Outer Space Natural Resources and Justice

A Theory of Appropriation Off-Earth

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Abstract

This thesis explores the normative implications of the exploitation of outer space natural resources. Utilizes ethical constructivism to assemble a principle of obligation, the forbearance obligation (FO), and to forward a left-libertarian theory of appropriation. It argues that appropriation of natural resources is prima facie morally permissible –hence libertarian, subject to a sufficientarian proviso –hence left-libertarian.

The argument occurs at two levels of analysis. At a general level, it contends that FO is a universal, perfect obligation, for all moral agents owe it to one another, whose corresponding universal, perfect right is the right of self-ownership, for it is held by all. Self-ownership illustrates the idea that purposeful actions performed by moral agents are rights-creating –thus justifying appropriation, whereas FO captures the set of restrictions entailed by the formula 'general constraints on actions' that most moral theories consider.

At a fine-grained level of analysis, ownership rights, and the right of self-ownership are unpacked in Hohfeldian incidents. Utilizing an axiomatic approach to correlativity, it contends that Hohfeldian privileges are fundamental vis-à-vis other incidents, for they endow its bearer with discretion to (not) act. Centring on the agent, it forwards a jurisdictional construal of self-ownership, as a self-owner's authority to set the agenda for her life.

This project contributes to the literature by advancing a novel obligation-based libertarian theory, and by addressing a contemporary problem to which political theory has not devoted much attention: off-Earth appropriation. Additionally, it contributes by addressing the debate on common ownership rights over the natural world, arguing that these cannot be substantiated, and therefore this long held assumption in political theory should be discarded.

Para mi Layka, y Kala

(jamás sabrán cuánto las extraño)

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PART I: THE FRAMEWORK

1 Introduction

> When you get a different vantage point, it changes your perspective. I don't know what space exploration will uncover, but I don't think it will be exploration just for the sake of exploration. I think it will be more of the fact that it will allow us to see things that maybe we should have seen a long time ago, but just haven't been able to come out.
>
> **Neil Armstrong**[1]

This thesis explores the normative implications of the exploitation of outer space resources. It forwards a libertarian theory, which argues that the appropriation of these natural resources is a morally permissible action, subject to a sufficientarian claim or proviso.
This chapter sets the stage for the argument (1.1), overviews the project(1.2), clarifies nomenclature (1.3), and presents relevant definitions and limitations of the investigation (1.4). It finishes with final remarks (1.4)

1.1 Setting the Stage

This thesis explores the normative implications of the exploitation of outer space resources. Although we seldom realize it, outer space resources are integral to our lives: it is estimated that every smartphone user utilizes daily the services of approximately 40 satellites, as they make possible social networks, streaming services, and the gig economy, among other productive and recreative activities. Moreover, satellite images are an irreplaceable tool for scientists and governments. For example, of the 50 parameters that scientists use to track and analyse climate change, 29 can only be studied from outer space.[2] Furthermore, during 2022's monsoon season, torrential rains flooded more than a third of Pakistan's territory. The images facilitated by the European Space Agency (ESA) were instrumental in directing aid where it

[1] As quoted in Chazelle, *First Man* (Universal Pictures, 2018).
[2] Béal et al., "Taxing congestion of the space commons" *Acta Astronautica* 177 (2020).

was most needed, and in raising awareness of the humanitarian crisis that affected 33 million people.[3]

However, ESA, NASA, and other similar agencies do not offer an on-demand satellite images service. They only share those which have already taken, or are willing to take. This leaves countries with no spacefaring capabilities dependent on the good will of others to get what they need, when they need it. This is the most likely explanation for why governments besieged by earthly problems today invest funds and resources in developing spacefaring capabilities: while Nigeria recently built its first Earth observing satellite, Kenya joined the group of countries capable of launching objects into space. Likewise, Ethiopia, Angola, Thailand, Vietnam, and Indonesia, and almost all South American countries own and operate satellites. In fact, with its 34 satellites, Argentina is the country in world with the tenth most satellites.[4]

In the near future orbital slots will be indispensable in saving lives: a feasible solution to the problem of shortages of organs for transplants is found off-Earth. On Earth, researchers have·3D printed ear and nose bones, and cartilages. Printing more complex structures, like organs and their blood vessels, has been unsuccessful because the bioinks' thickening agents, their 'scaffolding materials', collapse due to Earth's gravity. However, when printed in microgravity, they have maintained their shapes. Private ventures have successfully printed a large volume of human heart cells aboard the International Space Station (ISS). This technology could be used to print other soft tissues, like artificial retinas, or glands, like thyroids, among other possibilities.[5]

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[3] Davies, "Urgent aid appeal launched as satellite images show a third of Pakistan underwater", *The Guardian,* 2022.
[4] Dewesoft, "Every Satellite Orbiting Earth and Who Owns Them".
[5] Han and Dai, "Microgravity may help future organ/tissue manufacture" *Science China. Life Sciences* 59, no. 8 (2016); Listek, "Bioprinting in Microgravity: Where Do We Stand?"; Sun et al., "The bioprinting roadmap" *Biofabrication* 12, no. 2 (2020); Crotti, "How 3D bioprinting in space could ease donor organ shortage".

In addition to these life-saving potentials, orbits are suitable for recreational and commercial uses too: there are initiatives to develop space hotels in low Earth orbit (LEO), which allegedly would begin operations by 2027.[6] Evidently, these goods and services benefit a quite reduced and specific group of people.[7]

As vital and fascinating these projects might be, they will become a reality, and lives will be saved, if and only if (and because) there are usable orbits left to allocate. The problem is that the number of orbits is limited, and few are left available because the majority have already been allocated. Currently orbital slots are distributed on a first-come, first-served basis, for an indefinite period, with little to no regard to its distributive consequences. This has favoured wealthy agents –nations and individuals– who develop spacefaring capabilities earlier: while the United States (US), Russia, and the United Kingdom (UK) together own little over 75% of operating satellites, Elon Musk's s SpaceX owns one third of satellites orbiting Earth. Academics and policy makers have raised concerns that developing countries will be left out, or left with the leftovers of this irreplaceable resource, further hindering their opportunities for flourishing.[8]

In addition to a concentration problem, there is also a problem of orbital congestion. Because the regime lacks enforcement mechanisms to sanction misuse and violations, it has indirectly promoted the proliferation of space debris. In the late 1970s a NASA scientist warned of a potential scenario in which the density of objects in orbit, both operational and non-operational, would be so high that collisions between objects could cause a cascade effect, each

[6] Street, "World's first space hotel scheduled to open in 2027", *CNN*, 2021.
[7] SpaceX's Falcon 9, the most efficient rocket used to access the ISS, has a cost of US$ 2,720 per kilogram. That is, an individual weighting 75 kilos must pay US$ 204,000 only to surpass Earth's gravity. To that, it must be added lodging, and returning costs. Whitman, "How SpaceX lowered costs and reduced barriers to space", *The Conversation*, 2019.
[8] Jakhu, "Dispute resolution under the ITU agreements"; Weeden and Chow, "Taking a common-pool resources approach to space sustainability: A framework and potential policies" *Space Policy* 28, no. 3 (2012); de Man, Exclusive Use in an Inclusive Environment 2016; Billing, "There's a parking crisis in space – and you should be worried about it", *The Conversation*, 2017. Cahill, "Give me my space: Implications for permitting national appropriation of the geostationary orbit" *Wis. Int'l LJ* 19 (2000).

collision increasing the likelihood of further collisions. This is known as the Kessler Syndrome. The concern is that space debris will render orbits unusable, which will affect us all for generations to come. In other words, an inexhaustible resource will become useless.

Generally speaking, natural resources are of interest for justice because they are a source of potential benefits and burdens, and because agents assert competing claims towards them. Unquestionably, orbital slots today are a source of various benefits, which directly and indirectly improve the lives of almost all of humanity, and agents with quite dissimilar material capabilities have already made competing claims towards them. Thus, however distant they may seem, outer space resources are not just of interest to justice, but to include them within its scope is in itself a demand of justice, or so I argue.

Orbital slots are not the only outer spaces whose benefits are sought after on Earth, for the Moon and its minerals hold the promise of improving terrestrial wellbeing too, although for different reasons. Lunar regolith is rich in helium-3 (He-3), a rare isotope of helium that is becoming exceedingly rare and expensive to access on Earth. He-3 can be used in nuclear fusion which, as opposed to nuclear fission, has the advantage of releasing large amounts of energy with no radioactive by-products. Because of this, it has been hailed as the answers for humanity's energy demand for centuries to come.[9] Given recent events in Eastern Europe, this also suggests that the strategic value of (some) lunar minerals is as great as its economic uses. Furthermore, He-3 is intensively used in scientific research, including but not limited to quantum mechanics, cryogenics, and medical research, as it can stably maintain temperatures below 0.8° Kelvin, critical for low temperature experiments.[10] He-3 makes up an estimated 1.37 parts per million of all helium on Earth, whereas in lunar soil this figure rises 100 times

[9] Wittenberg et al., "Lunar Source of 3He for Commercial Fusion Power" *Fusion Technology* 10, no. 2 (1986).
[10] O'Reilly and von Frese, "Lunar Exploration for He-3"Ohio State University), 2017.

higher. Both ultra-terrestrial human activities, and terrestrial medical research could greatly benefit from lunar resources.

This apparent abundance, however, can be misleading. Just like terrestrial resources, valuable mineral deposits are not evenly distributed on the lunar surface, nor are the conditions for their exploitation equally favourable in all regions. On the Moon, two of the scarcest resources are access to water, and sun light. Both are essential for mining activities. The former may persist in permanently dark craters and the polar regions, which represent a 0.1% of lunar surface. The latter is even scarcer, since regions of quasi-permanent solar illumination, (inaccurately) dubbed the 'peaks of eternal light', represent 1/100 of a billionth of the lunar area. These are strategically valuable for they permit an almost continuous collection of solar power. Additionally, installing solar power-collecting towers in these areas would cast long shadows that could prevent power being collected at other locations, thus reducing the strategic value of the latter.[11] Elvis *et al.* stress: 'If such peaks can be found near to permanently dark craters [where water is abundant] then we have hit the lunar resource jackpot: a region with great resources next to a region with abundant power.'[12] The authors note that fewer than 10 sites like this have been identified, each spanning a few kilometres across. They highlight that these lunar jackpots peaks are so rare that there are obvious risks of crowding and interference. In economics nomenclature, lunar minerals are rival, relatively scarce, exhaustible resources.

Both orbital slots and lunar minerals illustrate why non-terrestrial resources are just as central to justice as terrestrial ones. Several of the normative and non-normative variables at the heart of the distributive justice debate manifest in them. The previous examples expose the specific challenges derived from the natural characteristics of different resources. Although

[11] Elvis et al., "The peaks of eternal light: A near-term property issue on the moon" *Space Policy* 38 (2016); Elvis et al., "Concentrated lunar resources: imminent implications for governance and justice" *Philosophical Transactions of the Royal Society A* 379, no. 2188 (2021).
[12] Elvis et al.

both resources are excludable goods, material lunar minerals, like terrestrial ones, are non-renewable, which requires prioritizing access to and distribution of their benefits over other considerations. For their part, orbits are immaterial and renewable (inexhaustible), in the sense that their use does not wear them out, but their misuse can render them useless –Kessler Syndrome. This relates them to common pool resources, and the so-called *Tragedy of the Commons*. Regimes governing this class of resources must prioritize collective action problems over distributive concerns, for if the resource is exhausted, or rendered unusable, there would be no benefits to distribute.

On this regard, it must be emphasized that in academic and policy discussions there is an ambiguity in the use of the term 'common', as it conflates the idea that a resource is of the common-pool kind, with the claim that the resource in question is a global common: owned in common by humanity. For instance, outer space is usually considered one of the four global commons, together with Antarctica, the Atmosphere, and the High-seas.[13] This is inaccurate at best since not all off-Earth resources are renewable, and therefore they are not all subject to Hardin's tragedy. Notably, the five international treaties that currently govern human activities off-Earth, often referred to as *corpus juris spatialis* (CJS), partly fall into the conflation problem. CJS establishes that outer space is either 'the province'[14] or 'the common heritage of mankind',[15] thus considering it commonly owned, further arguing that the use of these resources 'shall be carried out for the benefit and in the interests of all countries'.[16] Note that with this claim CJS transformed the whole universe into humankind common property, which is quite far-reaching to say the least. Additionally, CJS prohibits the nationalization and

[13] Among others see Buck, The global commons: an introduction 1998; Ostrom et al., "Revisting the Commons: Local Lessons, Global Challenges" *Science*, no. 284 (1999).
[14] UN, 1967, Treaty on Principles Governing the Activities of States in the Exploration and use of Outer Space, including the Moon and Other Celestial Bodies. Hereinafter OST.
[15] UN, 1979, Agreement Governing the Activities of States on the Moon and Other Celestial Bodies.
[16] UN, OST.

appropriation of outer space resources. Although there is a lively debate on how to interpret this clause, such a blunt prohibition clearly discourages the exploitation of resources that could significantly improve the lives of our generation, and those to come.

Distributive justice has the task of harmonizing the demands of efficiency and fairness. Regimes governing natural resources should create the conditions for these to be effectively used, preventing overuse and misuse, while defining their permissible uses. The cases of orbital slots and lunar minerals help to identify some of the most prevalent positions and assumptions in the debate on distributive justice germane to this project. For one, the current regime governing orbital slots can be described as libertarian, since it embodies the tenets of Nozick's historical entitlement theory. Similarly, the claim of CJS that outer space is our species common property is but one contemporary manifestation of a ubiquitous background assumption in political thought: that all human beings, regardless of when and where they come into existence, have equal 'common' rights over Earth.

In the *Second Treatise* Locke claimed that God bequeathed Earth to the whole of mankind, and this common ownership give us reasons to exploit it –the non-wastage proviso, and to leave resources for others –the sufficiency proviso.[17] Building on the Roman Law tradition, in *Mare Liberum* Grotius argued that the abundance of resources like air, or the fact that others were unoccupiable, like the oceans, make them the common property of mankind.[18] For his part, in the first supplement of *Perpetual Peace*, Kant grounds the right of hospitality –to visit different parts and polities of the world and not be treated as an enemy, appealing to our common possession of Earth, and to two natural characteristics of our planet, its habitability and finiteness: 'Since it is the surface of a sphere, they [humans] cannot scatter themselves on it without limit, but they must rather ultimately tolerate one another as neighbors', pointing out

[17] Locke, Second Treatise of government 1980.
[18] Grotius, The free sea 2004.

'Uninhabitable parts of this surface, the sea and the deserts, separate this community, but in such a way that the ship or the camel (the ship of the desert) makes it possible to come into contact with one another across these regions that belong to no one'.[19] In other words, unavoidable physical proximity, together with common ownership, entitles people to freely visit anywhere (not to settle), and prevent locals from impeding harmless visitors. In the contemporary debate, common ownership has been supported by egalitarians like Armstrong, and left-libertarians like Vallentyne et al. Notably, left-libertarians typically anchor their egalitarian concerns on the claim that natural resources are owned 'in an egalitarian manner',[20] without offering reasons for supporting this stance.

Natural resources are of interest to justice not simply because they are sources of benefits. More often than not, they are indispensable means for moral agents to pursue their ends. When explaining the circumstances of justice, generally understood as the background conditions under which justice imposes demands, Rawls emphasized that individuals have their own plans of life, which leads them to assert competing claims over resources: 'These plans, or conceptions of the good, lead them to have different ends and purposes, and to make conflicting claims on the natural and social resources available.'[21] In conditions of plurality, justice is needed because agents might assert conflicting claims towards the same resources, and thus a mechanism is needed to account for the interests of those involved. This thesis embraces the Kantian ideal that individuals are ends in themselves, not mere means. Treating others as end in themselves provide rational agents with reasons for setting restrictions on how they shall interact with each other. It imposes a reciprocal obligation on all moral agents to not

[19] Kant, Toward Perpetual Peace and Other Writings on Politics, Peace, and History 2006, p 8:358.
[20] This particular formulation is quite prevalent in left libertarian writers eg. Vallentyne et al., "Why left-libertarianism is not incoherent, indeterminate, or irrelevant: A reply to Fried" *Philosophy & Public Affairs* 33, no. 2 (2005); Vallentyne, "Left-Libertarianism" in *The Oxford Handbook of Political Philosophy,*ed. David Estlund; see also Risse, "Original Ownership of the Earth: A Contemporary Approach".
[21] Rawls, A Theory of Justice 1999, p 110.

deliberately interfere with the plans of others, to not impose their will on others. I call this the forbearance obligation. I argue that embracing this Kantian ideal implies that in matters pertaining access, use, and distribution of outer space natural resources, agents in this domain must forbear to impose their decisions on others.

Every Kantian principle must be universalizable, that is, everyone should be able to simultaneously act according to the principle, and the agent adopting it should be able to will that others act towards her in the same manner that she will act towards them. The forbearance obligation meets both criteria because everyone can simultaneously act according to the principle, for no one would impose on others, and any rational agent would will that others do not impose their will on her, thus treating everyone as an end in themselves. At this point there might be a worry that such an obligation prohibits even the most trivial actions, like walking on the street, for that might count as an imposition on others. However, a restriction on how to act is not the same as prohibition to act in the world (chapter 2). Presuming that persons are moral agents who can set their own ends implies accepting that persons can legitimately act in the world while pursuing their ends. Insofar as resources are means to an agent's end, this gives us a prima facie reason to uphold the moral permissibility of appropriation. The forbearance obligation restricts the range of permissible actions, first, by setting a sufficientarian threshold: appropriation of external resources is legitimate iff the basic needs of others are satisfied, for having basic needs satisfied is a necessary condition for setting and pursuing self-determined ends. This sufficientarian claim, as I label it, is grounded on a non-normative fact: we are earthlings and given are nature we need resources to live and flourish. And second, the forbearance obligation requires that to determine the permissibility of a particular act of appropriation it must be taken into account (i) the physical characteristics of a resource, which encompass its relative availability, and whether it is exhaustible or renewable; (ii) the nature of its associated benefits and costs, whether they are trivial or non-trivial; and (iii) the range of

potential beneficiaries –whom and how many are benefited– given their alternative uses. As it will be defended throughout this project, these variables must be considered, among other reasons, because if a trivial use of a scarce resource is prioritized over a non-trivial use, say the last available orbit is allocated to a space hotel rather than to a laboratory printing organs, those in need of organs would be treated as means by the owners and users of the hotel.

It must be stressed; the forbearance obligation has a determined scope: agents and resources in the domain of outer space. I do not presume extensional fit of this principle, for that is an altogether different problem. However, this does not imply that it cannot be useful in other domains of activity, provided necessary adjustments are made.

