents of the right to exclude theory, too, recognize that the exclusive powers of the owner are justified by the interest in the use of the thing owned, which is simply facilitated by the exclusivity of said powers.[84] Indeed, even those authors that criticize the exclusivist strand in property writings acknowledge the intrinsic link between the right to exclude and the right to use as inherent in this approach.[85]

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[81] *Id*. at 277.

[82] *See*, *for example,* Penner, *supra* note 22, 71, 79.

[83] Katz, *supra* note 23, 283.

[84] Smith, *supra* note 41, 1693.

[85] Dorfman, *supra* note 53, 5-6 ("the right to use a thing requires the right to exclude others from the thing, and the right to exclude presupposes a right to use. Or perhaps it would be more accurate to say that private property is not just about excluding others and about the right to use, taken severally, but rather about the right to exclusive use").

Finally, by subverting the meaning of the right to exclude as attributed to property by exclusivists, Katz also misrepresents the corresponding duty on the part of non-owners not to interfere in the relationship between the owner and the owned thing. In line with the agenda-setting authority of the owner, the author contends that non-owners are required not so much to 'keep out,' as they are to "fall in line with the agenda the owner has set. The law preserves the exclusivity of ownership not by excluding others but by harmonizing their interests in the object with the owner's position of agenda-setting authority."[86] The duty of non-interference is thus fundamentally reinterpreted from a duty substantially coinciding with the exclusive core of property to *a measure of enforceability* in case the owner has decided that others should refrain from any interference with the owned resource.[87] Again, the distinction between both conceptions of property is only skin-deep. For non-interference as a measure to enforce the agenda set by the owner is merely incidental to the duty of non-owners not to interfere with the agenda-setting authority itself, which remains, as in the case of the right to exclude conception of property, the core duty corresponding to the exclusive rights of the owner.[88]

A critical analysis of the exclusive use and agenda-setting authority accounts of property ultimately reveals nothing more than a proper understanding of the fundamental principle that underpins both. The largely semantic nature of the differences between exclusivism and authoritarianism is perfectly encapsulated by the fact that authors of both schools of thought frequently cite the same typification of property by Cohen, as the definition that most pointedly captures the meaning of the notion, both legal and ordinary. Fittingly, it is construed as a note attached to the resource of an owner, whose content reads as follows:

To the world:

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[86] Katz, *supra* note 23, 278.

[87] *Id*. at 284-285 ("[t]he most basic criticism we can make of a boundary approach is that we cannot look to the right/duty of exclusion to define the contours of an owner's position").

[88] The difference between non-interference as a correlative duty and as a measure of enforceability is revealing, for it will re-enter the discussion when distinguishing property rights from use privileges. *See infra*, III.B.

> Keep off X unless you have my permission, which I may grant or withhold.
>
> Signed: Private citizen
>
> Endorsed: The state.[89]

In the end, it is but a small step from the right to exclude as constituting the core means through which property ensures the use of a resource, to a qualification that represents property as the exclusive right to determine the use of a thing. Though small, the step is invaluable; not for any correction it may bring to the exclusivist account, but for the shift in perspective by which it is accompanied. For it brings into clear focus the specific relationship between the right to exclude and the use of the owned resource as the primary means of distinguishing property from other legal institutions.

B. Unifying Foundations: Use and Exclusion

The fundamental nature of the relationship between the right to exclude and the right to use for defining property is elucidated nowhere with more clarity than in the writings of Penner[90] - though the link is blatantly ignored by nearly all of his detractors. Recognized as "one of the best accounts one can find of the kinds of rights that property - as legally understood – involves,"[91] Penner's approach to the idea of ownership is founded on the basic contention that property rights are typified by the specific interaction between the related rights of exclusion and use as determinants of the social relations between the owner and non-owners, including prospective users. In general, relations between a user and others with respect to the thing that is used may take on any of three following forms, with differing degrees of exclusive impact:

> [t]he right to use something so long as no one else was using it or wanted to use it is equivalent to having no right of exclusion whatsoever. The right to use something so long as one got there first is a right to exclude others while one is using something,

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[89] Cohen, *supra* note 22, 374. *See also* Smith, *supra* note 45, 1759.

[90] In particular, Penner, *supra* note 22.

[91] Underkuffler, *supra* note 29, 32. Penner is also acknowledged as one of the most influential writers on property in recent times in Katz, *supra* note 23, 279.

> and the right to use whenever one wants amounts to a right to exclude others whenever one decides to use something.[92]

Of these, only the latter relationship accurately describes property, for it is only when the user can exclude others at will, depending on his discretionary exercise of the right to use, that he is verily endowed with property rights. The discretionary element of the *right to* exclude non-owners implies that the owner is not bound by strict considerations to allow use by others whenever such use is possible, because the owner is not using the thing owned himself. Conversely, if the authority to exclude others from using a thing is merely incidental to the actual use thereof, there is no property, for the *exclusion does not derive from any right to exclude at all* but is merely a factual consequence of the actual use of an object. Again we may cite Penner:

> [w]e actually conceive of property in terms of a right which permits an owner to do anything or nothing with his property; the disaggregative bundle of rights thesis insists that an owner may do everything with his property. The former view accords with the fact that the law of property takes no interest in the particular use one makes of one's property (which is not to say that criminal law or the law of taxation does not); the latter holds that the essence of property is an infinite number of rights to use a thing, in the same way that the Hohfeldian idea of a right *in rem* entails having millions of rights against all other people.[93]

If there is a core right that characterizes property, it cannot be found in the positive right to use a thing and thereby exclude all others, but in the negative implication of the authority to decide to use a thing as a right not to use it at all, without losing the rights associated with the owned object.[94] For if the permission to use the

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[92] Penner, *supra* note 22, 70.

[93] Penner, *supra* note 23, 758.

[94] Once more, "the law of property is driven by an analysis which takes the perspective of exclusion, rather than one which elaborates a right to use. In other words, in order to understand property, we must look to the way that the law contours the duties it imposes on people to exclude themselves from the property of others, rather than regarding the law as instituting a series of positive liberties or powers to use particular things. . . . The duty *in rem* that correlates with the right to property is the negative duty not to interfere with the property of others, *i.e.* the duty to exclude oneself from the property of

thing owned may be granted according to the discretion of the owner, the right to use inherent in property also implies the right not to use, as the decision to grant permission to others to use the thing owned may be withheld even if the owner is not using the resource himself. For example, one does not have to justify a decision to disallow others to wear one's clothes simply because they are not being used for their intended purpose at the moment; it is not because I cannot wear all of my clothes at the same time that others may take them from my closet without violating my rights as an owner. It is this disconnection between exclusion, by the owner, and use, both by the owner and by all non-owners, that is as the very core of the property concept. The right to exclude others precedes the right to use, or the actual use of, a thing. This is exactly what is implied by the logical primacy argument: "the feature that makes nonpossessory property rights property is the right to exclude others, and the right to exclude cannot be derived from the right to use".[95]

Some authors even expressly typify the right not to use as constituting the main distinguishing feature of property. Pagaveau notes that,

> [d]isposant d'une plénitude de pouvoirs sur son bien, le propriétaire peut en faire ce qu'il veut, y compris ne pas l'utiliser. Le caractère perpétuel du droit de propriété se justifie facilement dans la mesure où «ne pas se servir de sa propriété, c'est encore exercer son droit de propriété». Si aujourd'hui la finalité sociale

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others. The concept of exclusion, not use, dominates the legal analysis." Penner, *supra* note 22, 71-73. He continues, "[t]he driving analysis underlying legal property norms defines these contours in terms of the general duties *in rem* that people have not to interfere in the property of others; it does not specify rights to use or dispose of property. . . . The right to property is thus a right to a liberty, the liberty to dispose of the things one owns as one wishes within a general sphere of protection. It is not the right to any particular use, benefit, or result from the use of property. . . . The general injunction to 'keep off' or 'leave alone' the property that is not one's own defines the practice of property much better than a series of specific duties which work to facilitate particular uses of others' property. The law does not enquire whether, or to what extent, the trespasser or the thief impinged upon the owner's dispositions in respect of the property in question." *Id.* at 73.