The forbearance obligation can be labelled libertarian, to the extent that it is not concerned with its distributive implications –with the resulting pattern of distribution, but with ensuring that each act is morally legitimate. If the first act of appropriation is legitimate, and each subsequent transfer is also legitimate, then the resulting pattern of distribution will also be legitimate, and presumably just (7.2). The forbearance obligation can be labelled left-libertarian, insofar as the sufficientarian concerns included limit what agents can legitimately appropriate, a stance that most right-libertarians will reject.

Although this is not the first attempt to bring together libertarian ideals with the Kantian tradition –undoubtedly the most famous is Nozick's *Anarchy, State, and Utopia*, the theory I offer differs from previous efforts. Most libertarian theories are rights-based, built upon the right to self-ownership. For example, Nozick's oft quoted reference to his Kantian foundations occurs in the context of his theory of rights as side-constraints: 'Side constraints upon action reflect the underlying Kantian principle that individuals are ends and not merely means; they may not be sacrificed or used for the achieving of other ends without their consent.'[22] In contrast, utilizing the constructivist methodology, I build a theory that considers the

[22] Nozick, Anarchy, State and Utopia 1974, pp 30-31.

forbearance obligation its fundamental element. This means that all other elements are either defined in relation to, or made intelligible by reference to it. To the best of my knowledge, this is the first obligation-based articulation of libertarianism.

Given the above, and considering that the libertarian tradition is characterized, among other things, by its emphasis on individual freedom, embodied in the right of self-ownership, it may seem like an unwarranted theoretical innovation to offer a libertarian theory centred on an obligation, on what self-owners owe each other, to borrow from Scanlon. However, the logical plausibility of this research path has been suggested by various of authors. Libertarians like van der Vossen and Schmidtz, and critics of libertarianism like Lippert-Rasmussen, have argued that self-ownership should not be considered the fundamental element or the core premiss of a theory, but ancillary to some other moral consideration.[23] The construal I advance draws on the debate that explores the intersections, and differences, between the Kantian literature (not necessarily Kant's work) and the libertarian tradition. While the majority of rights-based libertarian theories focus on what others cannot do to self-owners, the forbearance obligation centres on what self-owners should do to respect and honour other self-owners as ends in themselves.

Finally, this thesis contributes to the field of applied ethics by addressing a contemporary problem to which political theory has not devoted much attention, offering

[23] Lippert-Rasmussen, "Against Self-Ownership: there are no Fact-Insensitive ownership rights over one's body" *Philosophy & Public Affairs* 36, no. 1 (2008); Van Der Vossen and Schmidtz, "The Problem of Self-Ownership" *Social Philosophy and Policy* 36, no. 2 (2019).

guidelines to construct solutions. While legal scholars,[24] ethicists,[25] anthropologist,[26] sociologist,[27] and astrophysicists,[28] among others, have examined the implications of outer space exploration, these have failed to capture the attention of political philosophers –with noteworthy exceptions.[29] This thesis aims to redress this imbalance, by offering a substantive account of the principles that should govern off-Earth human activities, and the regime to rule outer space natural resources.

Having set the stage, I will now outline the project, which will help to better explain the tenets and propositions of the thesis.

1.2 Overview of the project

For expositional reasons the thesis is divided in two parts. The first part, *The Framework*, lays the analytical groundwork for substantiating the claim that appropriation is a morally permissible action for self-owners. It comprises chapters 1, 2, 3, and 4. The second part, *The Argument*, builds on the previous work to put forth the obligation-based libertarian

[24] Buxton, "Property in Outer Space: The Common Heritage of Mankind Principle vs. the First in Time, First in Right, Rule of Property" *J. Air L. & Com.* 69 (2004); Cheng, "The legal status of outer space and relevant issues: Delimitation of outer space and definition of peaceful use" *J. Space L.* 11 (1983); Golda, "Legal regime of human activities in outer space law" (1994); Wang, "Tragedy of Commons in Outer Space-The Case of Space Debris" (paper presented at the 64th International Astronautical Congress, 2013); Kyriakopoulos and Manoli, The Space Treaties at Crossroads 2019.

[25] Baum, "The ethics of outer space: a consequentialist perspective," in *The ethics of space exploration*, 2016; Schwartz and Milligan, The ethics of space exploration 2016; Persson, "Ethics and the potential conflicts between astrobiology, planetary protection, and commercial use of space" *Challenges* 8, no. 1 (2017); Schwartz, "Where no planetary protection policy has gone before" *International Journal of Astrobiology* (2018); Losch, "The need of an ethics of planetary sustainability" *International journal of astrobiology* 18, no. 3 (2019).

[26] Finney, "Space migrations: Anthropology and the humanization of space" *Space resources* 509 (1992); Valentine et al., "Encountering the future: Anthropology and outer space" *Anthropology News* 50, no. 9 (2009).

[27] Dickens and Ormrod, "Outer space and internal nature: Towards a sociology of the universe" *Sociology* 41, no. 4 (2007); —, Cosmic society: Towards a sociology of the universe 2007; Peters, "Beyond Earth's Globalization: Sociology of Outer Space?" *Review of Contemporary Philosophy*, no. 16 (2017).

[28] Elvis et al; Elvis et al.

[29] Schwartz, "Our moral obligation to support space exploration" *Environmental Ethics* 33, no. 1 (2011); Cockell, Extra-Terrestrial Liberty. An Enquiry Into the Nature and Causes of Tyrannical Government Beyond the Earth 2013; —, "Extraterrestrial Liberty: Can It Be Planned?," in *Human Governance Beyond Earth*, ed. Charles S Cockell, 2015; Milligan, "Rawlsian deliberation about space settlement," ibid.; Leib, "State Sovereignty in Space: Current Models and Possible Futures" *Astropolitics* 13, no. 1 (2015); Cockell, Dissent, revolution and liberty beyond earth 2016.

theory justifying appropriation of the natural world. It comprises chapters 5, 6, 7, and 8. Chapter 9 closes the discussion with the conclusion.

The remainder of this chapter advances relevant definitions, clarifies nomenclature, highlights an analytical advantage, and make clear the limitations of the investigation.

Chapter 2 explicates the methodological approach, ethical constructivism, and expounds the principle assembled: the forbearance obligation. The two main tenets of constructivism are that ethical principles, to be authoritative and action guiding, should not be grounded on metaphysical claims, nor on contingent facts about individuals or groups. Instead, they should be justified by appealing to relevant facts and generalizations about agents, and the circumstances in which they interact. This leads to the second tenet: ethical principles should be built through practical reasoning, as this is a capacity shared by most moral agents. However, normative considerations cannot be assembled in any arbitrary fashion. Principles must fit different normative considerations together coherently. This idea permeates the whole project, since I claim that putting together normative concepts such as ownership or self-ownership, as well as designing regimes to govern natural resources, should meet the same criteria. These are the foundations of the forbearance obligation.

Utilizing Onora O'Neill's taxonomy of obligations as a point of reference (see 1.3.2), FO is a universal, perfect obligation, because it identifies the duty-holder and the right-bearer: we all owe it to each other. The scope of FO, namely the agents and resources under its purview, is restricted: it is concerned with a subset of natural resources, those located off-Earth, and a subset of moral agents, those with the necessary capabilities for acting in this domain. It is an action guiding for it specifies the class of actions that are prohibited –to interfere with others, and is a negative duty, since it does not demand the performance of specific actions.

Using constructivist precepts as guidelines, chapter 3 explores ownership, identifying two dimensions. One addresses ownership as an institution, a system of rules for allocating

resources among competing claimants, by distributing entitlement and obligations. The key element of this institution is that it grants the titleholder the authority to decide the permissible uses of the resource, to set its agenda. The second dimension explores ownership as an analytical concept that determines the range of legitimate alternatives available for owners and non-owners. It unpacks the concept into Hohfeldian incidents of rights to ascertain the normative links tying agents together. It contends that ownership should be centred on control, not exclusion, arguing that its core incident is the right to use, as this recognizes owners as the final decisionmaker for an object. This articulation of ownership builds on Larissa Katz's agenda-setting theory, which combines both dimensions: ownership is a *special* authority to define the permissible uses of an object –hence agenda-setting.

Chapter 4 first reviews the role that traditions of thought, like libertarianism, play in normative enquiries, arguing that they help to locate and contextualize arguments within a wider frame of inquiry. It overviews the dispute between libertarianism and egalitarianism, as a means to locate the forbearance obligation within the libertarian tradition. The forbearance obligation shares with libertarianism the idea that agents are free to act in and on the natural world, which is captured by the right of self-ownership. It shares with left-libertarianism the concern with others: when confronted with different courses of actions, agents must take into consideration other self-owners. Finally, it tackles the debate on self-ownership, mapping the literature on whether the focus of the analysis centres on the term 'self' or the term 'ownership'. The former answers the questions of what is owned, and how, by providing an account of who the owner is; the latter answers the question of what it means to own something (or someone), by providing an account of what ownership is –usually fleshed out through the Hohfeld-Honoré framework. Self-ownership is construed as an innate right, whose normative function is to secure the conditions of possibility for agents to freely exercise their autonomy. Appealing to Katz's agenda-setting theory of ownership, it defines self-ownership as the special authority

that agents have to set the agenda for their lives. However, it argues that the catalogue of incidents comprised by self-ownership are not coextensive with those of ownership, because owning the self is different in kind than owning objects. This distinction permits us to circumvent well-known objections to libertarianism, such as that it permits selling oneself to slavery, arguing that the incident of transfer is not part of the self-ownership catalogue.

The rationale that structures the second part of the thesis, *The Argument,* is as follows: I advance the twin claims that natural resources are unowned, and that appropriation is a morally permissible action. Chapters 5 and 6 can be understood as addressing, and dismissing, prior objections to this argument. Free from these theoretical and normative obstacles, chapters 7 and 8 respectively present the appropriation theory, and define its limits.

The treaties that govern outer space, corpus juris spatialis, prohibit states, corporations, and individuals from appropriating off-Earth resources. This prohibition can be interpreted as an imposition on the will of others, something that the forbearance obligation prohibits. Chapter 5 evaluates CJS from a normative perspective. Although the nature of the treaties is political, normative elements can be identified in its clauses and provisions. I argue that there are no moral reasons to justify this prohibition, and therefore it should be dismissed.

Given how widespread in political theory is the idea that our species owns in common the natural world, it is striking how little effort has been devoted to offering arguments justifying it. One noteworthy exception is Mathias Risse's theory of humanity's common ownership of Earth, which chapter 6 scrutinizes. He offers what can be characterized as a status-based theory, in that common ownership rights are grounded on descriptive features of our nature and circumstances: the fact that we are earthlings, and need terrestrial resources to live and flourish. I label this the shared habitation premiss. Risse argues that shared habitation ground common ownership rights. Instead, I contend that shared habitation grounds a

sufficientarian claims: the key distinction is that rights provide its holder with broad discretion to use and benefit from a resource –an extensive set of incidents of ownership, whereas claims afford a restricted set of incidents, provided certain conditions are met. I argue that this sufficientarian claim gives all individuals equality of opportunity to satisfy basic needs, insofar as the satisfaction of such needs depends on off-Earth natural resources. From this it follows that the natural world has no owner, it is res nullius. The argumentative strategy rests on a process of elimination: if we cannot justify rights over our planet of origin, it is debatable whether we could justify rights over other celestial bodies. Consequently, outer space resources should be considered res nullius. If the natural world is unowned, and assuming that self-owners need natural resources to pursue their ends, then the appropriation of natural resources must be morally permissible.

Chapter 7 centres on the right of self-ownership, unpacking it in Hohfeldian incidents, arguing that any plausible articulation must consider its fundamental incident the right to use. Herein lies an explicit criticism of recent arguments that the right to exclude has a structural role in self-ownership: I contend that exclusion is the logical corollary of control, and therefore it has a secondary role in the justification of self-ownership. This is a modest contribution to the debate on self-ownership, to ascertain the structure that this concept must have, defining which is its core incident, and which are derivative.

After defining its structure, I proceed to elucidate its nature and composing elements. Self-ownership as an innate right, one that we hold by virtue of being moral agents. Centring on the notion of authority, I advance what I call a jurisdictional construal of self-ownership. This draws on an illuminating suggestion put forth by van der Vossen and Schmidtz, who define self-ownership as ‘the idea of settling on jurisdictions as an alternative to thinking that we need consensus on values and thus need to dominate and subjugate those whose values may

lead them to choose differently if we leave them to their own devices.'[30] On their view, self-ownership is not a moral or political premiss, but a sort of governing principle to norm social interactions, based on a mutual recognition of authority. This is a natural fit with, and thus complements the construal of self-ownership as an agenda-setting authority.

Then I proceed to morally justify the appropriation of natural resources. I understand (first) appropriation as an agent's exercise of choice over external objects, a choice others must respect. Accordingly, I address two prominent objections to first appropriation. One questions whether physical acts can create rights, and their correlative duties, and the other that appropriation transforms appropriators into *moral legislators*, because of the duties it imposes on third parties. I argue that appropriation does not imposes, but alters pre-existing duties, thus sidestepping the objection. The chapter ends offering a justification of the so-called right to the fruits of one's labour, considering it ancillary to a self-owner agenda-setting authority.

Chapter 8, the last of the second part, explores the limits to appropriation, what I broadly define as the question of the scope of ownership –the objects and agents under its purview. I do so by outlining regimes to govern different classes of outer space resources. This could be described as spelling out the practical implications of the forbearance obligation. The chapter forwards the distinction between terrestrial, and non-terrestrial outer space natural resources, to determine the range of resources that are subject to the limitations imposed by shared habitation premiss. It justifies utilizing gravity as a physical proxy with which to determine the area of the moral space governed by this sufficientarian claim.

The argument rests on the presumption that the moral space can be partitioned along various dimensions, in which different normative considerations reign or have lexical priority. The relevant variables are the physical characteristics of a resource –its relative physical availability, and whether it is exhaustible or renewable; the nature of its associated benefits and

[30] Van Der Vossen and Schmidtz, p 4.

costs, whether they are trivial or non-trivial; and the range of potential beneficiaries –whom and how many– given their alternative uses. The latter is particularly salient when evaluating extremely scarce resources. Each of these variables justify imposing distinct limits on appropriation. The intersection area of these variables circumscribes the demands of justice, delimiting the scope of ownership, and of the regime governing resources.

I first evaluate the current regime governing orbital slots through the prism of the forbearance obligation. The analysis identifies its strengths and shortcomings, offering solutions for the latter. With these insights, I proceed to evaluate outline different regimes for distinctive classes of outer space resources, terrestrial and non-terrestrial, according to the aforementioned variables. Finally, I outline what would bring non-terrestrial resources within the scope of justice, arguing that they would fall under the purview of the forbearance obligation.

Final remarks are offered in Chapter 9, the thesis' conclusion.

1.3 Clarifications and Nomenclature

When discussing obligations, rights, and how they relate to each other, there are three interrelated nomenclature problems that must be addressed head-on. The first issue refers to the use of the term fundamental, whether it is applied with analytical or normative concern.[31] The second issue relates to what correlativity connotes when applied to obligations and rights, whether it refers to the specific Hohfeldian jural relation claim-right/duty, or to a taxonomy of obligations based on their scope and addresses, as O'Neill does. The third issue relates to uses of the terms rights and liberties, whether they refer to broad, general categories eg civic liberties, or to a technical use eg a Hohfeldian liberty.

[31] Halpin, "Fundamental legal conceptions reconsidered" *Canadian Journal of Law & Jurisprudence* 16, no. 1 (2003).

1.3.1 Analytical and Normative senses of Fundamental

The first nomenclature issue is illustrated in Hohfeld's *Fundamental Legal Conceptions as Applied in Judicial Reasoning*. In the introductory section of his touchstone article, Hohfeld asserts that the scheme he will propose is a *legal* heuristic device to make sense of the various applications of the term *right* –eg property, interest, power, prerogative, immunity, privilege– to solve *legal* disputes. He explains 'the main purpose of the writer is to emphasize certain often neglected matters that may aid in the understanding and in the solution of practical, everyday problems of the law.'[32] Specifying that the article is 'intended more for law school students that for any other class of readers.'[33] Hohfeld underscored that one of the greatest hindrances to solve legal problems 'arises from the express or tacit assumption that all legal relations may be reduced to "rights" and "duties", and that these latter categories are therefore adequate for the purpose of analysing even the most complex legal interests, such as trusts, options, escrows, "future" interests, corporate interests, etc.'[34] Two relevant takeaways follow.

First, these remarks permit to infer that Hohfeld use of the term fundamental was eminently analytical: to understand the whole –assertions of rights– through its components or *fundamental* parts–legal conceptions (see discussion in 3.3.1). For this purpose, he identified the well-known four incidents of rights: liberty/privilege, claim, power, and immunity. Because Hohfeld starts from the premiss that a legal relation is always between two persons –a bipolar or bipartite relation, each incident is always linked to a specific *jural* correlative: no-right, duty, liability, and disability, respectively. These represent the second pole of the bipolar relation. Hence, Hohfeldian incidents are analytically fundamental in that they are the basic components of assertions of rights.

[32] Hohfeld, ed. *Fundamental legal conceptions as applied in judicial reasoning and other legal essays*, 1919, p 26.
[33] Ibid., 27.
[34] Ibid., 35.

However, in addition to this analytical meaning, the term fundamental can and is used in a *normative* sense, as a means to identify or establish the moral grounds of a given theory or principle, or the function one of its composing elements plays vis-à-vis other normative elements. For instance, in Bentham's theory the fundamental element is the resulting utility that any given action might bring about. Likewise, Waldron theory of private ownership is a 'rights-based argument', in that it considers rights the fundamental element. Different theories have different fundamental elements –grounds in Risse's nomenclature, but all ethical principles have a normative foundation or fundamental element.

In this project I used the term fundamental in both senses. I understand Hohfeldian incidents as analytically fundamental, in that they are the composing elements of complex rights. Consequently, assertions of rights, including legal and moral rights, can be decomposed in Hohfeldian incidents. In this level of analysis, all incidents are equal, none is more analytically important or *fundamental* than the other. Nevertheless, when *moral rights*, such as the right of self-ownership, is unpacked into its composing elements, I argue that there is an incident that is *normatively* fundamental: I contend that Hohfeldian liberties or privileges are the touchstone of the complex set of incidents that, together, form the right of self-ownership. This means that this incident is normatively primitive to others, which are either justified or ancillary to Hohfeldian privileges. Although in 2.3 I offer an axiomatic approach to correlativity to substantiate this claim, at this point a comparison might help to drive home the point.

In *Basic Rights* Henry Shue criticized the so-called 'trade-off thesis', namely, that in poor countries subsistence can be enjoyed by means of "trade-offs" with liberties.[35] The target of his critique were dictatorial governments, such as Iran, but also theorist like Rawls. Shue's

[35] Shue, Basic rights: Subsistence, affluence, and US foreign policy 1980.

rejection of the trade-off thesis rests, partly, on the idea that certain (political or civic) liberties –rights in his view– cannot be enjoyed without others. He labels these *basic* rights, explaining:

> rights are basic in the sense used here only if enjoyment of them is essential to the enjoyment of all other rights. This is what is distinctive about a basic right. When a right is genuinely basic, any attempt to enjoy any other right by sacrificing the basic right would be quite literally self-defeating, cutting the ground from beneath itself…If the right sacrificed is indeed basic, then no right for which it might be sacrificed can actually be enjoyed in the absence of the basic right. The sacrifice would have proven self-defeating.'[36]

I understand Shue's description of a what a basic right is as equivalent with my understanding of what it means for an incident to be fundamental: other incidents cannot be enjoyed in the absence of the fundamental incident. I argue that Hohfeldian liberties or privileges are fundamental in this sense. Wenar argues that the function of this incident is to provide agents with discretion to decide to (not) use her property, and for what purposes.[37] Building upon this idea, in chapter 3 I offer reasons to substantiate the contention that Hohfeldian privileges are fundamental in ownership. Likewise, in chapter 7 I applied the same rationale to contend that a Hohfeldian privilege is the fundamental incident of self-ownership, for it endows agents with discretion –authority– to set the agenda for themselves. I argue that other incidents cannot be enjoyed without a Hohfeldian privilege, for self-ownership becomes unintelligible (see 7.3.2).

Along the same lines, in chapter 4 I contend that the forbearance obligation is the fundamental normative element of the theory, and therefore the right of self-ownership is ancillary to FO. To fully understand this latter claim I need to address the second nomenclature issue, which is done in the next subsection. Before doing so, it will help to explore the second relevant takeaway mentioned earlier.

Hohfeld designed his scheme so that legal practitioners can solve legal problems, yet moral philosophers and political theorists used it in the analysis of moral rights and normative

[36] Ibid., 19.
[37] Wenar, "The nature of rights" *Philosophy & Public Affairs* 33, no. 3 (2005).

theories presuming transitivity of the scheme.[38] To the best of my knowledge, there is no demonstration that there is indeed extensional fit of Hohfeld scheme to other types of rights, such as moral rights, or other areas of inquiry. On this regard, Halpin warns: 'The transfer of analytical insights between legal and moral normative arrangements cannot be undertaken automatically, despite the general acknowledgement of considerable overlap between the two domains.'[39] Furthermore, it has been argued that Hohfeld's scheme is better suited to private law than it is to other areas, such as criminal or public law, where distinctive correlation between claim-rights and duties is either absent, or pushed into an administrative procrustean bed to identify putative correlative agents within the state's bureaucracy.[40] That is, it is questioned whether the scheme designed to analyse legal rights is suitable for all areas of the law.

The aim of this project is not to assess the transitivity of Hohfeld's scheme, but to elucidate the obligations and entitlements that agents have in regard to off-Earth resources. This notwithstanding, the Hohfeldian analysis of the right of self-ownership furthered in this project suggests that there is indeed extensional fit, although some adjustments are in order. Let me explain: Wenar labels Hohfeld's fundamental legal conceptions the 'atomic' incidents of 'molecular' rights, because depending on how these fundamental atoms are combined they give rise to different, complex 'molecular' rights.[41] Rarely does a metaphor so adequately capture the essence of a problem. Consider the case of Oxygen (O_2) and Ozone (O_3). Both elements are composed of oxygen atoms, the first has two, the second three. Both are essential for life on this planet, but only one of them is potentially deadly: while animals and plants

[38] For an overview of the relation between morality and law see Moore, "The various relations between law and morality in contemporary legal philosophy" *Ratio Juris* 25, no. 4 (2012).
[39] Halpin, "Choosing Axioms of Correlativity" *The American Journal of Jurisprudence* 64, no. 2 (2019), p 226.
[40] Brown, "Rights, Liberties and Duties: Reformulating Hohfeld's Scheme of Legal Relations?" *Current Legal Problems* 58, no. 1 (2005).
[41] Wenar.

cannot exist without O_2, they would die if they were in direct contact with O_3. One atom separates life from death. Yet, in the atmosphere ozone filters UV rays that cause cancer in living beings. Without this protective layer life, as we know it, would not be possible. An analogy can be made and argue that if two rights share the same atomic incidents, but differ in only one, we are faced with two different classes of rights.

In this thesis I argue that the catalogue of atomic incidents comprising legal ownership rights over objects, and the catalogue of atomic incidents comprising the moral right of self-ownership are not equal. Self-ownership does not include two incidents that are essential in legal ownership, namely, the right to possess and the incident of transfer. Because of this difference, legal ownership rights and self-ownership are not equal, but they are on a par (chapter 4). Framed differently, legal, and moral rights are two species of the same genus – rights. Because they share sufficient traits, they can be unpacked with the same analytical device, Hohfeld's incidents. Because they differ, what is permissible regarding objects might not be regarding self-ownership eg in 4.4 I argue that self-owners cannot sell themselves to slavery. This example tackles a common objection to self-ownership, and supports the parity thesis.

1.3.2 On Rights Analyses and Taxonomies of Obligations

As mentioned before, in Hohfeldian analyses duties are the correlative of claim-rights. No other incident creates obligations on third parties. Yet, various types of obligations coexist in the philosophical literature, some of which do not have a corresponding right. For instance, the distinction between perfect and imperfect obligations.[42] In the *Groundwork of The Metaphysics Of Morals* Kant defined a perfect duty as 'one that admits no exception in favour

[42] Rainbolt identified eight different ways in which it has been fleshed out. In Rainbolt, "Perfect and imperfect obligations" *Philosophical Studies* 98, no. 3 (2000). See also Hope, "Kantian imperfect duties and modern debates over human rights" *Journal of Political Philosophy* 22, no. 4 (2014); Schroeder, "Imperfect duties, group obligations, and beneficence" *Journal of Moral Philosophy* 11, no. 5 (2014).

of inclination',[43] and thus could be universalizable, whereas imperfect duties are those maxims which could be adopted by everyone, yet 'it is still impossible to will that such a principle hold everywhere'.[44] On this construal, imperfect duties do not have correlative rights because, as Guyer explains, 'Perfect duties are proscriptions of specific kinds of actions, and violating them is morally blameworthy; imperfect duties are prescriptions of general ends, and fulfilling them is praiseworthy.'[45] In other words, imperfect duties lack correlative rights because they promote certain ends, values, or states of affairs, and thus they do not recognize a rightholder.

It is a truism that taxonomies, independent of the object of study, are a function of the criteria used to construct it. Building on Kant, O'Neill develops a taxonomy of obligations that classifies them according to their scope, addresses, and whether they have correlative rights or not. Hence, she identifies four classes of obligations: universal obligations have under their purview all moral agents (and patients), whereas special obligations only a subset; perfect obligations have correlative rights, whereas imperfect do not (see table 1). Because her understanding of imperfect obligations rests on the premiss that not all obligations have correlative rights, it could be argued that hers and Hohfeld's schemes are incompatible. But this would be a hasty conclusion.

Table 1 O'Neill's Taxonomy of Obligations

	Universal	Special
Perfect	Held by all, owed to all; counterpart liberty rights; embodied above all in legal and economic systems.	Held by some; owed to specified others; counterpart special rights; fixed by structure of specific transactions and relationships; can be distributively universal given appropriate institutions.
Imperfect	Held by all, owed to none; no counterpart rights; embodied above all in character and expressed in varied situations.	Held by some, owed to none; no counterpart rights; embodied in ethos of specific relationships and practices and in characters; often, but not exclusively,

[43] Kant, Practical Philosophy 1996, p 73. (n. t; 4:422)
[44] Ibid. (4:422-3)
[45] Guyer, Duties of right and duties of virtue, in Routledge Encyclopedia of Philosophy ed^eds Taylor and Francis.

	expressed in action within special relationships.

Source: Onora O'Neill, Towards Justice and Virtue

For one thing, each author pursues a different analytical goal, and therefore each one has a distinct domain, or is better suited for different levels of analysis. Hohfeld offers a system for breaking down *legal* rights into their fundamental parts. O'Neill offers a taxonomy of *moral* obligations, some of which have corresponding rights, but others do not. The latter is better deployed at general level of analyses, discussing broad moral interests or concerns, whereas the former is better suited for fine-grained inquiries, such as unpacking the implications of a specific right, legal or otherwise. Because they serve different analytical purposes, there are no a priori reasons to assume that they are incompatible.

For another thing, at a general level of analysis there are various moral obligations that lack a corresponding right. For instance, it could be said that we owe a duty of recognition to those that suffer historical injustices, such as slaves of the Roman empire, or aboriginal communities that no longer exists, yet there is something strange in arguing that they have a right to be recognized. If those who suffer the injustice do not exist, and if their descendants are hard to identify (we might as well all have DNA traces of an ex Roman slave), it is hard to argue that there is a titleholder. Nevertheless, recognizing that something is owed to those who suffer injustices, might plausibly be considered a supererogatory obligation.

In this project I utilize both analytical tools. Thus, when I claim that the forbearance obligation is the correlative of the right of self-ownership, this should be interpreted against O'Neill's classification of obligations: it is a universal, perfect duty, because it is held by everyone and owed to all, and has a correlative universal, perfect right –self-ownership, broadly understood as *liberty* right (more on this below). At this general level of analysis Hohfeld scheme plays no role. One reason to follow this path is that if SO were understood exclusively as a Hohfeldian claim-right, this reduces a complex molecular right to only one of its

fundamental elements. I do not think is analytically possible, nor desirable, to reduce self-ownership to a single Hohfeldian incident.

However, because Hohfeld scheme was designed to decomposed assertions of rights, I contend that this is a useful tool to examine the rights that any given taxonomy might identify, like that of O'Neill's. Then, when I decompose the right of self-ownership in its atomic elements, this should be interpreted against the backdrop of Hohfeld's scheme, which presupposes that rights are composed of more than one Hohfeldian incident. This is logically possible, and analytically appropriate, since Hohfeld's scheme and O'Neill's taxonomy are tools with different purposes, and therefore they can and should complement each other.

1.3.3 On Vernacular and Technical uses of the Liberty Rights

The third and final nomenclature issue is intimately related to the two just discussed. Halpin notes that the vocabulary of *fundamental rights* and *liberties* is now part of the vernacular of legal documents, constitutions, and international charts and declarations one might add.[46] For example, Article 3 of the *Universal Declaration of Human Rights* states 'Everyone has the right to life, *liberty* and security of person.'[47] Likewise, Title II of the *Charter of Fundamental Rights of the European Union*, concerned with *freedoms*, enshrines the right to *liberty* and security, the right to *freedom* of thought, and Freedom of expression and information, among others.[48] It is fair to say that those who redacted these documents did not have in mind Hohfeld's scheme, regardless of whether they were familiar with it or not. The spirit and context suggest that they are not using *liberty* and *freedom* on a technical/analytical sense, but to connote the broad range of interest each aims to promote and protect. In short, they use *liberty* and *freedom* in broad and general sense.

[46] Halpin, "Fundamental".
[47] UN, "Human Rights".
[48] EU, 2012, Charter of Fundamental Rights of the European Union

The same phenomenon occurs in academic discussions. For example, Feinberg distinguished two sub-classes of children's' rights: dependency rights, derived from the child's dependence upon others for basic instrumental goods –shelter, food, etc., and rights–in–trust, a kind of 'anticipatory autonomy right' to develop the necessary skills and competences to be a self–determined adult. He defines autonomy rights as 'protected liberties of choice' which create duties on others so that children become autonomous individuals.[49] The argumentative context in which he claims that autonomy rights –protected liberties– create duties suggests that he used liberty not in a Hohfeldian technical sense, but broadly, in an effort to capture the wide range of interest that children have. Similarly, O'Neill's taxonomy of obligations is built upon the scope and addresses of obligations, not on Hohfeld fundamental conceptions. Thus, her claim that universal, perfect rights are the counterpart of universal, perfect obligations should be understood in this general sense.

This broad, general use of the terms *basic rights*, *liberty rights*, *fundamental freedoms*, and other related expressions, is quite common in academia. This does not imply that the value of Hohfeld's scheme is ignored or denied. Perhaps, it can be attributed to the fact that there are various levels of analysis, and to the fact there are terms whose meaning is not settled. Thus, what these terms denote is partly a function of the context in which they are used. In the cases of Feinberg's theory and O'Neill's taxonomy, I would argue that both use liberty rights to connote the protection of *liberties or freedoms* that tend to be considered *fundamental* in a normative sense, as in those that cannot be denied or withdrawn without a substantive reason, or that cannot be enjoyed without others.

In this project I use both senses of the term liberty right. I use the terms liberty/privilege in a technical, Hohfeldian sense when analysing specific rights, such as the right of self-ownership. When used in this context, liberty or privilege refers exclusively to the Hohfeldian

[49] Feinberg, "The Child's Right to an Open Future," in *Freedom and Fulfillment, Philosophical Essays*, 1992.

incident that is correlative to the no-right position. Together with this, I use the term liberty right in a broad, general sense, when I claim that the right of self-ownership is the correlative of the forbearance obligation. As it is further discussed in chapter 4, self-ownership denotes the class of rights that agents have towards their bodies and mind. Yet SO connotes certain normative commitments, insofar as it is directly related to libertarianism. On this construal, SO is more than just a mere right, but a proxy for standpoints on moral matters, such as distributive justice or civil rights eg Cohen's discussion of self-ownership in *Self-Ownership, Freedom, and Equality*. I believe qualifying SO as a liberty right, in this broad sense, is warranted, for it is not unheard of in academic discussions.

Likewise, in moral debates it is quite common to accept that we have broad, general obligations, such as duties of civility, or Mill's no harm principle, whose content are not specified, yet is hard to deny that they impose (some kind of) restrictions on our actions. For example, it is questionable whether a duty of civility implies that I must say hello to every pedestrian on the street, but few would deny that if someone is reading a book on a park, I have a duty of civility not interrupt her. Similarly, it might not be absolutely clear when promoting my interests harms others, and thus I should refrain from doing so. However, no one would argue that I have a right to punch someone else's nose just because. Simply cases, like respecting others in public places, including their noses, lend support to the contention that there are broad, general obligations; hard cases illustrate how blurry the frontiers of these obligations are. I argue that the forbearance obligation is one such general obligation. Therefore, when I contend that FO is the correlative of self-ownership, it should be understood in a broad sense. The former connotes a subset of the general constraint on actions agents have, specifically those concerned with outer space natural resources; the latter connote the general interests that agents have, which others must respect.

Given all of the above, to avoid ambiguities and exegetical problems, from now on I will use the terms privilege/privileges exclusively to refer to the Hohfeldian incident, also known as licence or liberty; and the terms duty/duties to refer exclusively to the correlative of a Hohfeldian claim-right. In other words, the terms privileges and duties have an exclusively analytical or technical connotation. Conversely, I will use the terms liberty/liberties to refer exclusively to liberty rights, as well as the terms obligation/obligations in the aforementioned broad sense.

Three further clarifications are in order. First, these specified uses should not be interpreted as an analytical or normative claim that there are differences between duties and obligations, or liberties and freedoms; I take no stance on the matter. Second, when discussing an author's specific argument, if she or he uses liberty to refer to Hohfeldian privileges, or duty in the sense that I use obligation, then I will try to respect the author's original nomenclature as much as possible. Finally, O'Neill never fully explains what she understands for counterpart (see table 1). Here I interpret it as synonym with correlative, in that they represent the two poles of a bipartite relation; thus an O'Neillian universal, perfect obligation has a counterpart or correlative universal, perfect liberty right.

1.4 Definitions and Limitations

This section specifies the definition of natural resources that informs the thesis, and underlines the advantages and limits of the project.

1.4.1 Defining Natural Resources

Following the standard practice in contemporary debate, I commence by stipulating a definition of natural resources. This synthesizes several offered in the literature.

Natural resources are raw materials available from the natural world, which were not produced by humans: 'Whereas products do not exist unless a person intervenes to create them, natural resources are naturally occurring: they would be "there" whether there were human

beings or not.'[50] Considering that, to the best of our knowledge, there is no other intelligent life form capable of creating or crafting artefacts, I assume that all outer space resources are natural resources. From this non-normative fact follows a normative implication: no life form has a greater claim based on any contributions to their creation –no one can claim 'makers' rights',[51] and thus all earthlings are symmetrically situated towards them, borrowing Risse's nomenclature.[52] Of the total of ultra-terrestrial resources present in the universe, only a subset falls within the scope of this investigation: those that are now useful, and those that could become useful in the future –depending on technological, economic, or social circumstances– in satisfying human needs and wants.[53]

This definition presumes an instrumental, and historically contingent approach towards natural resources. It is instrumental in that resources fall within the scope of justice inasmuch as they are a source of benefits and burdens.[54] It is historically contingent, in that what counts as a natural resource is a function of technological advancement and cultural beliefs that permit their exploitation. For example, prior to ballistic missiles that allowed objects to be put into orbit, orbital slots were beyond the scope of justice, now they obviously are. Correspondingly, natural resources that cannot be reached or exploited are not relevant to a theory of natural resources justice. For instance, the resources of giant planets –Jupiter, Saturn, Uranus, and Neptune– whose immense gravity would destroy any manmade object, or the resources of Mercury and Venus, whose high temperatures would melt any humanmade artefact, do not count as resources for a theory of justice (although they would obviously still be natural). If

[50] Armstrong, Justice and Natural Resources: An Egalitarian Theory 2017, p 11.
[51] Simmons, "Makers' Rights" *The Journal of Ethics* 2, no. 3 (1998).
[52] Risse; —, On global justice 2012.
[53] These last part of the formula builds on the definition of natural resources put forth by Anna Stilz, Territorial sovereignty: a philosophical exploration 2019, p 224.
[54] Armstrong, p 12.

future technological developments overcome these limitations, then giant planets, or their resources, will be within the scope of justice.

Notice that, if taken to the letter, the above definition implies lunar minerals are beyond the scope of justice, given that we do not have the technology to exploit them yet. I believe there are good reasons to reject this interpretation. For instance, NASA, the European Space Agency, and the Chinese Space Agency, among others, they all have ongoing projects to exploit the Moon and its resources. Following Rawls, I argue that the fact that already there have been asserted competing claims makes these resources within the scope of justice, regardless of current technological limitations.