[95] Merrill, *supra* note 28, 744.

> de la propriété assortit le non-usage d'un certain nombre d'exceptions, le fait pour un propriétaire de ne pas user de son bien n'entraîne pas la perte de son droit.[96]

The right to exclude others thus persists even in the case of perpetual abandonment, for "[i]t is surely part of a right to determine how a thing is to be used that one may make no use of it at all, for evermore."[97] Interpreted broadly as the right to dispose of one's own property in the manner of one's choosing, the *abusus* component of the classic trilogy of property rights thus comes to the fore as best characterizing the exclusive powers of the owner.[98] To be sure, the right not to use a thing may appear a peculiar means of distinguishing property from other legal institutions, especially since the justification of property ultimately remains grounded in the use of the thing owned. It has already been stressed, however, that the utilitarian justification of property should be divorced from its means of realization, as "use justifies the right, while exclusion frames the practical essence of the right."[99]

The present section has shown that the bundle of rights theory is relevant for highlighting the social intricacies of property rights. However, it suffers from an overly 'realist' approach that is devoid of theoretical merit and ultimately appears unworkable. This pitfall is dodged by exclusivists, by reducing the many intricacies of property to a single core characterized by the right to exclude others. Though this right is subject to exceptions much as any other stick in the traditional bundle of property rights, this finding does not,

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[96] Pavageau, *supra* note 32, 107 (footnote omitted).

[97] Penner, *supra* note 22, 79.

[98] See the detailed assessment of the case law of the European courts on the subject and conclusions in Pavageau, *supra* note 32, 85-93.

[99] Penner, *supra* note 23, 743. As eloquently put by Hohfeld, "[e]ven though the land be entirely vacant and A have no intention whatever of personally using the land, his rights or claims that others shall not use it even temporarily in such ways as would not alter its physical character are, generally, of great economic significance as tending to make others compensate A in exchange for the extinguishment of his rights, or claims, or in other words, the creation of privileges of user and enjoyment. . . . But with respect to the suggested absence of value of the land in its present situation, it is enough to say that the very fact that no interference of this kind can lawfully take place without his consent, and without a bargain with him, gives his interest in this land, even in a pecuniary point of view, precisely the value which that power of veto upon its use creates, when such use is to any other person desirable and an object sought to be obtained." Hohfeld, 1917, *supra* note 24, 747-748.

as such, deprive the right to exclude from its distinguishing relevance. Our understanding of the right to exclude has been facilitated by the authority approach, even if it partially rests on a misinterpretation of the former account. It has revealed that property does not consist of exclusion *per se* but is based on a *right* to exclude that is derived from an original authority over the thing owned.

To be sure, exclusion can follow from use that is not accompanied by property rights, and even non-owners may exclude others without making any actual use of the owned thing themselves. However, it is only when the rights of the user to exclude others flow from the non-derivative authority the user himself has over said object, that he is verily endowed with property rights. If the right of the user to exclude others is derived from a source extraneous to himself, or is dependent on the actual use of the object, and extinguishes upon cessation of said use, the user has no property rights. This fundamental observation holds true for all approaches to property rights, whether characterized by an adaptive bundle of rights approach, a rigid exclusivity account or a theory dwelling the middle ground by stressing the authority element to decide on the use of the thing owned.

III. APPLICATION: NATIONAL APPROPRIATION

The main finding to arise from the select overview of property theories in the previous section concerns the pivotal place of the right to exclude in determining the legal nature of the use that can be made of an owned resource. A proper understanding of the meaning of the right to exclude in terms of property requires that both the exclusive use and the authority of the owner to determine such use be taken into account. The specific relationship between the right to exclude and the use of an owned resource is represented by the right not to use one's property, while retaining the right to exclude others. It is further elucidated by the corresponding duty on the part of all others not to interfere with the owner's agenda-setting authority. Absent any concrete indications to the contrary, there is little reason to argue that these findings should not be transposed to the national appropriation notion in the Outer Space Treaty and the Moon Agreement. Indeed, the negotiations on the non-appropriation provisions in these treaties were characterized by a notorious pithiness that failed to elaborate on the content of

their wording, let alone indicate a wish to deviate from their generally accepted meaning.[100] The present section will further substantiate this preliminary contention by looking at the history and wording of Article II of the Outer Space Treaty, and its relationship with the other provisions that outline the basic contours of the space resource regime, *i.e.* Articles I and IX of the Outer Space Treaty, as well as the regime of the International Telecommunication Union (ITU), as regards the use of orbits by satellites as a limited natural resource.[101]

A. Exclusion: Outer Space Treaty, Article II

The interpretation of the proscription of national appropriation as entailing a ban on exclusion without use is supported by the precursors of the current formulation of the binding principle in Articles II of the Outer Space Treaty and 11 (2) of the Moon Agreement, even if these provisions do not elaborate on their rationale themselves. The national appropriation formulation first appeared in United Nations General Assembly (UNGA) Resolution 1721 of 20 December 1961.[102] It was subsequently expanded by UNGA Resolution 1962 into the language that currently persists in the Outer Space Treaty and the Moon Agreement.[103] The relevant provisions have never elaborated on the nature of the rights that were considered to make up 'appropriation,' but merely summed up the means through which such proscribed rights could be attained. This pithy formulation of the national appropriation concept has sparked many a controversy, *inter alia* on whether all forms of appropriation had been outlawed, or merely those by governmental actors. To clarify that private property rights in outer space were proscribed alongside public variants, Fitzmaurice proposed to include in the text of the first section of the Institute of International Law's (IIL)

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[100] *See* Ram S. Jakhu, *The Principle of Non-appropriation of Outer Space and the Geostationary Orbit*, 26 PROC. COLL. L. OUTER SPACE 22 (1983).

[101] See the qualification as such of the radiofrequencies and any associated orbits, including but not limited to, the geostationary satellite orbit, in ITU Constitution, Art. 44(2).

[102] International Co-operation in the Peaceful Uses of Outer Space, G.A. Res. 1721 (XVI), ¶1 (b), U.N. Doc. A/RES/1721 (XVI) (Dec. 20 1961).