1.4.2 An Analytical Advantage

One of the most debated aspects in property theory is the distinction between products or artifacts made with natural resources, and the resources themselves. Specifically, it is contested what kind of actions, or what level of human intervention, is necessary and sufficient to transform a natural resource into an artifact. For example, does fencing a forest count as appropriation? Is picking up a few fallen acorns or apples a normatively significant action –ie labour mixing, as Locke suggested?[55] Although it is reasonable to question whether picking a fallen fruit can create property rights as robust as those created by, say, a musical composer, these problems are not relevant in the context of outer space. Unlike terrestrial resources, one does not simply 'collect' an asteroid or moon regolith, for there is nothing simple about reaching these resources. To do so an agent must overcome Earth's gravity, which involves a series of engineering challenges that differ significantly from building a fence or picking up apples. The general intuition is that whoever creates something ex nihilo must be recognized a status towards its creation that sets her apart from others, that grants her entitlements and

[55] Locke, p § 28. See also discussions of this example on Waldron, The Right to Private Property 1988, p 168; Cohen, "Self-ownership, world-ownership, and equality," in *Self-ownership, Freedom, and Equality*, 1995, p 75., among others.

protections that others do not have. Trivial activities like picking up objects from the ground lie in a fuzzy zone in relation to their ability to create rights. The same happens with the debate about how much resources must be transformed for something to be considered new. There is a complex normative grey area hard to navigate. Nevertheless, even conceding that reaching ultra-terrestrial resources does not improve or changes them in any normatively relevant way, I argue that the effort and resources entailed in 'simply' reaching them should grant self-owners who performed those actions the authority to set the agenda for the resource. Therefore, I argue that any plausible theory of (natural resources) justice must consider accessing outer space resources as a rights-creating action. In chapter 7 I advance an achievement-based theory of appropriation, in which occupation is the criterion to determine the successful creation of a property right.

What if labour is performed by robots? Although I sidestep this problem, the appropriation theory I offer implies that entitlements are created when agents perform what could be broadly defined as purposeful actions. This is significantly different from Locke's idea of mixing oneself through labour with the object in question, as the normative works is done by what an action connotes, not by what it denotes. Even if one does not mix oneself with a robot, to reach an asteroid with an artifact created by a human agent should count as a rights-creating action. Besides, consider oil drilling on the seabed or modern car factories, in which most of the work is not done directly by humans, but by machines. To the best of my knowledge, no one has questioned the property rights of the companies that exploit these resources or manufacture these products on the basis that robots or machines are doing the heavy lifting, instead of humans being (literally) hands-on on the job. Hence, I do not see why it should be different in outer space.

1.4.3 Limitations: Territorial Rights or Rights over Resources off-Earth?

There is a pressing normative question that I have not addressed so far: what can different agents claim in outer space? For example, if a governmental agency like NASA exploits the resources of an asteroid, are they creating private ownership rights, or are they creating sovereignty rights (see below), thus extending the territory over which the US government rightfully claims the right of jurisdiction? Alternatively, if a private company like SpaceX or Blue Origin establishes a base on the Moon, could they claim ownership only, but not sovereignty, because they are not a not a state?

In what could be now be considered the standard definition, the territorial rights literature identifies three distinct sets of rights that states claim over their territories, which jointly define their sovereign rights: a) the right of jurisdiction, to rule themselves and everyone who happens to be in the territory at any given time, whether they are members of the political community or not; b) rights over resources, to exploit them (or not) and benefit from them to the exclusion of others; and c) the right to control borders, specifically the flow of people and goods across the territory.[56] To properly address the question posited earlier, I must further categorize territorial rights.

Angeli distinguishes between rights that are territorial in nature, and rights over territories. The crux of this distinction is the function that territory plays for each category. In rights over territory, the territory serves as a mere object of control and use. Territory is seen as a good or a resource that we need in order to survive and prosper.[57] Miller explains the similarities and differences between rights over resources and property rights as follows:

> The right to territory's resources, on the other hand, is a right exercised over physical things, and in so far as persons are involved, it is in the first place a right to prevent outsiders from taking or controlling the resource in question. Although it is not a

[56] Simmons, "On the territorial rights of states" *Nous* 35, no. s1 (2001); Stilz, "Why do states have territorial rights?" *International theory* 1, no. 02 (2009); Miller, "Territorial rights: concept and justification" *Political Studies* 60, no. 2 (2012).
[57] Angeli, Cosmopolitanism, Self-Determination and Territory: Justice with Borders 2015, pp 12-13.

> property right, it is akin to a property right in that respect, whereas the right of jurisdiction certainly is not.[58]

In other words, rights over resources and ownership rights are rights in rem, not in personae.

Territorial rights, by contrast, are more difficult to define. Their distinctive feature is that they do not refer to territory as an object, but as a mode by which rights, duties, and political affiliations are acquired, allocated, and how their scope is delimited. This becomes clear when it is argued that a state imposes certain laws on a person because she is within the territory's borders, regardless of whether it is a citizen, or a mere visitor –a tourist. As such, the right of jurisdiction is territorial in nature, because the territory defines the jurisdictional physical extension.[59] In fact, a basic principle of international law is that 'laws extend so far as, but no further than the sovereignty of the State which puts them into force'.[60] Now, contrast the right of jurisdiction with rights over resources. In the latter the territory is simply an object, whereas in the former the territory demarcates, physically and symbolically, the area in which a political authority is legitimate, and thus authoritative. On this view, the right of jurisdiction represents a claim over persons that is far wider and pervasive than rights over material resources, from a normative standpoint.

With this distinction in mind, I argue that moral agents, regardless of whether they are states, businesses, or private individuals, will only be able to claim ownership rights, for sovereignty right entail the presence of moral agents, and thus the question of the legitimacy of political obligation, which is not discussed here. Accordingly, no individual or business would be in a position to assert a sovereignty claim, and no state will be able to extend their territorial rights, or territorial sovereignty, by simply occupying or exploiting other celestial

[58] Miller, p 254.
[59] Angeli, p Chapter 2.
[60] Mann, "Legislative jurisdiction" in *The doctrine of international jurisdiction revisited after twenty years*, 20.

bodies. In short, only rights over territories could be claimed, but no territorial rights could be asserted.

This marks one of the limits of the present theory: by itself, it cannot resolve the question of territorial rights, nor adjudicate among competing sovereign claims. Further analytical challenges must be addressed to properly tackle the question of sovereignty off-Earth. For example, consider the so-called eligibility problem, or what kind of group is the proper holder of territorial rights. Insofar as sovereignty is group right, I believe that a proper sovereign territorial claim can only be asserted by a self-determined collective.[61] Thus, say in the future different private owners on Mars decide to create an independent, self-determined collective through a social contract, then they could assert a territorial sovereign claim qua self-determine collective. The moral grounds of such a claim will be the principle of self-determination: inasmuch as they would be the legitimate holders of the right over (everyone's) territory, and of the right of jurisdiction, they could in turn claim the right to control borders. This is just one of the many analytical challenges that a political theory of territorial rights in outer space should address, one that barely approaches the surface of the problem. I will not explore these questions further.

1.5 Closing Remarks

Armstrong observes that natural resources are evidently critical from the point of view of justice, but they are not all that matters: 'They are (merely) an (important) subcategory of the goods to which an account of justice ought to apply.' He further contends that they are an interesting place to start in working through the implications of an account of justice, 'but they would be a very bad place to finish.'[62] Sooner, rather than later, political theory will have to

[61] See Stilz, "Why do states have territorial rights?"; —, "Nations, states, and territory" *Ethics* 121, no. 3 (2011); —, *Territorial Sovereignty*; Ypi, "A permissive theory of territorial rights" *European journal of philosophy* 22, no. 2 (2014); and for a critical view see Miller, "Property and Territory: Locke, Kant, and Steiner" *Journal of political philosophy* 19, no. 1 (2011).
[62] Armstrong, p 10.

develop a full-blown theory of justice in outer space. Such a theory should address, inter alia, the political implications of human settlements in other celestial bodies, such as sovereignty claims, or the moral permissibility of procreation in non-terrestrial conditions. While these and other related problems must wait for further enquiries, an account of the appropriation of ultra-terrestrial natural resources is certainly an apt starting point for such an endeavour. If this project is successful, that would be one of its contributions to the contemporary justice debate: to offer a principled answer to a salient normative problem –the distribution of outer space resources, which in turn lays the groundwork for a broader, all-encompassing theory of outer space justice.

As the quote that opens this chapter suggests, outer space represents a vantage point from which to assess long-standing debates in political theory, such as those on ownership and self-ownership. It also possesses unique characteristics that make it a perfect natural laboratory to examine our relationship, as a species, with the natural world, and to elucidate the normative implications that follow. This thesis addresses a practical problem to which political theory has been quite silent, and therefore, rather than being critical it aims constructive. For this reason, although there are chapters and sections in which I criticize specific theories and positions, I do so to clear the analytical ground to later offer alternative answers. It is in this spirit too that I take existing theories and extend them beyond what their authors probably thought possible –eg Larissa Katz's agenda-setting theory. Conceding that such a strategy has hurdles of its own, I pursue it humbly, with the conviction that it can lead to progress, and with the certainty that any progress achieved will be, in the best of cases, a modest step forward propelled by those who preceded me.

2 A Constructivist Principle of Obligation

> Space satellites do not have "foundations" or identifiable "higher" or "lower" parts, but their parts must interlock: their construction is not arbitrary. Constructivist accounts of ethical requirements also propose no single foundation, yet do not appeal to a mere plurality of moral intuitions without order. As with other constructions, the parts are to be put together with an eye to the coherence and functioning of the structure.
>
> **Onora O'Neill, Constructions of Reason**

This chapter lays bare the methodological foundations of the thesis, to wit, ethical constructivism. As the quote above suggests, commanding ethical requirements do not appear out of nowhere, nor should they be assembled arbitrarily. To be authoritative and action guiding, principles must fit together different normative considerations coherently. This idea permeates the whole project, informing the analysis on ownership and self-ownership, the critique of common ownership theories, and the obligation-based approach to libertarianism.

The chapter first presents the basic tenets of the constructivist approach adopted (2.1). Then, it proceeds to stipulate and explicate the forbearance obligation, the ethical principle that guides the project, addressing two potential objections (2.2). Finally, it presents an expound the axiomatic approach to correlativity, which helps to justify making an obligation the fundamental element of theory (2.3). The chapter wraps up with closing remarks (2.4).

2.1 Constructivism in Ethics

Although in methodological discussions in political theory John Rawls is generally considered the founding father of (Kantian) constructivism, recently Westphal pointed out that Carnap first developed constructivism as a distinct philosophical method in his 1928 *Der logische Aufbau der Welt*, noting 'His method is followed, unacknowledged, by all contemporary forms of moral constructivism.'[63]

[63] Westphal, How Hume and Kant reconstruct natural law: Justifying strict objectivity without debating moral realism 2016.

Broadly defined, constructivism holds that normative principles should not be grounded on metaphysical claims, nor depend on contingent facts about individuals or groups, because both strategies limit the scope of the principles to those who share those beliefs or characteristics. Instead, constructivism suggests that ethical requirements should be built through practical reasoning, because such principles will be intelligible to, and thus followable by all agents. Framed in these terms, constructivism represents a metaethical alternative to realism and subjectivism, offering a 'promising answer to the problem of justification for liberal universalism in conditions of pluralism.'[64]

Contemporary authors have further developed and refined constructivism as a methodological alternative.[65] Unsurprisingly, these efforts have not received unanimous acceptance. Among others, questions have been raised as to the capacity of constructivism to deliver what it promises: truly universal principles.[66] This is a sophisticated, intricate debate that touches upon various ethical and metaethical questions. Although I will address some of these as they become salient (eg the universalizable objection), in the context of this project is not possible to address this debate with the attention that it merits. Instead, this section makes explicit the assumptions and procedures that inform the particular constructivist approach adopted, which builds on Onora O'Neill's work.

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[64] Budde, "Constructivism all the way down–Can O'Neill succeed where Rawls failed?" *Contemporary Political Theory* 8, no. 2 (2009), p 200.

[65] Korsgaard et al., The sources of normativity 1996; Korsgaard, Creating the kingdom of ends 1996; —, "Realism and constructivism in twentieth-century moral philosophy" *Journal of Philosophical Research* 28, no. Supplement (2003); Bagnoli, Constructivism in ethics 2013; Westphal; for a review see Galvin, "Rounding up the usual suspects: varieties of Kantian constructivism in ethics" *The Philosophical Quarterly* 61, no. 242 (2011); for a non Kantian approach to constructism see Gauthier, Morals by agreement 1986.

[66] Cohen, "Facts and principles" *Philosophy & public affairs* 31, no. 3 (2003); FitzPatrick, "The practical turn in ethical theory: Korsgaard's constructivism, realism, and the nature of normativity" *Ethics* 115, no. 4 (2005); Ronzoni and Valentini, "On the meta-ethical status of constructivism: reflections on GA Cohen's Facts and Principles'" *Politics, Philosophy & Economics* 7, no. 4 (2008); Besch, "Constructing practical reason: O'Neill on the grounds of Kantian constructivism" *The Journal of Value Inquiry* 42, no. 1 (2008); Budde; Besch, "Kantian Constructivism, the issue of scope, and perfectionism: O'Neill on ethical standing" *European Journal of Philosophy* 19, no. 1 (2011)., among many others.

Why O'Neill's before other alternatives? On the one hand, hers has been hailed as one of the most systematic and philosophically rigorous articulation of constructivism.[67] On the other hand, her method offers an analytical blueprint for developing a coherent normative theory, as it specifies requisites and conditions that principles must meet: 'Ethical judgement may rest not on discovering ethical features in (or beyond) the world, but on constructing ethical principles.'[68] This makes it a suitable methodological approach on which to build a principle of obligation. O'Neill forged her view of constructivism throughout various articles and books.[69] The main elements of her formulation are, first, that principles should be built upon a minimal set of assumptions and abstractions about relevant features of agents, and the conditions in which they interact. And second, that these principles should be able to pass a universalizable/followability test.

2.1.1 The Normativity of Practical Reasoning

Constructivism's main claim is that universal ethical requirements can be established, or constructed, through *practical reasoning.* Why practical reasoning? Above all, reasoning is available to all agents, and it is a means with which to identify relevant similarities among different situations, informing decisions about what should be done in the future. It allows us to discriminate and adjudicate between alternative courses of action. In this sense, reasoning is practical as it helps agents to make both everyday decisions, and life-determining ones. In grounding normativity in the capacity to reason, constructivism seeks to avoid commitments to substantive metaphysical foundations or values, such as theological beliefs, or embracing

[67] Watkins and Fitzpatrick, "O'Neill and Korsgaard on the Construction of Normativity" *The Journal of Value Inquiry* 36, no. 2 (2002); Budde; Sutch, Ethics, Justice and International Relations: Constructing an International Community 2013.
[68] O'Neill, Towards justice and virtue : a constructive account of practical reasoning 1996, p 39.
[69] —, Constructions of reason : explorations of Kant's practical philosophy 2000; —, *TJV*; —, "Constructivism vs. contractualism" *Ratio* 16, no. 4 (2003); —, From principles to practice: normativity and judgement in ethics and politics 2018; —, Bounds of justice, 2000; —; —, "Normativity and practical judgement" *Journal of Moral Philosophy* 4, no. 3 (2007); —, *From principles to practice*; —, Justice across boundaries: Whose obligations? 2016.

social ideals, such as local mores, which could be contested by those who do not share them. Offering a universal procedure to reach ethical requirements also circumvents scepticism about the possibility of moral truths, as these can be arrived at by any who is willing to engage in such (constructivist) process.

According to O'Neill, for anything to count as practical reasoning it must meet one simple standard: to be followable by others for whom it is to count as reasoning. Followable principles are those which can be understood by agents –are intelligible, and that prescribe actions that agents can actually perform –because they are both morally permissible, and within the physical or mental capacities of the agent. To put it differently, constructivist principles should take seriously the ideal of ought-implies-can, and thus prescribe courses of actions that are morally permissible, and that can be practically performed by the agents under its purview.

While the above is far from a demanding requirement, Budde notes that O'Neill conflates (erroneously) the weaker claim that a reason must be followable by relevant others, with the stronger claim that a reason must be shared or endorsed by all relevant others.[70] For example, O'Neill critics goal-based theories because any conception of the good will be arbitrary without a metaphysical justification establishing its objective goodness. Hence, those who do not share the metaphysical assumptions undergirding these theories might reasonably reject such principles, O'Neill argues. Nevertheless, an agent can plausibly 'follow' a consequentialist principle, in that it understands its internal logic, and could even agree with the goal it seeks to promote or maximize, and still reject it because the principle allows trade-offs between rights or interests of people that the agent considers immoral. That is, it is possible to 'follow' a principle and still consider it unconvincing. For the purpose of this thesis, I take the followability requirement to imply the weaker claim that principles must be intelligible to

[70] Conversely, Budde notes that at times O'Neill 'seems to argue that the possibility that certain premises are not (actually) accepted amounts to the fact that they could not be followed in thought and are therefore incomprehensible.' In Budde, p 209.

all relevant actors. To address the problem of reasonable disagreement, and how to decide in such instances, I will appeal to the concept of self-ownership, construed as a normative device with which to adjudicate between competing jurisdictions, between the competing authorities of self-owners (further developed in chapters 4 and 7).

2.1.2 Abstraction in Ethical Reasoning

O'Neill contends that followable principles should be built on abstractions of empirical 'truths' or 'facts' about moral agents and their circumstances. Specifically, abstractions or generalizations about the 'capacities and capabilities' of the agents that will be under the purview of the principle, and the conditions in which they interact. These empirical generalizations partly determine the scope of ethical principles. In moral debates, however, it is common to critique ethical principles on the grounds that they are too abstract, and thus too vague to be action guiding. There is probably no better example of this than the debate on Mill's 'harm principle' (which sets limits to the right of self-determination). However, the critique cannot be a blanket objection against abstraction, for abstraction is what makes communication and reasoning possible. Answering the quintessential normative question 'how ought I act?' implies, inter alia, reflecting on similar past experiences, bracketing information to keep only what is relevant to the problem in question, to then decide the best course of action. This is only possible by exercising abstraction:

> All uses of language must be more or less abstract; so must all reasoning. Even the most contextual ethical reasoning is abstract in this sense…Reasoning that abstracts from a predicate makes claims that do not depend on that predicate holding, or on its not holding. The important merit of abstraction *in this strict sense* is that it never arbitrarily augments a given starting point, so will not lead one validly from a truth to a falsehood.[71]

O'Neill stresses that in moral reasoning abstraction consists of bracketing, but not denying, predicates that are true of the matter under evaluation, as a means to reach principles

[71] O'Neill, *TJV*, p 40.

that can include all relevant agents and act-types under their purview. Ruling out abstraction in this strict sense, a charitable reading of the abstraction critique will zero in on how abstractions are utilized in the construction of ethical principles, whether these generalizations capture the relevant facts about agents, or are artificially augmented.

O'Neill emphasizes the distinction between abstractions and idealizations. On her view, idealizations are problematic in normative theorizing because they can easily lead to falsehood, and thus to exclusion. If an idealization does not holds for all the beings that are under the (alleged) scope of the principle, then the resulting principle will fail to include all relevant agents: 'Idealization masquerading as abstraction produces theories that may appear to apply widely, but in fact covertly exclude from their scope those who do not match a certain ideal.'[72] Further, she stresses that if the 'ideal predicates' of a theory are not fully satisfied, this casts a pale of doubt on the normativity of the principle, and the soundness of the theory. Here the target of her critique is Rawls' theory, particularly its characterizations of agents in the Original Position (OP), and the idiosyncratic nature of the veil of ignorance.

As construed by Rawls, in the OP self-interested agents desire a set of primary goods, and are deprived of relevant knowledge of their desires and social interactions. According to O'Neill, these are not mere abstractions, but presumptions about agents that are not met by any human being, nor society. Moreover, the veil of ignorance builds-in a preference-oriented conception of action, because the ideal of justice as fairness requires agents to be not just mutually independent, but mutually disinterested. Thus, the parties make no judgment about the relative importance of ends, and have no other-regarding motives. The problem with this characterization of agents, O'Neill argues, is that no real life individual is as mutually independent and disinterested as described in the OP. Consequently, rather than constructing an abstract, general account of a specific trait of persons, the OP builds on an idealization of

[72] —, *Constructions*, p 210.

agents, and the conditions in which they interact, that is not met by any individual or society.[73] The relevant normative outcome is that the resulting principles have a narrow scope, because only a few agents, if any, would actually meet the conditions set in the OP.

To avoid these problems, O'Neill suggests as a starting point defining agents as 'finite rational beings', which should be understood as 'finite beings who are rational'.[74] This characterization is a proper generalization, because the average person has the capacity for reasoning, and this capacity makes persons capable of following *some* form of social life, and of seeking *some* means to pursue any ends they might set for themselves. Moreover, this characterization encapsulates three elemental assumptions about agents and their circumstances: (i) *plurality*, or the fact that there are other agents; (ii) *connection*, the fact that agents can impact each other in some way through their actions; and (iii) *finitude*, that all agents have limited powers.[75]

Stressing the finitude of agents brings to the front the natural 'limitations' of agents, and the normative implications that follow. This has salient implications for this thesis, insofar as finitude is a fact about agents, it can be understood as a non-normative consideration. Part of my strategy to justify acts of appropriation as a priori morally permissible rests on the fact that agents have epistemological limitations. For example, due to the fact that human agents are earthlings, we need terrestrial resources to survive –oxygen, water, food, and so on. From this non-normative biological fact it follows the normative conclusion that we have a claim toward those terrestrial resources necessary to satisfy basic needs. I would like to stress, first, a claim is significantly different from an ownership right, as it is further explained in 6.2. Second, this sufficientarian claim, as I characterize it, set limits to the kind and amount of terrestrial resources that can be appropriated, as well as imposing a lexical priority of different

[73] Ibid., 207-11; O'Neill, *TJV*, pp 44-48; see also Hill Jr, "Autonomy and agency" *Wm. & Mary L. Rev.* 40 (1998).
[74] O'Neill, *Constructions*, p 74.
[75] —, *TJV*, p Ch 4.

uses. Third and finally, insofar as this sufficientarian claim is grounded on the biological fact that we are earthlings, then it could be said that it is a non-ad hoc manner to restrict the range of available alternatives to agents, and appropriation in particular.

The above notwithstanding, critics could argue that principles built in such a manner provide agents with insufficient elements with which to deliberate and decide. In other words, such principles underdetermine action, so they cannot guide it. To this concern I reply that determining principles is eminently a practical problem, one to be navigated depending on the situation. As O'Neill explains 'This worry [underdetermine principles] misconceives what principles must be like to guide action. The fact that principles underdetermine action means only that they do not provide those who adopt them with an auto-pilot for life, and not that they do not structure and constrain it.'[76] It is a fact that both agents and their circumstances are constantly changing, thus ethical principles cannot provide precise answers for every possible scenario. The task of ethical principles is to guide agents in deciding how to act, not to make (every single) decision on behalf of agents.

Before moving on, notice the similarities between the analytical role that abstractions play in a constructivist theory, and what Mathias Risse defines as the grounds of justice: 'those considerations or conditions based on which individuals are in the scope of principles.'[77] He explains that grounds can be thought as either (ascriptive or descriptive) features of the population that make principle of justice holds, or as a set of premises –which could be normative or not– that entail the principle of justice. Risse specifies that grounds can support more than one principle, and therefore all principles rooted on the same grounds will have the same population. Conversely, individuals could be under the scope of different principles,

[76] Ibid., 78.
[77] Risse, *OGJ*, p 5.

depending on whether the abstractions, or grounds, on which the principle is built hold for different agents.

2.1.3 Autonomy

A central element in Kant's philosophy is the concept of autonomy. The contemporary understanding of autonomy differs from that of Kant's and the Kantian tradition.[78] The contemporary articulation tends to view it as a quality that agents might have or not, or might not develop fully. It is 'scalar' capacity that humans develop as they naturally grow. For example, in Feinberg's aforementioned theory of children rights (1.3.2) autonomy is not a presumed property, but a capacity that must be cultivated, which is why it creates duties in others to cultivate it, so that they become autonomous. For his part, Kant understood it as the capacity of all rational beings for deliberating, and subsequently giving themselves the moral law (as its etymology suggests, a self-generated law). Specifically, Kant construe it as the capacity to act on *maxims*, a personal rule, or a general principle of action that, first, it is used to guide specific, ancillary aspects of actions: 'A maxim is a subjective principle of action, a principle which the subject himself makes his rule (how he wills to act).'[79] And second, provides reasons for acting in such a manner (more on this in 2.1.5). Broadly understood, a maxim is a kind of plan or intention kept in mind before acting.

Every maxim contains three fundamental aspects: first, a form, which consists of its capacity to be universalizable; to be evaluated by the universality formula of the categorical imperative (more on this in the next subsection). Second, a material aspect, or the end proposed for the action; all maxims are material to the extent that they are directed to the action willed

[78] For an overview of the debate see Beck, "Autonomy, History and Political Freedom in Kant's Political Philosophy" *History of European Ideas* 25, no. 5 (1999); Taylor, "Kantian personal autonomy" *Political theory* 33, no. 5 (2005).
[79] Kant, *Practical Philosophy*, p 380. (6:225)

in accordance with the moral law. Finally, maxims contain a foundation, the reasons the agent has for performing the actions necessary to achieve its ends.[80]

The capacity for giving oneself norms is an abstraction, a moral power presupposed of all agents, despite the fact that not all agents are autonomous in this sense eg persons within the autistic spectrum. Additionally, it is the source of the moral worth of every rational being:

> But the lawgiving itself, which determines all worth, must for that very reason have a dignity, that is, an unconditional, incomparable worth; and the word respect alone provides a becoming expression for the estimate of it that a rational being must give. Autonomy is therefore the ground of the dignity of human nature and of every rational nature.[81]

On the Kantian view, autonomy restricts the way in which we interact with other agents, for we must treat others as ends in themselves. Given this, Ripstein explains that 'Justice is required because human beings are capable of setting and pursuing their own purposes.' Emphasizing 'That capacity is not a limitation; it is our humanity itself.'[82] This articulation of autonomy leads to an understanding of rights as entities derived from, or justified by the moral value of agents as a rational being. Moral agents possess certain rights by virtue of their autonomy, and these rights should be recognized and protected by just societies.

Given this, it could be argued that in the Kantian tradition the main concern of justice is not to define the pattern of distributions, nor the satisfaction of needs and wants, but promoting the conditions so that agents can set themselves ends, and pursue them. Obviously, agents must have their basic needs satisfied before they can even set an end to pursue –that fact is captured by our finitude. However, a benevolent despot might plausibly satisfy the basic needs of his slaves, and more, while preventing them from pursuing their ends. To be clear, I am not arguing that in the Kantian tradition needs are irrelevant for justice, but rather that

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[80] Casales García, "La "Máxima" como base de la acción en la filosofía práctica de Kant" [The "Maxim" as a base of action in Kant's practical philosophy.] *Universitas Philosophica* 30, no. 61 (2013).
[81] Kant, *Practical Philosophy*, p 85.(4:436)
[82] Ripstein, "Kant and the Circumstances of Justice," in *Kant's Political Theory: Interpretations and Applications*, ed. Elisabeth Ellis, 2012, p 44.

respecting the ends of others has lexical priority. In this regard, Ripstein contends that the neo-republican critique of despotism was not (eminently) concerned with either negative or positive violations of freedom, since a benevolent despot may well not interfere with any of them. Instead, on his view the neo-republican critique centres on the power that the despot has to potentially decide for others. Insofar as those who are dominated cannot set their own ends, they could subsequently become means to someone else's end. In *The Doctrine of Right* Kant defines the innate right to freedom as 'Freedom (independence from being constrained by another's choice)', which involves 'innate *equality*, that is, independence from being bound by others to more than one can in turn bind them; hence a human being's quality of being *his own master*'.[83] This articulation is not centred on the capacity to exclude others, but on being in control of one's life. Likewise, the innate right is not an entitlement to certain benefits, to a wide range of options, to a certain state of affairs, nor a right towards natural resources, but a right to be your own master. Given all this, it is possible to identify (at least) one significant shared ethical ideal between the Kantian tradition and neo-republicanism: to prevent persons from being under the decision-making power of third parties.

2.1.4 Determining the Scope of Ethical Principles

Abstractions –facts and presumptions– about agents and their conditions are mere starting points. To effectively guide action, principles must fulfil two further requirements. First, principles must pass the so-called universability test, all agents must be able to follow and act according to the imperatives of the principle; and second, they must define the deontic status of act-types.

Kant argues that maxims must have the form of law, because he believes that moral principles should be universal, in that all rational beings should be capable of acting according to their commands. As explained by O'Neill, 'To universalize is from the start to consider

[83] In *Practical Philosophy*, pp 393-94. (emphasis in the original).

whether what one proposes for oneself could be done by others.'[84] This formal requirement ensures, first, that we respect others by treating everybody as an end in themselves; second, that our actions are consistent with our maxim; and third, that moral principles are not merely subjective or contingent on individual preferences or circumstances. A universalizable maxim is one whose end is morally and practically achievable. Then, the two questions to determine the universability of a principle are whether is possible for everyone to act simultaneously in accordance with the maxim, and whether I would will that others act towards me in accordance with the maxim that guides my actions towards them.

A careful reader would notice that in the previous subsection I stipulated that ethical principles should be abstract enough to adapt to changing circumstances, which apparently is in tension with the claim that maxims should not be subject to, or contingent on individual contexts. To dissipate this, attention must be paid to the direction of the 'causal arrow', to frame it in quantitative nomenclature. From this standpoint, ethical principles are the independent variable defining the dependent variable: how to act. Thus, principles should be abstract enough to deliver results in as many instances as possible. Accordingly, the universality test seeks to prevent the causal relationship from being reversed. That is, it prevents particular conditions from becoming the independent variable that determines ethical principles, thus transforming them into the dependent variable.

The universality test seeks to ensure that the principle is practically and morally plausible. Not more, not less. Therefore, the universality requirement should not be interpreted as (a) a requirement that all principles must be universal in scope, which could imply that the same principle should aptly govern the distribution of public offices, organs for transplants, and free speech, among many other domains; (b) that all relevant agents must adopt said principle, for it will constitute an imposition on their wills; nor (c) that principles should

[84] O'Neill, *Constructions*, p 94.

prescribe uniform solutions. Inasmuch as there are different domains of activities, not all principles have equal, or symmetrical, scope. Universality in form is not the same as universality in scope, nor uniformity in content.

O'Neill emphasizes that in deciding what to do in particular situations, abstract principles –in the sense discussed earlier– must be supplemented with more specific principles fashioned for more restricted domains: 'These more specific and restricted principles may articulate legal requirements, economic constraints, family understandings, professional codes, and the like, using their appropriate thick, or at least thicker, categories.'[85] In other words, principles must be sensitive to the overall conditions in which they are put into practice, including both normative and non-normative considerations. For example, the principle of duty of care in healthcare is universal in form, as it covers all health care professionals, and it is sufficiently abstract, so that in regular conditions all health professionals understand that they cannot put their services users, nor themselves, in any danger. Nevertheless, the principle is too abstract to properly guide action in more restricted domains within healthcare, such as implementing a system for allocating organs for transplants, or mass casualty incidents. Assessment for transplant candidacy must take into account, among other variables, need (urgency), life expectancy, social support, and so on. Likewise, in mass casualty incidents, triage principles specify what the duty of care principle entails by prioritizing attention according to probability of survival, whether the injury is 'transportable', or whether therapy could be delayed, among others. Note that the specific principles for mass casualties incidents presupposes that resources are limited, and therefore a criterion for prioritizing care is needed. The point is that while there are some areas in which practical reasoning demands from principles inclusive scope –everyone needs healthcare of some kind, others demand a restricted scope –eg the subset of individuals in need of an organ.

[85] —, *TJV*, p 157.

As the healthcare example shows, determining principles is a practical matter, one that cannot depend on rigid, impermeable criteria. Agents do not act on a vacuum, but on changing material and normative landscapes. Therefore, principles must be sensitive to these changing circumstances to provide agents with the sufficient guidelines, and reasons, so they can best resolve how to act.

At this point critics could concede that determining principles is, indeed, a practical problem, yet further press that is still too vague to properly guide action. One way to illustrate the process of determining an abstract ethical principle is by making an analogy with the idea of 'ladder of abstraction' furthered by Giovanni Sartori in his influential article *Concept Misformation in Comparative Politics*. In it, he proposed a set of rules and guidelines for concept formation in comparative political analysis. Sartori first notes that terms have extension or denotation, 'the class of things to which the word applies'; and intension or connotation, 'the collection of properties which determine the things to which the word applies.' The extension and intension of concepts represent the two ends of the ladder of abstraction. Then, he explains:

> The rules for climbing and descending along a ladder of abstraction are thus very simple rules –in principle. We make a concept more abstract and more general by lessening its properties or attributes. Conversely, a concept is specified by the addition (or unfolding) of qualifications, i.e., by augmenting its attributes or properties.[86]

Sartori explicates that concepts with high level of abstraction are usually defined by negation, whereas concepts with low level of abstraction are defined contextually. Although in social sciences there is an enormous debate on how concepts should be form, such as what counts as

[86] Sartori, "Concept misformation in comparative politics" *American political science review* 64, no. 4 (1970), p 1041.

a property or variable, or how these should be measured, it is fairly accepted that concepts have a ladder of abstraction that can be climbed or descended.[87]

Now, keeping in mind that all analogies are imperfect, it could be argued that general or abstract ethical principles –eg duty of care– can be determined by 'adding properties', namely, including relevant contextual information of the agents and conditions. It can be posited that there is an inversely proportional relationship between the generality of a principle and the specificity of its directives. The larger the scope –agents, cases, or resources are under its purview– the less specific its dictates will be. Conversely, the narrower the scope, the more specific and determined its directives become. For example, the freedom of the sea principle enshrined in the Law of the Seas secures access to everyone, whilst the High Seas Fishing Act details with significant precision the act-types it permits, prescribes, and proscribes.

Further stretching the analogy, notice that general ethical principles tend to be defined in negative terms –eg do not kill your patient, whilst more determined principles tend to promote or sanction specific actions –eg triage guidelines permit to let someone die iff another has a greater chance of survival. Mutatis mutanda, this argument could be run for all ethical principles, including but not limited to Rawls' difference principle, or Parfit's prioritarian principle. For instance, determining who are the worst-off, or who should be prioritized demands answering questions such as how to measure inequalities, which involves defending certain criteria over others, which can only be done contextually eg the worst-off of Scandinavian societies would not count as such in South America. Perhaps, that is one of the reasons why Rawls restricts the scope of justice to individual just societies. If it holds that all ethical principles have a ladder of abstraction, which can be climbed up or down depending on

[87] Among others see Collier and Mahon, "Conceptual "Stretching" Revisited: Adapting Categories in Comparative Analysis" *American Political Science Review* 87, no. 04 (1993); Goertz, Social science concepts: a user's guide 2006; Ostiguy, "Mapping a Contested Concept" (2010).

the contextual information, then the same must be true of the principle further in this project to govern access and distribution of ultra-terrestrial resources: the forbearance obligation.

If the analogy with Sartori's ladder of abstraction is not persuasive enough, consider the case of the rule of law. The law is expected to provide certainty to people about how to conduct social life, what to expect from each other. It does so by establishing objective and clear rules, which constitute the 'common ground' of public life –the *res publicas*. For this reason, one could think that if there is something that should not be left to particular or idiosyncratic interpretations, that is the law. However, as the Chilean jurist Carlos Peña explains, the rules that make up the law need to be applied to cases or controversies that require a solution. And since these rules are expressed in a natural, non-formalized language, they inevitably contain ambiguities, obscure expressions, terms full of evaluations that need to be interpreted. And interpreting, Peña argues, is the role of judges: 'the law is not only made up of the rules, but also the practice and technique with which they are interpreted. The rules are like a foreign object that does not exist except when someone reads it from a certain point of view.'[88] Here Peña is merely following Kant who, in his discussion of the role of judges, contended that they should adjudicate not with an eye to benevolence or purposes (ends), but strictly according to law. Together with this, Kant argued that it is the business of ethics to determine what is fair or just, 'For though laws must be meticulously observed, they cannot, after all, have regard to every little circumstance, and the latter may yield exceptions, which do not always find their exact resolution in the laws.'[89] Along the same lines Dworkin, who famously defended the thesis that the law is capable of providing a single right answer for every hard case, devotes chapter 4 of *Taking Rights Seriously* to harmonizing abstract legal principles

[88] Peña, "La Constitución de los jueces". (my translation)
[89] Kant, Lectures on ethics 1997, p 326. (Vigilantius 27:574)

with concrete practices through the study of hard cases,[90] thus using contextual information to adjudicate in hard cases.

The point is that if laws must be interpreted to ascertain what specific actions they permit, demand, or prohibit, then the same must be true of ethical principles. Action-guiding principles are like inert foreign objects who come to life when agents use them to decide upon differing courses of action. Given that agents act in ever changing conditions, principles must be informed by the relevant contextual information in which agents are immersed.