[103] Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space, G.A. Res. 1962 (XVIII), U.N. Doc. A/RES/1962 (XVIII) (Dec. 13, 1963).

resolution on outer space a second phrase, which unequivocally extended the prohibition to 'all forms of use of an exclusive nature.'[104] The proposal was rejected, however, and the relevant provision ultimately simply stated that "[o]uter space and the celestial bodies are not subject to any kind of appropriation."[105] The phrase foregoes any explicit link between appropriation and exclusive rights yet is clearly less ambiguous than Article II of the Outer Space Treaty in that it expands the proscription to any kind of property rights, rather than national appropriation only.

Other proposals did explicitly retain the link with exclusive rights as providing the basis for a proscription of property rights in space. The August 1960 resolution of the International Law Association (ILA) recommended "the conclusion of an international agreement whereby States would agree not to make *claims to sovereignty or other exclusive rights* over celestial bodies, and affirm the principles of law stated in paragraph 3(a) and (b) of this resolution."[106] Paragraph 3, sub b of the ILA resolution reiterates that "[o]uter space may not be subject to the sovereignty or other exclusive rights of any State." The Draft Code of the David Davies Memorial Institute of International Studies (DDMIIS) stipulates that "neither outer space nor the celestial bodies in it are capable of appropriation or exclusive use by any state."[107] The importance of the exclusionary aspect of property as the rationale for its prohibition is sometimes stressed by the addition of the somewhat superfluous epithet 'exclusive.' As such, in 1959, the American Bar Association passed a resolution declaring "that in the common interest of mankind . . . celestial bodies should not be subject to exclusive appropriation."[108] Finally, the Tentative Provisions of the New York Bar Association provided that national sovereignty cannot be acquired in

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[104] Discussed in M.G. MARKOFF, TRAITÉ DE DROIT INTERNATIONAL PUBLIC DE L'ESPACE 646 (1973).

[105] *Id.* at Art. 1 of the IIL Resolution.

[106] Para. 4 of the Resolution on Air Sovereignty and the Legal Status of Outer Space, published in the Report of the Forty-Ninth Conference of the International Law Association, Hamburg, 1960, p. IX (emphasis added).

[107] Draft Code of the David Davies Memorial Institute of International Studies, Rule 2.1, in 5 PROC COLL. L. OUTER SPACE (1962).

[108] American Bar Association, *Report of the Committee on the Law of Outer Space*, 1959 A.B.A. SEC. INT'L & COMP. L. PROC. 210-234 (1959). *See also* L. LIPSON AND N. KATZENBACH, REPORT TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ON

outer space.[109] They further detailed the specific implications of this general proscription with respect to the use of celestial bodies in a provision entitled 'Territorial claims to celestial bodies,' which offers a useful and uncharacteristically clear starting point for the description of the legal regime on the use of natural resources, extending to outer space in general:

> [c]elestial bodies (other than stations, craft, vehicles, or other objects launched from the earth) shall not be subject to exclusive appropriation by any person, organisation, or State on the earth. Any exploration, occupation, development, use, and exploitation of the resources of such celestial bodies shall be conducted so as not to endanger such activities conducted by others.[110]

The relevance of the above proposals is decidedly diminished by the fact that they could not determine the formulation of the legally binding principle in the Outer Space Treaty. Nevertheless, their common insistence on highlighting the exclusive implications of appropriation retains a particular relevance for the current interpretation of the fundamental principles of international space law, as it mirrors the generally accepted interpretation of property as a legal institution characterized by exclusion and non-interference. Indeed, in light of the characterization of property as the right to exclusively determine the use of the thing owned, we may refer to a number of authors that, in line with the precursors of the non-appropriation principle expanding the proscription to include all forms of exclusive rights, have parsed the legal regime of natural resources in space from the perspective of inclusive v. exclusive use of the entire outer space environment, rather than in terms of property rights over its component resources *per se*. The move is inspired by a desire to reconnect the discussion on property rights over space resources with the general discussion on the status of the outer space environment as *res communis* or a global commons. For example, in an essay suffused with references to the *res communis* character of outer space, Christol concludes that "there has

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THE LAW OF OUTER SPACE 24 (1960) cited in P.G. Dembling and D.M. Arons, *The Evolution of the Outer Space Treaty*, 33 J. AIR L. & COM. 421 (1967).

[109] C.W. JENKS, SPACE LAW, 440-445, Tentative provision B (1) (1965).

[110] *Id.* at Provision U.

come - over time - the view that lawful activities in the space environment include the non-exclusive exploitation of both the area and its resources."[111] Likewise, Delville's interpretation of Article II is guided by the general assertion that no single state can acquire or claim 'exclusive rights' over celestial bodies.[112]

B. Authority? Outer Space Treaty, Article I

Again, however, it is unclear whether to interpret these and other references to exclusivity in the use of resources from outer space as defining the boundary between lawful use and unlawful appropriation in terms of Article II of the Outer Space Treaty, or as a criterion highlighting the requirement that all states have the possibility to exercise their freedom to use outer space, as guaranteed by Article I OST. Not unlike the debate on property rights in general, the tale of property over resources as exclusive activities v. inclusive use is hence incomplete, as it tends to focus solely on the aspect of exclusion through use, while neglecting the exclusive impact of claims absent their actual exercise.[113] If the focus on *exclusivity* dovetails with the view that the right to exclude is an essential aspect of property rights, it fails to fully account for the fact that property is based on an *authority* to exclude rather than the factual use of the resource. For property does not merely amount to a right not to be excluded, it is the presence of a positive authority to exclusively determine the use of the thing owned that characterizes property. This is, after all, the difference between a property right and a privilege to use.[114]

Before developing this argument any further, we should elaborate on the exact qualification of a 'right' as a crucial component of the right to exclusive use. In Hohfeldian nomenclature, as we have

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[111] C.Q. Christol, *Article 2 of the 1967 Principles Treaty Revisited*, 9 ANN. AIR & SPACE L. 261-62 (1984).

[112] Delville, *supra* note 23, 143.

[113] *See supra* II.A.3.

[114] *See* also the distinction between both legal notions as raised in J.A. Heilbock, *Rights or Privileges in Frequency Spectrum*, 43 PROC. COLL. L. OUTER SPACE 196 (2000). We therefore side with Harris' rejection of MacPherson's definition of a property right as an "enforceable claim to the use or benefit of something, of which the paradigm is a right not to be excluded whilst the right to exclude others is merely a special case." Harris, *supra* note 73, 155 (referring to MacPherson, *supra* note 21).

seen, a 'right' can either refer, broadly, to a composite notion encompassing the related concepts of rights *sensu stricto*, privileges, powers and immunities, or, narrowly, to a 'claim.' A claim is defined as the legal correlative of a duty and the legal opposite of a no-right. The term is suggested by Hohfeld to distinguish the narrow connotation of a 'right' from the other three related concepts that make up the composite counterpart of the term.[115] In the present section, when stressing the relevance of the *right* to exclude as constituting the essence of property, we are, of course, referring to the second, narrow connotation of the notion as a claim. Considering the prevailing interpretation of property as outlined in the previous section, the *right* to exclude can hence usefully be interpreted as indicating the authority from which the decision to exclude others follows, in order to distinguish it from exclusion that may accompany any form of factual use not backed up by comparable authority.[116]

If the claim component of property has ever been acknowledged in the discussions on Article II, these instances are very rare indeed. When discussing the possibility of laying claim to the territory surrounding a station on the Moon, Mankiewicz, the Canadian representative at the Working Group (WG) III of the International Institute of Space Law (IISL), objected on grounds that the 'claim' notion could, in his opinion, only refer to rights or title to ownership in space. It followed that "nothing could be 'claimed' because in the [Outer] Space Treaty it is explicitly said that there is no possible appropriation."[117] While we agree with the sentiment of the statement, the argument appears to unnecessarily constrain the claim concept by limiting it to specific rights only. Moreover, the interpretation offered by Mankiewicz would render the notion wholly superfluous in the context of a legal framework that, as noted by the author himself, does not recognize national appropriation in any case. In reaction to the statement, Bartos and Sztucki therefore rightly

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[115] Hohfeld, 1917, *supra* note 24, 717.