Relatedly, O'Neill stresses that a principle is not an algorithm that prescribe uniform course of actions, a 'quasi-mechanical generators of action', as it must be sensitive to the agent's particularities and its circumstances:

> Acting on universal principles does not demand (strictly speaking it precludes) uniform treatment or insensitivity to differences. Principles do not dominate or determine those who act on them or live by them: rather agents refer to or rely on principles in selecting and steering their activities.[91]

For instances, the principle 'to each according to its needs' is universal, in the sense that all agents are under its purview. However, the demands of justice that follow from it are a function of the specific needs of each individual, and therefore it cannot prescribe a single course of action, as these are to be determined on a case-by-case basis. This is salient for this project, because one of the objections levelled at left-libertarianism is that it is incoherent. This rests partly on the claim that it is too abstract and indeterminate, failing to be action-guiding for it can be interpreted in various, even incompatible ways.[92] Though not a fatal objection, for the same can be said of egalitarianism, and any tradition of thought (more on this on chapter 4), constructivism has the means to sidestep it. As previously argued, in a constructivist approach the relevant issue is identifying the relevant contextual information that should inform the

[90] Dworkin, Taking rights seriously 1978. As a matter of fact, I do not know of any legal system that does not contemplate interpretative laws, those subsets of rules developed by parliaments, or by administrative agencies in the exercise of their offices, to clarify the meaning of the laws, what they really imply.
[91] O'Neill, *TJV*, p 123. See also —, "Normativity and practical judgement".
[92] Fried, "Left-libertarianism: A review essay" *Philosophy & Public Affairs* 32, no. 1 (2004).

application of an abstract principle. The more precision is needed, general principles should be supplemented with auxiliary principles, facts, claims, etc., to restrict their scope.

2.1.5 Reasons for Action and Deontic Modalities

Universalizable ethical principles must offer reasons for agents to adopt them. Why? Because Kantian autonomy demands that agents adopt maxims freely: 'A principle that makes certain actions duties is a practical law. A rule that the agent himself makes his principle on subjective grounds is called his maxim; hence different agents can have very different maxims with regard to the same law.'[93] It would be misleading, though, to interpret this as implying that each person must be a 'moral entrepreneur' tasked with inventing novel moral rules. It is perfectly possible for an agent to adopt another's maxim as her own, inasmuch as she finds it reasonable. What Kantian autonomy demands from agents is that the maxims they adopt are the fruit of a deliberation process. In turn, the condition any maxim must meet is that all other agents could adopt it, and act accordingly, should they consider it reasonable: 'The categorical imperative, which as such only affirms what obligation is, is: act upon a maxim that can also hold as a universal law.'[94]

Kantian principles offer autonomy as a reason to act according to a maxim: if I qua autonomous agent aspire to pursue my ends free from interference from third parties, because I am a moral agent who can set its ends, then it follows from reason that I must act towards other moral agents in such a manner that I do not interfere with their ends, because they, like me, are moral agents who can set their own ends.[95]

Ethical principles must meet a final requirement: they must define the deontic status of actions or act-types, whether they are permissible, obligatory, o prohibited. Deontic modalities describe the normative links connecting agents, their standing vis-à-vis others. As deontic

[93] The Metaphysics of Morals in Kant, *Practical Philosophy*, p 379. (6:225)
[94] Ibid. (6:225)
[95] Ibid., 523. (6:392-3)

modalities are interdefinable, they can be viewed from either side of the normative chain. For example, if action A is required, then it necessarily is permitted too, and its omission is forbidden; consequently agents must perform A. Likewise, if action B is permitted, it is neither required nor forbidden; it implies that whenever an agent decides to perform B, all other agents have the obligation not to impede the performance of B.[96]

Notice that being interdefinable is not the same as being equal or symmetrical, for interdefinability only implies that both poles can be explained in terms of the other eg Laura has a right that Vincent pays her £100 can also be explicated as Vincent has a duty to pay Laura £100. Owing is not the same as being owed, yet they permit to explain their implications in terms of the other. Perhaps, rather than interdefinable, a more appropriate term to describe deontic modalities is to say that they are *mutually inferable*, because from one position it is possible to infer the position of the other party.

Before stipulating the principle of obligation that informs this thesis, it is worth taking stock of the conditions that a constructivist ethical principle should meet. As described by Onora O'Neill, constructivism aims to be a third alternative that resides in the space between realist and relativist accounts of ethics.[97] A plausible constructivist principle should be built on abstractions of agents and their circumstances, not idealizations, to avoid smuggling unvindicated moral ideals, and to include all relevant agents within their scope. The resulting

[96] What happens when two permissible actions collide, like when a football player tries to score a goal and the goalkeeper try to impede it? I would describe the problem as follows: the striker has a duty, and thus a right, to put the ball in a trajectory towards the goal whenever possible, and the goalkeeper has a duty to interfere with the trajectory of the ball; what the goalkeeper is prohibited from doing is to impeding the striker action –using his legs and so on, and correspondingly, the striker is prohibited from impeding the goalkeeper's movement by, say, tackling him to the ground. What activities like football do is regulate the way in which the agents -players- can interact with the ball, and through it regulate the action of the agents. This is why, when trying to redirect the trajectory of the ball, if a player hits the player of the opposing team before hitting the ball, this is considered a foul, but it is not such if he hits the ball first, even if the other player ends up being hit and falling to the ground as a result of the natural movement of the first (a predictable but unintended result). In this type of activity, the normative relationships between agents are mediated by an object, the ball.

[97] O'Neill, *Constructions*, p 206.

principle should, in turn, be followable, in that it should be intelligible to all relevant agents, and agents could act on those principles, because the actions promoted are both morally permissible, and within the capabilities of agents.

The theory on offer builds on an articulation of agents as finite rational beings. This is a proper generalization, first, because it is a fact that humans are embodied beings, with capabilities and limitations. Hence the normative implication that there is a limit as to what can be justifiably demanded or expected from agents. Second, assuming that agents in this domain –outer space activities– are rational is too a proper generalization. Simply considering the technological and engineering challenges required to develop spacefaring capabilities, it is plausible to assume that agents in this domain have the capacity for reasoning. Since practical reasoning is a necessary condition in this domain, it follows that agents within it will be able to understand and act on principles constructed with practical reasoning (more on this below). The theory also assumes that there is a plurality of agents, and that in pursuing their ends they can impact each other. Consequently, an ethical principle is required to govern their activities, and the regime governing them must be just.

Equipped with this theoretical background, it is time to present the ethical principle put forth in this project.

2.2 The Forbearance Obligation (FO)

I will first stipulate the principle, and then proceed to unpack it:

> *Forbearance obligation (FO)*: in matters pertaining to access, use, and distribution of outer space natural resources, including their benefits, agents have an obligation to forbear from imposing their decisions on others, because others have an interest in autonomy that must be respected.

In a less formulaic fashion, FO can be stipulated as *when pondering whether or not to appropriate outer space resource, I shall not impose my will on others, so as not to interfere with their plans.*

The analysis must begin by recognizing due credit where credit is due: the inspiring source of this principle and formulation stems from the work of Larissa Katz on ownership. Specifically, it draws from her article *Spite and Extortion: A Jurisdictional Principle of Abuse of Property Right*,[98] where she examines the limits of private ownership, of what owners can and cannot do. In broad terms, she argues that ownership helps to resolve a coordination problem –access and distribution of resources. It does so by bestowing on owners the authority to decide the legitimate uses for their property –the resources under their purview. The obvious question is, what are the limits of this authority?

Owners abuse their right, go beyond their authority, when their decisions are designed just to produce harm, whether as an end in itself –spite– or as a means to achieving some other aim –extortion. For example, if Adam appropriates a satellite orbit not because he has a life plan that requires it, like offering satellite communication services, but because doing so will prevent Beatrice, whom Adam dislikes, from achieving her life plans, then that would constitute an abuse of authority. Therefore, FO would deem that particular act of appropriation impermissible. The explanation rests on a cantilever strategy: if it is wrong to harm a third party –punching someone else's nose– simply because I dislike her, it is equally wrong to harm a third party by more elaborate means –appropriating an off-Earth resource– to prevent her from achieving her ends. Similarly, if Adam wants to appropriate an orbital slot as a means to make Beatrice do something she would otherwise not do –extortion, that would count as an undue imposition on her will. A similar cantilever strategy can justify this: if it is wrong to extort others through non-material means –eg revealing sensitive information, then it is also wrong to utilize natural resource, terrestrial or otherwise, to extort a third party.

Now, what if Adam and Beatrice were both pursuing legitimate ends, say both want to offer satellite-based services or products? In that scenario FO contends that, ceteris paribus,

[98] Katz, "Spite and Extortion: A Jurisdictional Principle of Abuse of Property Right" *Yale LJ* 122 (2012).

both have an equal claim to appropriate the resource in question. Thus, to properly adjudicate in these situations, more contextual information is needed. Although there is no clear cut criterion with which to demarcate a priori the limits of an owner's authority, in subsection 2.2.3, and in chapter 8, I delineate a procedure to identify the relevant variables that must be considered, and how they interact with each other, to adjudicate in these situations. This notwithstanding, Katz suggests that the Kantian idea of autonomy should be used to tackle this task pragmatically. She argues that even in a state of nature individuals are under a moral duty to forbear from imposing themselves on others, in that respecting others' autonomy is not contingent upon the civil condition, for a priori there are no reasons to deliberately harm third parties. Securing everyone's autonomy is the reason to enter the civil condition. Therefore harming others –spite or extortion– by hindering their autonomy is wrong in the state of nature and in the civil condition.

Earlier I posited that the two questions that permit us to assess the universability of a principle are whether it is morally and practically possible for everyone to act simultaneously in accordance with the maxim, and whether I would like others to act towards me in accordance with my maxim. In the context of FO, these entail the following: if everyone adopted as a maxim 'I will appropriate resources to harm others', then everyone would interfere with each other's plans, which potentially would prevent others from harming third parties. Universalizing this maxim is self-defeating for not everyone would be able to harm others. Likewise, it is unreasonable for an agent to will others to harm her, for that will prevent the agent from harming others. Hence, the maxim is not universalizable. Conversely, if when considering whether to access or use an ultra-terrestrial resource, everyone adopted FO, everyone can simultaneously act on it, for no one would impose her will others, and a reasonable autonomous agent would will that others do not impose themselves on her. Consequently, FO is a universalizable ethical principle.

Thus, framed through O'Neill's taxonomy of obligations, FO is a universal, perfect obligation. It is universal because, all agents in this domain can practically act according to it, and can will that others act accordingly; and because any agent with spacefaring capabilities can understand it. It is perfect, because it identifies both *obligee* (obligation-holder) and obligor (right bearer): all rational agents owe it to one another.

Further, FO is an action guiding principle, since the first half of the formula specifies the class of actions that are prohibited –to interfere with others, while the second provides a justification for these limitations –because their autonomy must be respected. It is a negative obligation since the principle does not demand the performance of any specific action. This necessarily limits the realm of the permissible to all those actions that do not interfere with the lives of others. In this regard, O'Neill stresses that universal perfect obligations can impose no positive tasks, as they are the counterparts of liberty rights. (Recall that Sartori stated that abstract concepts tend to be defined by negation, which lends support to the suitability of his conceptual ladder of abstraction to approach the process of determining the content of abstract ethical principles.)

Given this formulation, it might seem that autonomy, not the forbearance obligation, is doing the normative work. Two points might help to ease this apparent discrepancy. On the one hand, recall that ethical principles' main task is to guide actions, not to describe features of agents. An appeal to autonomy, by itself, cannot guide actions, because it only says who (or how) the agents are, but it is silent on how they ought to act. It is the principle which proscribes a class of actions or act-types –those that constitute an imposition on others. Then, subsequent limits on freedom are justified because of the moral importance of autonomy. On the other hand, recall that constructivist ethical principles are action-guiding articulations of practical reasoning. They pack into their formula the whole scaffolding of relevant normative variables or considerations that compose them. They aggregate different moral considerations.

So far, I have made explicit the abstractions and presumptions on which FO is premised. These abstractions do not augment or idealize any human trait or any of the conditions under which agents interact, since reasoning is, as suggested before, a necessary condition to develop spacefaring capabilities, any principle constructed through practical reasoning will include all agents performing actions in this domain. Subsequently, I have specified FO's scope in terms of the class of agents and resources that are under its purview, and offer reasons to act accordingly. I have stipulated that, against the backdrop of O'Neill's taxonomy, FO is a universal, perfect obligation, whose correlative universal, perfect right is the right of self-ownership, and that the former is the fundamental element vis-à-vis the latter. I offer reasons supporting this view in 2.4. Before, however, there are two potential objections worth addressing.

There might be a worry that, as currently stated, FO is impractically abstract. This could be either because the principle is underdetermined, failing to proscribe actions –call this the *abstraction objection*; or because it proscribes even the most trivial actions, like driving a car on a public road, for any simple action could potentially interfere with the life plans of third parties –call this the *triviality objection*. I will now address each.

2.2.1 On abstraction and the Scope of FO

Because abstraction is unavoidable in ethical reasoning (2.1.2) the key concern behind the abstraction objection most probably is how to operationalize principles. The first step is to specify the domain of activity of the principle, its scope. Delimiting the scope of the principle is of paramount importance. Why? Because no one expects the principle of duty of care in healthcare to govern collective sports, or to inform the decisions of drivers in public roads. Thus, defining the scope of the principle determines the agents and act-types to be evaluated.

The forbearance obligation was not designed to govern pedestrians on the street or public servants. Neither was it designed to govern already owned resources, nor public

resources nor private property. FO was designed to govern a subset of natural resources –outer space resources, which are unowned, as a means to framing the regimes that must be developed to govern specific resources, such as lunar minerals or terrestrial orbits. Given this, a fair assessment of FO should evaluate it according to its ability to norm agents and their actions in this specific domain. Extensional fit to other domains might be, or not, a desirable trait in normative principles, that is an open debate. Nevertheless, there are no reasons to establish extensional fit as a necessary condition ethical principles must meet.

Relatedly, it must be stressed that this thesis aims to construct a theory of natural resources justice, not a full-blown, all-encompassing moral theory. Because it only explores one aspect of justice –our relationship with the ultra-terrestrial natural world, it vindicates the normativity of the principle of obligation only within this domain.

2.2.2 The Triviality Objection

A critic could concede that the scope of FO is sufficiently delimited, yet argue that it is a failed principle because it is too demanding, as it proscribes trivial actions. This could be considered the opposite of the abstraction objection: whereas the latter claims that is underdetermined, the former argues that it is overdetermined, proscribing all actions. To respond to this, it is pertinent to highlight, running the risk of being repetitive, that the task of specifying ethical principles is a practical problem, which must take into account the particular circumstances on which is going to be applied. Rarely if at all a principle would have to adjudicate twice the same competing claims, under the exact circumstances. Hence, principles must be able to accommodate various variables, and changing conditions. The triviality objection permits us to explore the question of how to specify *abstract* principles from a different angle. Consider

> *Last bottle of milk (LBM)*: two moral agents arrive at a grocery store, where there is only one bottle of milk left. The one who enters first wants to make a milkshake, the other aims to prepare custard.

According to the triviality objection, FO would prohibit both agents from buying the last bottle of milk, for this would count as an undue interference on the life plan of the other. I reject this conclusion. Bracketing the point argued earlier, that FO was not designed to adjudicate this class of (terrestrial) problems, I nonetheless argue that, mutatis mutanda, FO can provide a practically useful, and normatively sound answer. I will appeal, first, to the background facts and assumptions that undergird LBM, and then to a substantive –and distinctive– element of the Kantian tradition.

In LBM, FO permits the first to arrive to buy the last bottle of milk. Why is it not an imposition on the second? In adjudicating disputes over resources, three of the variables to consider are (i) the nature of the resource, (ii) its relative availability, (iii) and the nature of its potential uses.[99] LBM builds on the fact that bottled milk is far from a scarce resource, as there are plenty of grocery stores stocking milk, and there are many milk producers in any given country (at least in developed ones). Furthermore, milk is a replaceable good, as there are alternatives: vegans and dairy intolerant people do not rely on dairy products to make custard. Because milk is relatively available, and replaceable, FO in conjunction with the auxiliary principle 'first come, first served', considers buying the last bottle of milk morally permissible. Having to get the milk from another store will probably inconvenience the second agent –it will delay his plans most certainly, but it will not prevent him from making custard in the long run. The schedule of the plan might be altered, but not the plan itself. This example illustrates a procedure for determining an abstract principle for distributing resources: first, given that milk is relatively available (ii), and replaceable (i), and that both potential uses are trivial (iii), then FO adjudicates resorting to an auxiliary principle.

[99] Chapter 8 explores in depth the question of the relevant variables, and how these impact the access to resources, and the distribution of their benefits.

Building on this, lets us modify one of the parameters (iii) and consider a variation of LBM in which one of the competing uses is trivial and the other is not:

> *Last bottle of milk and the malnourish child (LBMMC)*: Two moral agents arrive at a grocery store, where there is only one bottle of milk left. The one who enters the store first wants to make a milkshake, the other *needs* the milk for her extremely malnourished daughter. The life of her child depends on accessing and consuming the last bottle of milk as soon as possible.

In such a scenario FO would adjudicate in favour of the malnourished child, which implies that for the first agent buying the last bottle of milk is impermissible. This unfavourable result, for the first agent, can be justified arguing that the existential need of the malnourished girl generates in her a Hohfeldian claim[100] towards the last bottle of milk that supersedes the auxiliary principle 'first come, first served'. This should hold, despite the fact that there are other grocery stores stocking milk, for it is a time-sensitive situation which overrides other concerns. FO prioritizes non-trivial ends over trivial ones, inter alia, because having a life is a necessary condition for giving oneself ends.[101] In chapter 6 I argue that the biological fact that we are earthlings creates in everyone a claim to satisfy basic needs. This can be labelled a sufficientarian (Hohfeldian) claim, which overrides other moral considerations.

Given the preceding discussion, it is possible to add a proviso to FO's formula

> *Forbearance obligation (FO)*: in matters pertaining access to, use, and distribution of outer space natural resources, including their benefits, and provided that all relevant agents are located above the sufficientarian threshold, agents in this domain have an obligation to forbear from imposing their decisions on others, because others have an interest in autonomy that must be respected.

[100] Followin Wenar, in 3.3.1 (page 106) I argue that one of the functions of claims is 'provision in case of need'.
[101] Note that a rights-based theory will face similar problems when confronted with the *triviality* objection, and most probably offer similar solutions. Assuming that both agents enjoy equal rights, then it would have to explain why the right of the first agent to prepare a milkshake has primacy over the right of the second agent to make custard. It could appeal to the principle 'first come, first served'. But that is an auxiliary principle to allocate scarce resources, one that both rights-based and obligation-based theories could lean on. And in the modified version, the rights-based theory will have to offer reasons to as to why the right of the first agent trumps the right to life of the daughter of the second agent. Likewise, it could appeal to trivial and non-trivial ends, thus leaning on the same normative considerations as FO.