[116] This terminological clarification will hopefully help to understand the criticism of the detractors of the exclusivist account of property rights.

[117] Mankiewicz in M.S. Smirnoff, *Report of the Working Group on Legal Status of Celestial Bodies*, 10 PROC. COLL. L. OUTER SPACE 24 (1967). The author adds, somewhat confusingly, perhaps humorously, that the term ‚claim' in the context of the question under discussion of the WG III was therefore "not appropriate."

rejected the explanation and reinterpreted the claim notion as referring to a general recognition of title to *certain* rights and aspects of jurisdiction in space only.[118]

The difficulty in interpreting the language of Article II and the persisting inclination by some to discuss the regime of space resources in terms of *res communis*, beg the question whether we can usefully ignore the rights component of property in the exclusive v. inclusive use discourse. Phrased differently, the question arises whether we can solve the issue of property rights over particular amounts of resources by reference to the general qualification of the outer space environment as one of inclusive use. To illustrate this point, we may refer to the writings of McDougal, Lasswell, and Vlasic on law and public order in space. The 1963 exposé of these authors on the enjoyment and acquisition of natural resources in space still stands as one of the most complete analyses of rights over space resources to date.[119] However, the years that have elapsed since the formulation of the authors' theory and the legal developments that have taken place in that timeframe require us to put the account into perspective.

Let us thus start by outlining the context of the debate. When determining whether property rights can be vested in particular types of resources, theorists often revert to the test of excludability. The test posits that resources cannot become someone's property if it is impossible for a legal person to exercise regulatory control over the access to the resource by others, be it for reasons of physical, moral or legal non-excludability.[120] There can be no doubt that all natural resources in outer space, even those that are immaterial and infinitely renewable, are perfectly excludable from a physical and moral perspective. In the early space age, the international community was therefore faced with the task of deciding whether or not to confirm this excludability on the legal plane. To inform the imminent choice of the international community in this respect, McDougal, Lasswell, and Vlasic offered a detailed policy analysis on the interests and stakes at play in the regulation of outer space.

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[118] See the contribution of both authors to the discussion. *Id*.

[119] M.S. Mcdougal et al., *The Enjoyment and Acquisition of Resources in Outer Space*, 111 U. PA. L. REV. 521-636 (1963) and M.S. MCDOUGAL, H.D. LASSWELL, AND I.A. VLASIC, LAW AND PUBLIC ORDER IN SPACE chap. 7 (1964).

[120] *See*, *in general*, Gray, *supra* note 42, 268-292 and Barnes, *supra* note 16, 26-29.

In the case of natural resource exploitation, as in most other instances, the analysis ultimately boiled down to a choice between inclusive and exclusive use. In the words of the authors, inclusive use refers to

> the *claim, made on behalf of all*, that the resource is not in any degree subject to exclusive appropriation but must be maintained as open for inclusive use by all, with complete equality in shared competence. The diametrically opposing claim will of course be that the resource may be exclusively appropriated by a single participant, with all interests in access and enjoyment being subjected to the comprehensive, continuing, unilateral competence of the participant.[121]

Whether the international community should opt for inclusive or exclusive use of particular types of natural resources in space should be decided against the background of the overarching goal of value maximization: how can the greatest production and widest distribution of values be achieved? If through inclusive use, the resources are deemed sharable; otherwise they are non-sharable.[122]

The set-up of the analysis by McDougal, Lasswell, and Vlasic mixes references to inclusive use with implications of exclusive appropriation, suggesting that a decision on one aspect will have unambiguous results for the other. Disregarding for a moment whether it is prudent to make such an assumption, the authors' analysis on inclusive and exclusive use rightly starts from the perspective of claims over types of resources instead of the actual use of particular amounts thereof, as follows from the incorporation of the claim notion in the definition of both policy options. It is clear that a narrative focusing on exclusive use yet omitting the authority angle cannot usefully settle the argument of national appropriation in Article II, for it overlooks the obvious fact that every form of use by one state of a resource in space, whether permanent or momentary, is necessarily exclusive to all others for the duration of the use, for otherwise the freedom to use outer space could not be exercised.[123] The physical excludability of space resources, whether

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[121] McDougal et al., *supra* note 119, 771 (emphasis added).

[122] *Id*. at 774-775.

[123] G.B. Krause-Ablass, *The Need for International Community Systems of Satellite Telecommunications*, 15 PROC. COLL. L. OUTER SPACE 81 (1972); R. Wolfrum, *Einzelne Formen der Nutzung des Weltraums - Geostationäre Umlaufbahn* in HANDBUCH DES

tangible or intangible, implies that the use of a specific segment by a certain participant at a given moment *ipso facto* excludes a similar activity by all other competing users over the same segment at the same time. In this regard, Metcalf rightly notes that, "[i]f any use, which for some time excludes identical use of the same segment by somebody else, amounts to appropriation, it is difficult to see how there can be any content left in the principle of freedom of use."[124]

Our interpretation of property gives solid legal footing to this intuition.[125] For, as we have seen, mere exclusion *through use* does not, by any means, imply the existence of property rights, and the mere use of a resource is not an unlawful activity in and of itself. Quite the opposite: it is positively protected by the freedom to use outer space. Just as the general principle on the freedom to use outer space should not be defined with reference to each particular

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WELTRAUMRECHTS 354 (K.-H. Böckstiegel, ed., 1991). Specifically with respect to the exploitation of mineral resources in outer space, *see* M.L. Smith, *The Commercial Exploitation of Mineral Resources in Outer Space* in SPACE LAW: VIEWS OF THE FUTURE (T.L. Zwaan, ed., 48-49 (1988). *Compare* Lee, *supra* note 13, 164-165. The author notes that the strict application of the reciprocal freedom to use outer space would imply that the placement of a satellite in any orbital position would be unlawful, for it precludes other states from using that same point in space at the same time. The issue is exacerbated when we approach orbits as circular entities rather than a series of points in space, as evidenced by Goedhuis' argument that, strictly speaking, the free use of outer space can only support one satellite in the GSO, for a second one may interfere with the route of the first*: see* INTERNATIONAL LAW ASSOCIATION, REPORT OF THE FIFTY-SIXTH CONFERENCE 454 (1975).

[124] K.N. Metcalf, *supra* footnote 13, p. 241. *But see* C.R. Buxton, *Property in Outer Space: The Common Heritage of Mankind Principle vs. the "First in Time, First in Right" Rule of Property Law*, 69 J. AIR L. & COM. 705 (2004) (arguing that "despite the label, when a satellite fills an orbit slot, the party occupies that space and effectively asserts sovereignty. This concept seems no different than an unmanned station on the moon; the space being used becomes inaccessible to others"). *See* also W. von Kries, *The Legal Status of the Geostationary Orbit: Introductory Report*, 18 PROC. COLL. L. OUTER SPACE 29-30 (1975) ("[s]ince the stationing of a geostationary satellite precludes the use of the position by other states, this fact could already as such be construed as national appropriation"). *Compare with* Jakhu, *supra* note 100, 22 (contending that "the use of the geostationary orbit is allowed as long as it does not amount to appropriation, *i.e.* it does not exclude others from using the orbit").

[125] Even if Metcalf herself ostensibly disagrees with this assessment, as she argues that permanent use may "with the normal interpretation of the word amount to appropriation." Metcalf, *supra* note 12, 246. The author also deems it necessary to take into account the type and scale of use in order to judge whether the exclusion of others amounts to appropriation. It is argued here that such considerations relate to Art. I OST rather than Art. II OST.

segment or piece of outer space, a similar interpretation of the exclusive use criterion would result in too broad a restriction of the freedom to exploit natural resources. Additionally, since every use is exclusive for its entire duration and property is defined as exclusion that is not grounded in use, the length of time of resource exploitation is definitively removed from the equation applied to determine the legality of an activity, whether it concerns the instantaneous exhaustion of matter or the prolonged use of immaterial orbits. Finally, it should be pointed out that, in line with the caveat on mixing property with wealth,[126] exclusivity of use should be separated from the divisibility of the benefits that follow from such use, as the fruits of exclusive use by one can obviously be shared among multiple stakeholders.

To be sure, the inevitability of exclusivity through use does not apply to all types of resources in all fields of human activity. As such, it has been noted that the use of intellectual resources is by its nature non-exclusive.[127] The sharable use of data, for example, is a good reminder of the importance to take into account the physical characteristics of resources when defining the applicable property institution. Though factually accurate, the observation is of little relevance for space resources. All resources under consideration here are natural rather than intellectual, and, for all their diversity, by definition correspond to a physical, if not always material, set of phenomena, whose use by one is necessarily exclusive of all others. Moreover, it is not because the use of some resources is not by its nature exclusive that the legal implications of property over such resources are any different than for resources that are physically excludable. Intellectual resources remain legally excludable and hence susceptible to property, regardless of the physical possibilities of simultaneous exploitation. If everyone is free to use a piece of information, there is no property over the relevant data simply because there is no legal exclusion, regardless of physical excludability or inclusivity. As such, the counterargument can only underscore the importance of properly understanding the authority element in the right to exclude others as constitutive of property. This is, after all, what separates physical excludability from legal

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[126] *See supra* note 70 and accompanying text.

[127] Dagan, *supra* note 62, 42.

excludability. And, in these pages, we are only concerned with the latter.

If the dichotomy of exclusive and inclusive use can only be understood with reference to claims instead of actual use, claims for exclusive use should be interpreted, as per our analysis in the previous section, as property rights. However, in this regard, the actual property implications of McDougal, Lasswell, and Vlasic' analysis for concrete activities of natural resource exploitation are equivocal at best. For nearly every type of space resource considered, whether spatial-extension, flow or stock,[128] the authors conclude that value maximization occurs when the international community opts for inclusive use over exclusive appropriation by a single participant.[129] Specifically, the authors assert that "inclusive use is always the best, even when there is great inequality among participants, in that there are only a few participants having potential capabilities."[130] The outcome is understandable in light of the goal of value maximization for the international community.[131] At the same time, however, it is unmistakably influenced by this finality as well, for there is scarcely a type of natural resource conceivable of which the value for the entire international community would be maximized by allowing only one participant to appropriate it.

The only type of resource that is deemed non-sharable by the authors are scarce stock resources, though only if the "context of interaction is such that exclusive use encourages development without injury to the interests of other participants."[132] It is decidedly unnecessary, however, to allow a single participant to *a priori* lay claim on a resource that is only of use to him, for exclusion through property is only useful when there are competing interests.

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[128] According to the authors, spatial-extension resources are "those whose most distinctive characteristic is their utility as media of transportation and communication." Conversely, stock resources are those whose total supply does not significantly increase in time. *See* McDougal, *et al.*, *supra* note119, 777, 779.

[129] *Id.* at 776-781.

[130] *Id.* at 782.

[131] The same finality guides the analysis in A.S. De Vany, *et al.*, *A Property System for Market Allocation of The Electromagnetic Spectrum: A Legal-Economic-Engineering Study*, 21 STAN. L. REV. 1512 (1969) ("our working rule is that the social value of production from the use of electromagnetic spectrum should be maximized") and M.A. Rothblatt, The Impact of International Satellite Communications Law Upon Access to the Geostationary Orbit and the Electromagnetic Spectrum, 16 TEX. INT'L L.J. 224 (1981).

[132] McDougal, Lasswell, & Vlasic *et al.*, *supra* note 119, 781.

Moreover, it is wholly unclear why this exception for exclusive use *qua* appropriation should be limited to the category of scarce, non-renewable resources, for there seems to be little point in banning private appropriation of any type of resource that is merely of interest to one user. Indeed, the qualification of scarce stock resource as exclusive use resources is accompanied by an entire set of procedural and substantive limitations whose pertinence extends far beyond this category alone. Consider, for example, the requirement that the exploiting state take into account the amount of resources claimed and the time within which its planned exploitation must be undertaken.[133] Clearly these limits should apply to the exploitation of all types of resources, regardless of the policy on claims of exclusive or inclusive use, thus further questioning the relevance of such distinction for determining property rights over specific resources. Moreover, they obviously relate, in terms of the Outer Space Treaty, to matters of reciprocity in Article I rather than the absolute ban of Article II.

If the issue with a regime based on claims for exclusive use is one of equivocal application, the problems with a suggested regime based on 'claims for inclusive use' are of a more fundamental nature, for the concept as such resists a translation into property rights terminology that could usefully determine the lawfulness of property through exploitation activities in space. At best, it suggests an outcome that is decidedly at odds with the current provisions of international space law. Separated from the claim component, the notion of inclusive use merely reflects the requirement that no prospective user can be excluded from the freedom to use a resource. As such, it mirrors the provision in Article I, para. 2 of the Outer Space Treaty on the freedom to use outer space by all states on the basis of equality. It does not answer the question, however, of whether the freedom to use entails the freedom to appropriate, as the right not to be excluded differs from the right to exclude for want of the authority element. It merely negates the existence of such authority in others to the extent that it would preclude actual use by all; if such inclusiveness is not threatened by property rights in specific resources, however, there is no compelling argument against appropriation.

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[133] McDougal *et al.*, *supra* note 119, 636.