Now let us explore a second variation, in which another parameter (ii) has a different value, a situation in which milk is extremely scarce:

> *World's Last bottle of milk (WLBM)*: an infectious disease killed all non-human mammals. Two moral agents arrive to a grocery store, where there is the last bottle of milk in the world. The one who enters the store first wants to make a milkshake, the other *needs* the milk for her extremely malnourish daughter. Her life depends on accessing and consuming the last bottle of milk.

In such a scenario FO would adjudicate in favour of the malnourished child, for access to such an extremely scarce resource must prioritize non-trivial uses. Just like in LBMMC, FO would prioritize saving a life over a milkshake, and therefore would prohibit the agent who arrived first from buying the milk –it is impermissible. Needs generates moral claims that supersedes the auxiliary principle 'first come, first served'. The two non-normative variables that explain the differing conclusions that FO provides in LBM, and LBMMC and WLBM, are the extreme scarcity of the resource (ii), and the end being pursued (iii).

What if both agents need the last bottle of milk because both have malnourished daughters whose life depends on it? Ceteris paribus, FO would adjudicate appealing to the auxiliary principle 'first come, first served'. This is so not because time of arrival is itself normative, but because in a scenario where all other relevant variables are equal, time of arrival provides a criterion for adjudicating that is a priori objective, inasmuch as it presumes that all agents have equal chances of arriving first. If this holds, then this is non-normative, non-ad hoc criterion with which to adjudicate.

Now, moving on to the substantive, and distinct Kantian argument mentioned earlier, let us step back to *Last bottle of milk (LBM)*. Previously I argued that in LBM the forbearance obligation would permit the first agent buying the last bottle of milk? Why this is not an imposition on the will of others? A Kantian can reply to the triviality objection contending that, ceteris paribus, all agents are entitled to act in the world. These actions might alter the world in a manner that could affect the plans of others. Modifying the world, altering the material conditions in which agents interact, is not ipso facto equivalent with imposing oneself on

others. In *Force and Freedom* Ripstein underscores that, within a Kantian framework, independence is not a feature of agents, but of relations between persons. Independence is relational in that it guarantees autonomous agents equal freedom *to set their own ends*, by requiring that no person be subject to the choice of another. Couched in these terms, independence generates a set of restrictions that apply equally to all, because the key concern is the capacity of agents to self-legislate, not the particular purposes being pursued at any given time:

> What you can accomplish depends on what others are doing—someone else can frustrate your plans by getting the last quart of milk in the store. If they do so, they don't interfere with your independence, because they impose no limits on your ability to use your powers to set and pursue your own purposes. They just change the world in ways that make your means useless for the particular purpose you would have set. Their entitlement to change the world in those ways just is their right to independence. In the same way, your ability to enter into cooperative activities with others depends upon their willingness to cooperate with you, and their entitlement to accept or decline your invitations is simply their right to independence.[102]

From this it follows that the key concern in the Kantian tradition is the capacity of agents to set themselves ends, not any particular end being pursued, at least not directly. Just as no one is obliged to enter into personal relations with others, no one can prevent others from acting in the world. What the forbearance obligation does is make agents ask themselves: in acting in this manner am I respecting other self-owners? Can I will that they act towards me according to FO? In doing so, it puts the moral burden on the active agent in the correlation, she who holds an obligation. It must be acknowledged that morality is limited in that it only offers agents reasons for acting in a specific manner, but it does not have the means to enforce its postulates –that is the task of legal codes.

Up to this point I have described a general principle to guide off-Earth human activities, and a broad overview of how by including relevant contextual information is possible to

[102] Ripstein, Force and freedom : Kant's legal and political philosophy 2009. 16

determine the implications of the forbearance obligation. What a principle permits, prohibits, or requires, is partly a function of how it will affect third parties. If a regime governs a variety of resources, of different nature, relative availability, and potential uses, then determining the contents of the principle necessarily implies attending to each of these variables. Chapter 8 explores how the distinct characteristic of each class of natural resource justify imposing specific limits on appropriation.

Resource regimes must harmonize demands of fairness and efficiency, as they should create the conditions for resources to be effectively used, preventing overuse or misuse, as well as defining the permissible and impermissible uses of resources. Because natural resources are a source of benefits –as well as costs, FO is premised on the idea that resources will be used. Thus, it cannot *a priori* prohibit agents from acting in the world, for that veto would constitute an undue imposition on the will of others.

2.2.3 On the Limits of a Theory of Natural Resources Justice

Ethical principles govern over specific domains, which entails that they have limits. An example might help to illustrate the kind of problems that the present theory, on its own, cannot resolve.

Say that a multimillionaire wants to construct on the surface of the moon the ugliest, most hideous factory imaginable, one that everyone would most likely consider awfully annoying. Further, say that the factory could be seen with naked eyes from Earth, and that the lunar entrepreneur wants to build it with the express purpose of annoying the whole of humanity. Does he have a right to build such factory on the Moon? What does FO say on the matter?

Although it is questionable that there is a right to annoy others, say interrupting people while they read a book in a café, for the purpose at hand we could put this and other related questions to the side, such as the multimillionaire's intention to annoy humanity, and focus

exclusively on whether lunar resources can be used to build the hideous factory. FO cannot answer this question on its own, for it lies outside its domain of activity. Why? Because, at its core, this is not a problem of resource allocation but one of freedom of expression: whether moral agents are entitled to build infrastructure according to their own preferred aesthetics. In most democracies, the right to freedom of expression permits people to express their opinions free from arbitrary interference. For instance, it permits a controversial author to publish a contentious book. However, the right to freedom of expression is not an entitlement towards external resources that third parties must provide:

> should a controversial author assert that his right to free expression has been violated by a bookstore refusing to carry his book, a Hohfeldian explication will show that the author is not asserting the (usual) privilege-rights to expression insulated by protective claims and immunities He is rather asserting a (tendentious) claim-right that others abet the spread of his expression.[103]

As Wenar suggests, freedom of expression is, fundamentally, a Hohfeldian privilege for its function is to provide agents with discretion regarding whether to express herself or not, discretion that must be insulated with claims and immunities, which ensure that third parties do not interfere in the way people choose to express themselves.

These insights help to better assess the hideous factory hypothetical: FO would enter the scene iff a freedom of expression theory establishes that it is permissible to build an aesthetically annoying factory. In the event that such factory is permissible, then FO would proceed in a similar fashion as in the bottle of milk examples: it would take into account, first, the fact that there are only 10 places where to build such factory. Then, it would identify other potential claimants. If there were no other claimants, then it would consider permissible utilizing lunar resources for the construction of the factory. If there were 11 claimants, it would rank them according to their purpose, whether they are trivial and non-trivial. If this factory ranked 11th, it would consider it impermissible, if it ranked 10th, it would consider it

[103] Wenar, p 235.

permissible. What leads to one or the other result is the interplay of the relevant variables: relative availability of the resource (ii), its potential uses (iii), and whether there are other claimants or not.

2.3 An Axiomatic Approach to Correlativity

So influential is Hohfeld's scheme that, in addition to the debate concerning its legal application and normative implications, it has also produced secondary debates. One of these is the debate on the so-called logic of correlativity, specifically on the correlativity axiom on which it is built.[104] Correlativity plays a prominent role in legal and moral analyses. It is generally used as a means to illustrate, and justify, the normative positions or links tying agents together. Despite its pervasiveness, until recently correlativity remained relatively undertheorized, which explains why there is 'significant divergence over its use and no clear agreement over its meaning.'[105]

For one thing, it is presupposed that merely establishing a correlation between two or more entities is sufficient to infer the normative implications that follow, without the need to justify them. That is, it is presumed that correlativity is itself normative, and that that is self-evident. If this were true, then all correlations would be normative. However, there are many correlative positions that are merely factual, such as that between a summit and the base of a mountain. From this correlation it only follows that both are the consequence of the same orogeny process. Because there are non-normative correlations, then it is possible to assert that correlativity and normativity do not necessarily co-obtain; correlativity and normativity are not

[104] Kramer, "Rights without Trimmings," in *A debate over rights*, ed. Matthew H Kramer, et al., 1998; Stepanians et al., "Classical and Anti-classical Views on the Relationship between Rights and Duties" (2004); Perry, "Correlativity" *Law and philosophy* 28, no. 6 (2009); Weinrib, The idea of private law 2012; Hurd and Moore, "The Hohfeldian analysis of rights" *The American journal of jurisprudence* 63, no. 2 (2018); —, "Replying to Halpin and Kramer: Agreements, Disagreements and No-Agreements" *The American Journal of Jurisprudence* 64, no. 2 (2019); Halpin, "Correlativity and its Logic: Asymmetry not Equality in the Law" *Canadian Journal of Law & Jurisprudence* 32, no. 1 (2019); ibid.; Halpin, "Choosing Axioms"; —, "No-Right and its Correlative" *The American Journal of Jurisprudence* 65, no. 2 (2020); Frydrych, "Rights Correlativity," in *Wesley Hohfeld A Century Later: Edited Work, Select Personal Papers, and Original Commentaries*, ed. Shyam Balganesh, et al., 2022.

[105] Halpin, "Choosing Axioms", p 236.

correlated (pun not intended). For another thing, there is a tendency to equate correlativity with either symmetry, identity, equality, and/or reciprocity between the two ends of the relation, treating these terms as synonyms. Yet, as Halpin points out, with a dash of mischief, sore knuckles may be correlated with a bloody nose, but these two positions are neither equal, symmetrical, nor identical (nor is it the experience of each).[106] Further, ascertaining a correlation between these two positions is not even enough to determine the causal relationship between them; it is possible, though unlikely, that the nose hit the knuckles.

Furthermore, the paradigmatic case of correlativity in normative analyses, Hohfeld's claim-right/duty, has been questioned, for it does not always obtain: Perry identifies a series of cases of preconception negligence in which there was a breach to the duty of care, but there is no correlated right. For example, in *Jorgensen v. Meade Johnson Labs., Inc.*, the plaintiff, the mother of the victim –Jorgensen, the malformed child– used the defendants birth control pills, and when she stopped and got pregnant, the remaining chemical compounds of the pills caused the malformations. Because prior to conception the victim could have no rights –at least according to common law, this is an instance in which there is a Hohfeldian duty but no correlative claim-right, thus questioning the validity of the correlativity axiom.[107] While at first glance this might seem like a significant blow, this is not the case. One negative occurrence does not transform all other positive occurrences into negatives. For the same reason, one occurrence, or a few, in which the Hohfeldian correlation does not obtain does not cause those in which it does obtain to not obtain any more. What it does is make the statement 'all Hohfeldian duties have a correlative claim-right' incorrect, so we are now forced to say, 'almost all Hohfeldian duties have a correlative claim-right'.

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[106] Ibid. From a different standpoint, O'Neill stresses 'The symmetry of rights and obligations is evident only in the case of universal liberty rights, considered in the abstract'. However, the institutionalization of rights and obligations 'disrupts any simple symmetry of rights and obligations by dispersing obligations, and sometimes rights, across a plurality of agents, officials and institutions.' O'Neill, *TJV*, p 135.
[107] Perry.

This example illustrates how intricate and sophisticated the debate on correlativity is. Because the logic of correlativity goes beyond the scope of this project, I cannot examine the debate on it with the detail it deserves. Instead, I will make explicit the axiomatic approach to correlativity this thesis adopts, which follows Halpin's work.[108] In mathematics an axiom is a statement that is assumed to be true without proof. It is a foundational statement that is used to build a mathematical theory. They are usually understood as the 'rules of the game', for their purpose is, inter alia, to serve as the benchmark with which to evaluate the consistency and cogency of a theory.[109] Whereas in mathematics axioms are used to develop systematic theories, and their logical implications, in philosophy axioms are often used to explore different ways of thinking about the world. The axiomatic approach developed by Halpin permits us to accommodate different moral theories within a common analytical framework. I use it to justify the contention that in the correlation between the forbearance obligation and that the right of self-ownership the former is the fundamental element. Likewise, it justifies the contention that regarding the structure of the Hohfeldian incidents conforming self-ownership, privileges are fundamental vis-à-vis other incidents.

2.3.1 The Logic of Correlativity

Halpin argues that the two basic axioms of correlativity are:

(1) necessary coexistence between correlative positions, and
(2) mutually inferable practical understanding between correlative positions.[110]

The aforementioned mountain's summit and base correlation can be labelled *factual correlativity* because what links these positions is the process that gave form to the mountain

[108] Halpin, "Hohfeld's Conceptions: From Eight to Two" *The Cambridge Law Journal* 44, no. 3 (1985); —, "Fundamental"; —, "Correlativity"; —, "Choosing Axioms"; —, "No-Right and its Correlative"; —, "On kno-rights and no-rights" *Revus. Journal for Constitutional Theory and Philosophy of Law/Revija za ustavno teorijo in filozofijo prava*, no. 46 (2022). Among other direct influences, I borrow from him the nomenclature and taxonomy of correlativity. Similarly, most of the examples put forth in this section are either variations of, or informed by Halpin's examples.
[109] Schwarze, 2023.
[110] Halpin, "Choosing Axioms".

(orogeny), which is a fact of nature. This correlation satisfies (1), yet it does not satisfy (2), or not completely, because the information from one position is insufficient to infer relevant information or facts about the other.[111] For instance, from the base we can infer that there is a summit, but the practical conditions of the base tell us nothing about the practical conditions of the summit; from the information available at Everest's basecamp is not possible to infer whether there has been an avalanche in the summit (the summit cannot be seen from Everest's basecamp).

It could be thought that factual correlations occur exclusively between objects, but not between moral agents. That is, all relationships between moral agents are necessarily normative. However, there are factual correlations between agents that satisfy (1) and (2) that are not normative: the position *mother* is necessarily –biologically– correlated with the positions *father* and *child*. It satisfies (1), because becoming a mother is the consequence of having a child –these positions come into existence simultaneously, and coexist together (even after the death of their parents the child is still their child);[112] and it satisfies (2) because each position informs us of the practical significance of the other –knowing there is a mother we can infer that there is a child, and a father. Note that conceptually and practically child, mother, and father are not mirror images of each other, as one of the most used analogies to explain correlative positions suggests, nor are they equal or symmetrical positions. Quite the opposite, they are different and distinct. Nevertheless, these positions are undeniably correlated.

For obvious reasons the positions *mother* and *child* can be and are evaluated from a normative standpoint: the set of rights and duties respectively ascribed to these positions significantly differ. Hence, it is tempting to consider it a normative correlation. Nevertheless,

[111] —, "Correlativity".
[112] This is still true in paternity cases where there is no biological link ie adoption. Once the legal act is completed, simultaneously the parents become such and the child become their child (they coexist), and the position of one reveal relevant information about the position of the other.

the expectations of conduct against which we evaluate them do not derive from the fact that they are correlated, but from the context in which they are assessed: the normative element is external to the correlation. For example, what is expected from *mothers* in theocratic societies, such as the current Taliban regime in Afghanistan, what they are permitted, forbidden, and force to do, is absolutely different from what is expected from *mothers* in western societies.

Factual, non-normative correlations between agents can be labelled *shallow or basic correlativity*.[113] Numerous such correlations can be identified: (i) There has been a punch. A punched B is the correlative of B was punched by A. (ii) There has been a birth. A gave birth to B is the correlative of B was given birth to by A.[114] There is nothing normative in these correlations. We might consider bad, or blameworthy, punching people, or we might consider good or praiseworthy that a child is born. However, establishing that these events coexist (1) tells us nothing about how to evaluate these positions, or the conducts or acts in question. This notwithstanding, each position contains information with which is possible to infer relevant information or characteristics of the other (2). The latter, Halpin explains, is consequence of a distinguishing feature of shallow correlativity: it has a passive/active structure, by which one agent actively performs an action, whilst the other passively benefits or suffers from it. From this it follows that there cannot be symmetry between the positions, because there is no necessary symmetry or equality in doing phi and suffering phi: 'The experience of sore knuckles is quite distinct from the experience of a bloody nose at the active and passive ends of a punch.'[115] This passive/active structure can be found even when we substitute verbs for nouns: (ii–a) A is the mother of B is the correlative of B is the child of A. (iii) A is the employer of B is the correlative of B is the employee of A. This vindicates the claim that not all correlations between agents are normative.

[113] Halpin, "Choosing Axioms".
[114] —, "Correlativity"; —, "Choosing Axioms".
[115] —, "Correlativity", p 87.

Equipped with these insights, and nomenclature, we can examine the paradigmatic case of a normative correlation, the Hohfeldian claim-right/duty, through the aforementioned example: *Vincent has a duty to pay Laura £100*. Here we can identify, first, factual correlativity: there is a payment £100, which can be noted R. Second, the positions are mutually inferable: R(Vincent pays Laura £100) is the correlative of R(Laura is paid £100 by Vincent); and it has a passive/active structure –Laura is paid, Vincent pays. Additionally, the statement *Vincent has a duty to pay Laura £100* is normative because it commands Vincent a specific conduct: to pay Laura. We could label this *shallow normative correlativity*. Notice that the normative element is not derived from or grounded in correlativity, but on an external element, the deontic modal *duty*. The normative work is done by the imperative, not by correlativity. If, for example, the deontic modal was permitted instead of duty, the correlation would continue to exist, and it would continue to be normative, and their normativity would be determined by the external element.

The analysis offered up to here permits us to vindicate the following claims: (a) not all correlations are normative, and (b) that there is no normativity in correlativity, because (c) normative elements are external to correlations, if they exist at all. Together with this, it permits us to vindicate (d) that correlativity entails asymmetry between the parties or positions, which is illustrated in its passive/active structure. Now it is time to vindicate the claim that one of the positions can be morally justified from the other.

2.3.2 Deeper Normative Correlativity: Adding Axioms to the Scheme

Halpin explains that shallow normative correlativity is too superficial, as it is not exhaustive of all the relevant information or considerations that can or should be attached to any pair of positions. There might be deeper facts or considerations that could be inferred from the correlative positions. Two such considerations are the moral evaluation of the positions, and the moral justification of the positions vis-à-vis each other. The former is illustrated in a

standard appraisal of moral value: if the performance of A is considered praiseworthy, then not performing A is considered blameworthy. In such cases, correlativity permits us to transfer the evaluation from one position to the other, in terms of opposites –praiseworthy/blameworthy.