This is confirmed by the interpretation of inclusive use by McDougal, Lasswell, and Vlasic as inherently being a requirement of equal access. However, the addition of the claims component changes matters on a fundamental level, as it adds the positive connotation of property to the notion of inclusive use, thereby transforming it from a mere guarantee against being excluded to the negation of the right to exclude qua property. In other words, property by the community amounts to a negation of property by the constituent individuals that make up said community. As indicated previously, much of the critique on the interpretation of property as determined by the right to exclude is based on the allegation that such an approach unfairly disregards the social component of property rights in favour of a myopic conception of property as an enabling tool of individualist freedom. Detractors of the exclusivist approach have therefore pointed to such institutions as communitarian property for downplaying the distinguishing element of the right to exclude.[134] However, it would be wrong to characterize communitarian institutions of property as a form of ownership lacking the authority to exclude. As argued by one of the characters in Cohen's dialogue on private property, "the essential factor that we are reaching for [in property] is the power to exclude, whether that power is exclusive or shared with others."[135] Hence, even in the case of common property, the right to determine the use of a thing remains exclusive to the holders of the right, though it is simply shared by all states. Property includes the right to determine that non-owners may use the thing owned, though not to the effect that property rights are acquired, for this would turn the system of common property in one of individual ownership. Hence, a system governed by claims of inclusive use over resources, as opposed to one of inclusive use, period, has the positive implication of disallowing any and all type of individual property rights, regardless of whether it would threaten actual inclusiveness in the use of these resources.

In theory, it would be possible to conceive of the hypotheses proclaiming the outer space environment as *res communis* and a global commons as accurately encompassing connotations of free and equal use of outer space, as well as deciding on the lawfulness of property rights. For one could incorporate the authority angle in

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[134] *See supra* note 73 and accompanying text.

[135] Cohen, *supra* note 22, 370.

the inclusive use discourse by arguing that, in space law, the international community has retained the highest authority to decide, through the mechanism of treaties, how space resources shall be used by its constituent states, which are free to exploit these resources yet can never obtain property over them. Such a literal interpretation of inclusive use *qua* common property conflicts with the present formulation of Article II, however, which precludes not only appropriation by states *qua* states but also as members of the international organizations through which the international community acts. For this reason, it appears incorrect to label the current regime of outer space as one guided by *res communis*.[136] If the international community is not vested with ownership authority over resources in space, the regulation in the UN treaties merely represents the exercise of the law-making powers of an international organization with regard to an environment that as a whole has been removed from the sphere of appropriation. This dovetails with the general attitude of many property law theorists to common property, who fail to see the added value of qualifying rights obtained through the exercise of a universal freedom as a form of property.[137] Indeed, even those authors that suppress the importance of the right to exclude in property recognize the inherent contradiction in concepts of inclusive property. As remarked by one author, "exclusion and inclusion are not symmetric in property; in the limiting

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[136] The only alternative would be to assert that ownership is retained by humanity. However, the view according to which the UN space law treaties have elevated mankind to the level of actionable subject of international law is unsupported at best by the majority of space law doctrine. *See* R.V. Dekanozov, *The "Common Heritage of Mankind" in the 1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, 24 PROC. COLL. L. OUTER SPACE 182 (1981); A. Bückling, *Die Freiheiten des Weltraumrechts und ihre Schranken*, in HANDBUCH DES WELTRAUMRECHTS 97 (K.-H. Böckstiegel, ed., 1991); and Metcalf, *supra* note 13, 194.

[137] Harris on the right to clean air and water as property rights: "[w]hat is added by terming such rights 'property' rights? Nothing - it seems - except the negative point that, because the atmosphere and open stretches of water are owned by nobody and for that reason can be described as 'common property', no-one can counter the demand for these measures by asserting ownership of the air and the water." Harris, *supra* note 73, 57. This simply amounts to a right not to be excluded, however, without justifying the need for a supreme body vested with the authority to exclude.

case of inclusion, namely universal equal access, there is no owner."[138]

Hence, what is most troubling about a discussion on space resources in terms of inclusive v. exclusive use is not that it would be incorrect - it is not - but that it does not unequivocally address the fundamental issues raised by the concept of property rights. In particular, the qualification of outer space as guided by inclusive use does not settle whether the exercise of the universal freedom to use space includes the possibility of private property over specific natural resources as a form of use by one participant. For a decision on the *status* of the outer space environment or a particular *type* of resources therein in terms of inclusive use does not determine whether property rights can be obtained through specific exploitation activities if these activities do not preclude inclusive exploitation for the type of resource that is being consumed. Conversely, if the legality of appropriative exploitation is to be determined by its effects on the inclusivity of the use that the international community can make of the type of resource concerned, appropriation thereof should be allowed up to the point where it would preclude comparable activities by all other users. This conflicts with the implications of a regime guided by claims of inclusive use, for if claims for exclusive use are tantamount to property, inclusive use as common property simply does not allow for individual appropriation without changing the nature of the regime. Finally, claims of inclusive use, whatever form they may take, imply the existence and recognition of a body that is endowed with the supreme authority to exclude, which is contrary to the existing formulation of the non-appropriation principle.

Ultimately, the inclusive use narrative simply rehashes the old *res communis* v. *res nullius* discussion. It suffers from the same fundamental defects, only aggravated by the flagrant neglect of the actual language of the provisions of the UN space treaties that have since come into effect.[139] Reducing the space resource regime to one

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[138] Dagan, *supra* note 63, 44. Even though the author argues that property is both about exclusion and inclusion, he concedes that there can be no symmetry between both. *Id.* at 55, 44.

[139] This critique applies to the writings of McDougal, Lasswell and Vlasic as well, for they claim that the theory of inclusive use had been accepted at the time of writing by the international community in Resolution 1721, *supra* note 102, OP 1, sub b, the ascendant of current Arts. I and II OST. McDougal *et al*., *supra* note 119, 589-590.

guided by inclusive use, without considering the claim component of property rights, merely accounts for the provisions of Article I of the Outer Space Treaty. To the extent that it leaves unresolved the matter of resource appropriation, the theory is therefore incomplete. To the extent that it pretends to settle the property rights issue as well, it is flawed. For free access to segments of outer space and celestial bodies is hindered, not only through acts of appropriation, but from the moment a state uses the relevant segment, even if only temporarily and non-exhaustively. An argument alleging that the inclusive use theory implicit in Article I also proscribes isolated acts of appropriation would thus have to recognize that mere acts of use violate Article I as well, even though the provision is intended to encourage actual use of outer space.

Worse still, such an expansive reading of Article I would reduce the non-appropriation provision to an empty vessel that only enters the discussion in the case of extreme violations of Article I of the Outer Space Treaty, when sovereignty is explicitly claimed over entire areas in space, as was the case with the Bogotá Declaration.[140] The recognition of the claim component helps to expose the distinction between inclusive use and exclusive appropriation as a false dichotomy whose respective meanings do not correspond to the negation of each other's content. The inclusive v. exclusive use discourse is incongruous with the fundamental issues of property rights over resources and sparks confusion when connected with the claim notion of authority to exclusively decide over their use. Its use as a theoretical framework should hence be discarded in favour of an account that is guided by the prevailing language of rights, claims, use and appropriation as adopted in the existing treaties. What matters is whether *claims* can be made for exclusive use - and what else are such claims than assertions of rights of exclusion over resources when they are not being used by the claimant, *i.e.* property?

C. Non-interference: Outer Space Treaty, Article IX

If the exact legal implications of the right to exclude remain elusive under direct scrutiny, it may help to look at the right from

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[140] Declaration of the First Meeting of Equatorial Countries, ITU Doc. WARC-BS (1977) 81-E (Dec. 3 1976).

the viewpoint of the corresponding duty of non-interference on the part of non-owners. The exact implications of the legal nature of the relationship between both should be properly understood. It is not because users have a right not to be interfered with in the use of a certain segment or area of outer space or celestial body, that the rights thus acquired amount to property rights. This is nonetheless implied by some authors who present property as the protection of means applied to achieve a certain goal through the general duty on the part of others not to interfere with the means deployed to this end.[141] This particular interpretation of property rights is inspired by the vantage point of a legal justification for property, which lies in the facilitation of the use of the thing owned.

Non-objectionable though the utilitarian goal of property rights may be, it skews the perspective to the extent that it considers all rights that are protected from interference as property rights. The argument is flawed, however, for it is clear that, without protection from interference, no use of space resources is possible whatsoever, regardless of the relationship between the right to use and the right to exclude. The approach reduces property to the right to use without interference, though such right also accrues to somebody who, for example, rents an apartment or leases a car. Property rights cannot be equated with rights of non-interference without taking into account the origin of these rights. To the extent that it flows from the actual use of a resource, the right of non-interference is a necessary attribute of the freedom to use said resource; if it precedes the actual use and is retained after the completion of the use, it is an attribute of property.

The duty of non-interference in property immediately calls to mind the provisions in the UN space treaties and ITU instruments requiring states to engage in consultations in case of potentially harmful interference with the experiments or activities of other states exploring or using outer space. The corresponding nature of the duty of non-interference in property parlance appears to imply that, in space law too, it should be linked with property rights over outer space. The space treaties expressly link the duty not to interfere with experiments or activities of states in space, however, not

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[141] *See* Coval *et al.*, *supra* note 54.

with the area covered by these ventures, even if both will often coincide. For it is self-evident that

> [w]e cannot […] protect action without protecting those events which are means to its success. If we have a right of non-interference with respect to action then that entails that we have a right of non-interference with respect to that part of the world which is used to satisfy the reason for the action.[142]

This is not to say that property is acquired in the part of the world covered by our actions, even if some theories wilfully blur this line.[143]

The definition of harmful interference as provided by the ITU Radio Regulations confirms this view, for it describes the notion as a form of interference that endangers the functioning of a radio navigation service or of other safety services, or otherwise seriously degrades, obstructs, or repeatedly interrupts a radio communication service operating in accordance with the ITU RR.[144] Likewise, Article IX of the Outer Space Treaty obliges states to engage in consultations with those states whose activities would likely be harmfully interfered with by its own planned or existing activities. Article 8 (3) of the Moon Agreement drops the qualifier 'harmful' and requires that consultations be had as soon as 'interference' with the activities of other states may occur. This provision is sometimes interpreted as broader than Article IX of the Outer Space Treaty, as there appears to be no requirement of harm in the implementation of the former, but merely an issue of "physical intrusion of the activities of other States Parties."[145] As the intrusion is still interpreted in relation to the activities of others, however, it is doubtful

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[142] *Id.* at 460 (emphasis omitted).

[143] *See* the authors that adhere to the so-called functional property theory: I. CSABAFI, THE CONCEPT OF STATE JURISDICTION IN INTERNATIONAL SPACE LAW: A STUDY IN THE PROGRESSIVE DEVELOPMENT OF SPACE LAW IN THE UNITED NATIONS 136 (1971); Coval *et al. supra* note 54, p. 460; White, *supra* note 55; Cook, *supra* note 14, 694; and H.R. Hertzfeld and F.G. Von der Dunk, *Bringing Space Law into the Commercial World: Property Rights without Sovereignty*, 6 CHI. J. INT'L L. 83 (2005).

[144] ITU Radio Regulations, No. 1.169.

[145] S. Freeland, *[Moon Agreement:] Article 8 (exploration and use/consultations)*, in COLOGNE COMMENTRY, VOL. II: RESCUE AGREEMENT, LIABILITY CONVENTION, REGISTRATION CONVENTION, MOON AGREEMENT NO. 154 (S. Hobe, B. Schmidt-Tedd and K.-U. Schrogl, eds., 2013) (referring to A.A. Cocca *et al.*, *Autonomous Settlements and*

whether there is any actual difference between both notions in practice, especially since the assessment must be made before the interference actually occurs.[146]

The duty of non-interference, through its inherent link with experiments and activities of states in space, rather than space itself, does not act as a corresponding obligation to the property right of an owner, but as a measure enforcing the exercise of the freedom to use, without changing the qualification of such freedom into an actual right. The previous section recalled the Hohfeldian theory that a duty is to be considered the jural correlative of a right in the strict sense of the word but the jural opposite of a privilege. In clarifying this relationship, Hohfeld emphasized that "[a] 'liberty' considered as a legal relation (or 'right' in the loose and generic sense of that term) must mean, if it have any definite content at all, precisely the same thing as privilege."[147] Hence, the freedom to use outer space should legally be considered a privilege, though not a right on its own terms, since the negation of the freedom to use a particular segment of outer space, for reason that it is being, or has been, used or consumed by another user having the same privilege, does not give rise to a violation that can be remedied through legal process. To be sure, the effective exercise of said freedom may well require a right not to be interfered with by others for the duration of the use, which are thus under a duty not to do so. This does not alter the legal character of the freedom to use outer space, however. As argued by Balganesh,

> [a]lthough a right and a privilege […] no doubt remain distinct, it is important to note that in a vast majority of situations a privilege comes to be protected by a right. In other words, a privilege becomes capable of being exercised because of the existence of an overarching right that shadows it and requires others to abstain from interfering with the privileged area of

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Environmental Protection in the Law of Outer Space, 44 PROC. COLL. L. OUTER SPACE 342 (2001).

[146] The regulation of consultations in Art. 15 (2) of the Moon Agreement omits the link with state activities: COLOGNE COMMENTRY, VOL. II: RESCUE AGREEMENT, LIABILITY CONVENTION, REGISTRATION CONVENTION, MOON AGREEMENT NO. 242 (S. Hobe, B. Schmidt-Tedd and K.-U. Schrogl, eds., 2013). However, the specific nature of this provision as pertaining to the installation of an inspection mechanism renders it irrelevant for the present discussion.

[147] Hohfeld,1913, *supra* note 24, 36.

> action. This is often referred to as the «shielding» thesis. This thesis helps explain why rights and privileges are often conflated and why in a vast majority of situations privileges continue to derive at least indirect protection from the law.[148]

The author clarifies that the act of shielding a privilege by a claim-right is a critical condition for such a privilege to exist.[149] It is easy to see how this applies to the regulation of resource exploitation in space law, for without a duty of non-interference on the part of others, there can be no actual use of resources by one. To be sure, the legal situation relating to space resources is complicated by the fact that all states have the same freedom to use outer space. Again, this does not warrant a change in legal nomenclature, however, and there is no need to resort to theories of common property to explain the relations between users, non-users and physical space. Hohfeld already clarified that, "whenever the privilege does exist, it is not special in the sense of arising from a special law, or of being conferred as a special favour on a particular individual. The same privilege would exist, by virtue of general rules, for any person whatever under similar circumstances."[150] This is confirmed by Harris, who notes that, "if a resource is set aside as common property, the rights of use thereby reserved are strictly Hohfeldian privileges [. . .] rather than 'claim rights'. Such privileges are enforceable only in the sense that no other person has a correlative right that they be not exercised."[151] This supports our conclusion in the previous section that little would be gained by rephrasing the universal freedom to use outer space as a property right. And regardless of whether the outer space environment *in toto* should be considered a global commons determined by common property rights, we are only concerned with the question of whether national appro-

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[148] Balganesh, *supra* note 51, 604-605. *See also* Hohfeld, 1913, *supra* note 24, 36 ("such a privilege or liberty to deal with others at will might very conceivably exist without any peculiar concomitant rights against 'third parties' as regards certain kinds of interference. Whether there should be such concomitant rights (or claims) is ultimately a question of justice and policy; and it should be considered, as such, on its merits. The only correlative logically implied by the privileges or liberties in question are the 'no-rights' of 'third parties').

[149] *Id.* at 617-618.

[150] Hohfeld, 1913, *supra* note 24, 40.

[151] HARRIS, *supra* note 73, 155-156.

priation can be vested by single users of space in the natural resources thereof, and whether this is indeed necessary for an effective and economic exploitation of the space environment.

Since all parties in international space law have the same privileges or freedoms with regard to outer space, the enforcement of the exercise of the freedom to use outer space with a concomitant duty on the part of others not to interfere morphs from an optional measure into a necessity, without altering the implications of the rights of the user from privilege to property.[152] The exercise of the freedom to use space resources is strengthened by a right not to be interfered with, which sparks a duty not to interfere with the actions of the user, though not, it is stressed, on the basis of a property right over the thing used. In other words, the duty not to interfere is the correlative of the right of the user not to be interfered with, rather than an indication of any type of property right in the thing used. In this respect, Balganesh explicitly excludes the privilege-right to exclude others as the basis of a right of property *qua* right to exclude, even in a situation where the privilege would be 'shielded' by a claim-right: "[b]ecause the remedial alternatives remain premised on the primary one, courts would be restricted to reaffirming or enforcing the privilege alone, in turn delegating much of its application to the holders' abilities."[153] This is exactly what we see in the environment of space resources: even if the maligned first-come, first-served slogan were an accurate representation of the regime on the exploitation of space resources, it would not imply but rather disprove the existence of a property system.

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[152] Rothblatt, when discussing the use of the GSO, shares this view, even if the author mistakenly reclassifies the inclusive freedom to use outer space as an inclusive *right*. *See* Rothblatt, *supra* note 131, 225 ("an inclusive right to use the geostationary orbit would be meaningless without a protected right (or the satellite's life) to enjoy one's share - an orbital position and frequency band within the orbit-spectrum resource"). Or, in the words of Stull and Alexander, "[a] system . . . which purports to divide rights . . . among competing individuals for the public benefit but fails to prevent these individuals from interfering with each other is nothing more than a sham." M.A. Stull and G. Alexander, *Passive Use of the Radio Spectrum for Scientific Purposes and the Frequency Allocation Process*, 43 J. AIR L. & COM. 476 (1977) .

[153] Balganesh, *supra* note 51, 617.

IV. PRINCIPLE OF EXCLUSIVE EXPLOITATION FOR FUNCTIONAL DURATION

The agenda-setting approach to property makes explicit the implied link between property and sovereignty as corresponding concepts in the private and public law spheres guided by undivided authority over others.[154] We may illustrate this link by calling to mind the characterization of sovereignty in the Palmas arbitration case by Max Huber, who famously noted that "[s]overeignty in the relations between states signifies independence. Independence in regard of a portion of the globe is the right to exercise therein to the exclusion of any other state the functions of a state."[155] The analogy between both concepts is interesting for it adds further substance to the argument that property by private individuals is implicitly proscribed by the prohibition of national appropriation, as both are rooted in the same rationale. The parallel between sovereignty and appropriation is so strong that many authors writing in international space law use both concepts almost synonymously. As such, Fawcett writes that

> [t]he only way in which any part of outer space could be appropriated by a State would be by its effectively denying access to it of spacecraft of other States; and free exploration and use entail that every part of outer space shall be open under international law to all spacecraft without interference. It follows that the principles of free use and non-appropriation must [imply that] no State can exercise exclusive jurisdiction or control, so as to deny or interfere with the access of any spacecraft to any part of outer space.[156]

The equation of appropriation with sovereignty is made most commonly in order to justify the limitation of Article II of the Outer Space Treaty to territorial sovereignty. It is axiomatic, however,

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[154] *See* Cohen, *supra* note 55, 29 ("[t]here can be no doubt that our property laws do confer sovereign power on our captains of industry and even more so on our captains of finance"). *See* also Katz, *supra* note 23, 278 ("[a]n exclusivity-based approach to ownership revives the old analogy of ownership to sovereignty. Ownership, like sovereignty, relies on a kind of notional hierarchy, in which the owner's authority to set the agenda is supreme, if not absolute, in relation to other private individuals").

[155] Island of Palmas (or Miangas) (United States of America v. Netherlands), Award, Permanent Court of Arbitration, REPORTS INT'L ARBITRAL AWARDS Vol. XI, 838.

[156] J.E.S. FAWCETT, INTERNATIONAL LAW AND THE USES OF OUTER SPACE 22 (1968).

that sovereignty and property should not be regarded as synonyms.[157] In the context of space law, in particular, the distinction between both should be respected, no matter how closely their content may resemble each other. For Article II, it is recalled, proscribes national appropriation in general, while sovereignty is merely listed as one of several means through which property rights may be established. Hence, the provision's language reveals a connotation of the property notion that is far broader than mere sovereignty. If the latter is necessarily aligned with the territorial competences of a state, the other modalities of Article II point to a broader scope of application that would be wholly negated by the arbitrary exclusion of natural resources. Rather than reinterpreting the reference to national appropriation and sovereignty as a duplicitous proscription of the latter only, the specific formulation of Article II thus underscores the need for a proper understanding of property rights in the context of international space law as broadly outlawing any form of exclusion from segments of outer space that is not accompanied by actual use, regardless of their qualification as areas or resources.

While property rights distinguish themselves through exclusion in order to use, the essence of rights over space resources is exclusion through use, and the former only exists by virtue of the latter. States' rights over space resources arise only through their lawful use of these resources; they are rights to use, though not to use unrestrictedly, and the proscription of others to interfere is not absolute but exists only to the extent that such interference would prevent the use of the area or resource for the goal that originally justified the exclusion. If property entails the disconnection of exclusion from actual use and international space law proscribes the national appropriation of outer space by states, a violation of Article II occurs when rights are claimed over resources in space that do not arise from and during actual use. If they can only be acquired *through* actual use, they can only be exercised *during* this use. As noted by Goedhuis:

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[157] Stressed, in the context of international space law, in M.G. Markoff, *Moon Landing and International Law*, 3 IL DIRITTO AEREO 31 (1964), and for property law, in Katz, *supra* note 23, 295.