The second issue is the question of the justification of the positions: because normative elements are external to correlativity, 'justificatory issues are immaterial to correlativity itself'[116]. Thus, by adding axioms to the analytical scheme it is logically possible to argue that one of the positions is conceptually prior, or justifies the other. This results in two similar, yet distinct normative structures. First, a rights-based scheme or argument in which duties are justified on rights, by adding axioms:

(3) rights provide the normative justification for the relationship.
(4) rights are conceptually prior to duties.

For example, it could be said that Laura's right to be paid £100 is what normatively justifies Vincent's duty. This articulation does not alter or modify the original axiomatic scheme –(1) and (2). But it does add an external element, a reason to support a specific normative structure, one in which rights have analytical priority over duties, and thus the former morally justify the latter.

Mutatis mutanda, the same line of reasoning could be used to construct a duty-based scheme:

(3') duties provide the normative justification for the relationship.
(4') duties are conceptually prior to rights[117]

As before, adding these axioms does not impact the logic of correlativity, it only adds a justificatory layer. But why is there a need for this justificatory layer? Among other reasons, because moral principles impose on individuals requirements of conduct, and some of these

[116] —, "Choosing Axioms", p 237.
[117] Ibid., 233-34.

requirements might be too demanding, or simply unwelcome, 'When that requirement is regarded as an unwelcome imposition, the call for a justificatory basis becomes more acute.'[118]

It is worth mentioning that Halpin's scheme is not novel, nor is how I utilize it to support the analytical and normative scaffolding of the present theory of natural resources justice. One way to represent Halpin's scheme is to understand it as the formalization of Jeremy Waldron's depiction of rights-based and duty-based moral arguments.[119] Openly building on Dworkin's taxonomy of moral theories (see 4.2), in *The Right to Private Property* Waldron explains that 'in any moral or political theory it is possible to distinguish arguments or propositions that are more or less basic [fundamental] in the sense that less basic judgements are derivable from or justified by more basic ones.'[120] He explains that what makes an argument rights or duty based is not the content of the arguments –the set of rights and duties agents have according to the theory, but whether it considers rights as the moral justification of duties on others, or duties justify the rights of others –Halpin's pair of axioms (3 and 4) and (3' and 4') respectively: 'In many cases, however, corresponding rights and duties are not correlative, but one is derivative from the other and it makes a difference which is derivative from which.'[121]

Waldron illustrates duty-based arguments discussing Kant's argument against lying, emphasizing that, from the perspective of duty, the primary moral concern is on the agent who will commit a wrong action –lying, as opposed to the moral patient, the potential victim of deception: 'Kant's concern is not about what will happen to the rest of us if heteronomous wills are let loose in the world. His concern is rather for the will itself, and, more broadly, for the integrity and self-sufficiency of an agent endowed with reason.'[122] Herein lays a distinct aspect of obligation-based principles: because they centre on how agents must act, the main concern

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[119] They also identify goal-based arguments, but they are of no importance for present purposes.
[120] Waldron, p 64.
[121] Ibid., 69.
[122] Ibid., 72.

is that agents perform the right actions, their consequences are of secondary importance (more below).

The logical and analytical structure presented above supports the contention that, in the context of O'Neill's taxonomy, the forbearance obligation can be fundamental relative to the right of self-ownership. Now I will put forth reasons to prefer an obligation-based theory over a rights-based one.

2.3.3 An Argument for Obligations-based Theories

Even if it is logically possible to construct an obligation-based theory in a consistent fashion, this in itself does not give us reasons to consider obligations, instead of rights, or any other suitable alternative, the fundamental element of the theory. Thus, arguments supporting an obligation-based theory are in order. The two main ideas that I will defend are, first, that because obligations centre on the active subject in the correlation, the theory effectively treats agents as authors of their moral life. Second, leaning on a recent contribution to the literature, which compares rights-based law with Jewish duty-based legal tradition, I suggest that principles of obligation promote altruistic behaviours, whereas principles of entitlement promote self-oriented behaviours. Universalizing an altruistic maxim is morally feasible, whilst a self-oriented maxim runs greater risks of being self-defeating. An analogy with music theory will help to lay the groundwork for these arguments.

Music scales have relatives, that is, scales with which they share the same notes. Every major scale shares a set of notes with a particular minor scale, and vice versa. For example, C major and A minor are relative scales –the white keys on a piano. Despite having the same building blocks, C major sounds joyous, and A minor gloomy, because they start on a different note –the tonic, and consequently the distribution of intervals between notes –the black keys on the piano, changes what the set of notes connote. The emotions they convey differ because of how their composing elements are ordered. In short, where a musical scale begins

significantly impacts its tone –the end result, whether its joyous or gloomy. The same could be said about ethical principles and theories. To a greater or lesser extent, all theories are built with the same building blocks: rights, obligations, values, and so on. What distinguishes them is not so much the classes of moral considerations they comprise, but the function moral considerations have in any given theory, which necessarily determines how they resolve in cases in which competing norms or demands collide.

A standard strategy to flesh out the differences between a rights-based and an obligation-based theory is through thought experiments and hypothetical examples that share a core characteristic: two or more persons are in a life-threatening situation, and one or more of those involved must choose whether to save his/themselves or save others.[123] For instance, two shipwrecked sailors hanging on to a plank that can only support one of them. Ceteris paribus, 'Is the killing of the other considered legitimate or forbidden?'[124] Porat argues that a rights-based theory would see this as a conflict between the right to life of each person. A conflict between two equal Hohfeldian claims, for the right to life on one generates a duty to respect it on the other. Three major solutions can be derived from the thesis of complete equivalence: either for the law it is indifferent who survives; or the chances of survival must be distributed equitably –eg toss of a coin; or that there are no means with which to adjudicate.

From the perspective of obligations, by contrast, the locus of moral concern is the actions undertaken by the agents, whether they are permissible or impermissible. Thus, the shipwrecked sailors face a conflict between the duty not to harm (kill) the other, or not to harm themselves (suicide):

> Placed on the scales here are two competing duties: the duty not to kill the other person and the duty not to harm oneself (as long as such a duty is legally recognized). The premise is that a severe offense outweighs a minor offense. Assuming that killing another person is considered a worse crime than committing suicide, the

[123] For a review see Porat, "Deciding Between Contradicting Norms: Rights-Based Law vs. Duty-Based Law and Their Social Ramifications" *The American Journal of Comparative Law* (2022).
[124] Ibid., 404.

> decision would presumably be that in these circumstances a person must avoid killing his fellow, even if it means bringing about his own death.[125]

This line of reasoning reveals a distinct aspect of obligation-based principles: it rejects the equivalence thesis, for killing the other is consider wrong, or more wrong, than letting oneself die. Therefore, the obligation not to harm others has lexical priority over the obligation not to harm oneself. Citing an eleventh-century Talmud commentator, Porat summarizes how morality looks like through the lens of obligations: 'According to Rashi, the relevant question is not whose life is worth more (for both lives are of equal value), but rather, which act is more severe in terms of transgression.'[126]

In obligation-based theories the locus of moral concern is the actions the agent decides to perform, or not to. What is at stake is the agent, her will and integrity. Therefore, the agent is burdened with the questions: Is this action morally permissible? May I (not) act in this manner, or ought I (not) act in this manner? An obligation-based theorist can argue that killing others is worse than killing oneself, on the grounds that killing others is an imposition on their will, whereas self-sacrifice is a freely chosen decision. Thus, principles of obligation promote altruistic solutions to conflicts between moral norms or demands. Given its formulation, FO supports this conclusion.

For their part, in rights-based theories the locus of moral concern is the range of legitimate alternatives agents have. From this view it can argued that saving one's life, even at the expense of killing others (not simply letting them die, but actively killing, as a means to put to the side objections appealing to this distinction), is justified because a quintessential interest is at stake. That is, killing is morally justified. Consequently, both agents are entitled to perform the necessary actions to preserve their lives, including killing the other, if they so choose. In doing so, rights-based theories promote self-interested solutions to conflicts between

[125] Ibid., 408.
[126] Ibid., 412.

moral norms or demands. Notice, the concern here is not that killing is justified, but that principles –or maxims– based upon self-interest are difficult to universalize. If everyone acted upon the principle *I will kill the other to save myself*, it cannot be ruled out that both end up dying. This is self-defeating, or suboptimal. By contrast, if both agents where to decide to self-sacrifice, upon taken the decision they would most probably let the other now of their intentions, so that the other can make the most of this opportunity. It cannot be ruled out, but it would make little sense to sacrifice oneself without trying to maximize the probabilities that the sacrifice actually achieve its end, to save the life of the other, for it is not rational to sacrifice yourself in vain. Hence, it could be argued that obligation-based principles have a greater chance of achieving their ends than rights-based principles. Relatedly, O'Neill emphasises that one of the advantages of beginning with obligations is that it demands us 'to be more realistic, clear and honest about burdens, their justification and their allocation.'[127] Because they centre on how the agent ought to act, it is of secondary relevance the question of whether or not a particular society has the institutional apparatus to promote them or enforced them.

From a different standpoint, it is worth bearing in mind a distinct limitation of rights-based theories: rights do not give us reasons for action. As Waldron famously argued 'To assent to the proposition that I have a right to perform some action is not thereby to acknowledge any reason for performing that action.'[128] Further explaining 'To justify an action is to show the standard to which in the circumstances it conformed or the worthiness of the goal that it was intended to advance. But to adduce a right is not to do either of these things.'[129] Thus, a rights-based theory can tell what you can (are justified to) do, but it does not offer a reason for acting in such a manner.

[127] O'Neill, *TJV*.
[128] Waldron, "A right to do wrong" *Ethics* 92, no. 1 (1981), p 27.
[129] Ibid., 28.

Ultimately, the resolution of moral conflicts, such as the one discussed, appeals to values that are incommensurable; there are situations of *moral horrors* that make all kinds of considerations immaterial relative to one another. I would venture that if a complete topography of morality were possible, there might be an area in which all principles converge, where their borders turn porous and imprecise, and thus comparisons become futile. It is unlikely that this project converts anyone into an obligation theorist. But this is not the purpose of this thesis. Rather, it has the modest hope of offering reason to see the normative value of taking obligations seriously.

Finally, and compounded with the above, O'Neill shows that entitlement-based theories are prone to maximalism, and indeterminacy. She illustrates this discussing Rawls' theory of justice. Rawls' first principle, the so-called greatest equal liberty principle, grants each individual the most extensive set of liberties, compatible with that of others. This maximalist approach has its appeal, as it seems to provide rightsholders the largest set possible of prerogatives and protections for the effective exercise of agency. This is the prevalent construal of SO in the libertarian tradition. The problem is that maximalist principles of entitlement are 'radically indeterminate' as the number of sets of co-possible rights is, in principle, infinite: 'Is a child's right to, say, material well-being greater than its right to stay with its family of origin? Of the many ways in which these two rights could be adjusted, which would afford maximal (positive) liberty?'[130] To answer such questions two rudiments are needed: a system or principle to identify all the relevant liberties that must be part of the set. Otherwise, omitting a liberty would put into question the capacity of the theory to fulfil its promise of maximizing liberty. And a metric for liberty, or liberty rights, is needed; without it there are no means to define the boundaries of any given set. And if boundaries are porous, then it is not possible to

[130] O'Neill, *Constructions*, p 196.

determine which set effectively maximizes the right in question. And there is no metric in the literature that is sufficiently persuasive, and ecumenical. Without a legitimate metric of liberty, it is impossible to construct a set of entitlements that effectively fulfils the principles mandate: to maximize all relevant freedoms. (The twin problems of maximalism and indeterminacy of entitlement-based approaches are illustrated in the analysis of *corpus juris spatialis* presented in chapter 5.)

2.4 Final remarks

This chapter had two main tasks. First, to explicate the methodological approach of the thesis, making explicit the tenets and requirement of constructivists account of ethical principles. And second, to portray and expound the principle of obligation that structures the left-libertarian theory to be offered, the forbearance obligation. The latter entailed explicating an axiomatic approach to correlativity, as well as offering reasons for preferring a principle of obligation –they promote altruistic solutions by discouraging imposing oneself on others.

The forbearance obligation is a general ethical principle whose purpose is to govern a distinct subset of natural resources: off-Earth resources. Its scope is restricted, yet it is sufficiently universal, in that it captures all the relevant agents in its domain, and is universalizable, inasmuch as everyone can simultaneously act on it, and a rational agent would will that others adopt it as their maxim. FO does not prescribe the performance of any specific action, rather it proscribes a class of actions –those that curtail the freedom of others. The specific content of the forbearance obligation should be fleshed out on a pragmatic basis, attending to the agents involved, the specific activities, and their impacts. All of this makes it a well-suited principle to govern off-Earth human activities, or so I argue.

3 Two Senses of Ownership

> Private property and the market system are good not only to promote innovation and to promote growth; private property and the market system are good for our personal freedom.
>
> **Thomas Piketty**[131]

This chapter explores the theoretical cornerstone of this project, ownership. It commences addressing preliminary definitions and clarifications, identifying two senses of ownership (3.1). The first sense approaches ownership as a normative institution, stipulating a definition, and identifying three distinctive models (3.2). The second sense approaches ownership as an analytical concept, fleshing out its content through the Hohfeld-Honoré framework, expounding the structure of the incidents –their standing vis-à-vis each other, and identifying three main articulations within this framework (3.3). Finally, it presents the articulation of ownership that informs this project, Larissa Katz's agenda-setting theory of ownership (3.4).

3.1 Introduction

The analytical backbone of this project is ownership. Political theorists past and present have devoted rivers of ink to investigate it. These efforts permit us today to better assess what is morally valuable about ownership, and what is normatively problematic. Given this, rather than trying to uncover new territory, this chapter builds on the existing literature to lay the groundwork for the ensuing analysis.

For heuristic purposes, I distinguish two senses of ownership. On the one hand, ownership as an institution, or a system of rules for allocating resources among competing claimants, in which the titleholder has the authority to decide how any given resources will be

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[131] Quoted in Saunders, "Thomas Piketty: 'You do need some inequality to generate growth'", *The Globe and Mail,* 2014.

used, or not. On this view, ownership is a moral and social institution that norms relations among agents. On the other hand, ownership is a concept that encapsulates the practical and normative implications of the institution: the range of legitimate courses of action available for owners and non-owners. Although these two senses are clearly related, they are distinct from each other. Whereas the former can be said (simplistically) to be a dispute resolution mechanism, the latter is (simplistically too) the mechanism with which the effects, and limits of the institution are fleshed out. Both senses are germane for this project.

Before proceeding, one clarification is in order. As noted by various authors, the philosophical debate on ownership is beset with definitional issues. These relate to the 'essence' of the concept –what ownership is, and to the nomenclature used to define the constellation of elements related to it. For example, both in layman parlance and in academic discussions it is common to use property, property rights, and ownership as synonyms. In turn, ownership and property are used to refer either to a specific object that is subject to an ownership relation –'the Moon is my private property'– or to the relationship itself, which transforms said object into the claimant's property. The problem with using ownership and property interchangeably is that doing so introduces a redundancy, since 'owning rights means having (a certain bundle of) rights to rights over or in some relation to some "thing."'[132] For consistency's sake, throughout this project I use the term property to refer to the thing –*res*, material or immaterial that is owned; and the term ownership to refer to the relationship between an agent and her property; relatedly, the term ownership model refers to the different species that conform the genus ownership.

[132] Christman, The myth of property: toward an egalitarian theory of ownership 1994, p 16.

3.2 Ownership, the Social Institution

3.2.1 Defining Ownership

Two influential definitions provide the basis of the analysis, those of Tony Honoré and Jeremy Waldron. Honoré defines ownership, in a general sense, as '*the greatest possible interest in a thing which a mature system of law recognizes*'.[133] Building on this broad definition, he contends that given that all mature systems have *a* concept of ownership, it follows that ownership stands not merely for *the greatest* but for *a kind* of interest found in every system: 'Ownership, *dominium*, *propriété, Eigentum*, and similar words stand not merely for the greatest interest in things in particular systems but for a type of interest with common features transcending particular systems.'[134] For his part, Waldron defines ownership (he uses the expression 'the concept of property') as a system of rules governing access to and control of material resources, like land, natural resources, the means of production, manufactured goods, as well as immaterial resources such as texts, ideas, inventions, and other intellectual products.[135] Taken these together, I stipulate the following definition:

> ownership refers to any system of rules governing access, control, and use of material and immaterial objects.

Several important implications are packed into this definition, which I now unpack.

First, insofar as these rules delimit the range of legitimate actions available to agents, ownership is a deontic institution. In the sociological literature, institutions are usually characterized as enduring complex social forms that reproduce themselves, including but not limited to roles, rules, and values.[136] Giddens succinctly defines them as 'the more enduring features of social life.'[137] Note that, on this reading, institutions can be morally questionable,

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[133] Honoré, "Ownership" *Journal of Institutional Economics* 9, no. 2 (2013), p 227 (emphasis in the original).
[134] —, Making Law Bind: Essays Legal and Philosophical 1987, p 161.; emphasis in the original
[135] This is a composite of the definitions Waldron puts forth in *RPP*, p 31.(Waldron's book will hereinafter be abbreviated RPP), and on Property and Ownership, in The Stanford Encyclopedia of Philosophy ed^eds Edward N. Zalta. Spring.; the latter builds on and expands the former.
[136] Although there is no univocal definition of institution, most competing accounts include these elements. For a discussion see Agassi and Jarvie, "Institutions as a Philosophical Problem: A Critical Rationalist Perspective on Guala's "Understanding Institutions" and His Critics" *Philosophy of the Social Sciences* 49, no. 1 (2019).
[137] Giddens, The constitution of society: Outline of the theory of structuration 1984, p 24.

or even absolutely unjustifiable, and still be normative, because what defines an institution is how it structures relationships, not the legitimacy of its norms. For instance, both ownership and slavery are institutions, because both govern relations among agents, determining the range of available options open to each agent. Slavery is certainly a morally illegitimate institution, but it is an institution, nonetheless. In this sense, ownership is a *deontic* social institution because it determines what ought to be done,[138] defining whether acts are forbidden, permitted, or obligatory, and which objects are under the purview of these rules. Consequently, it is *normative* because it delimits the range of available options to agents.[139]

Second, ownership is an institution that governs relations between an agent and all other agents *in regard to things*. That is, instead of establishing a dyadic relation between an agent and a thing, ownership describes a triadic relationship in which the owner's property mediates between the owner and all other agents; relate to each other *through* the object, not directly with each other.[140] Waldron notes that ownership does not cover all rules governing objects, but relates exclusively to those concerned with their allocation:

> If a particular action, say, riding bicycles, is permitted by law, it does not follow that the law permits me to ride any bicycle I please. The specific function of property rules is to determine, once we have established that bicycles may be ridden, who is entitled to ride which bicycle and when. Otherwise the concept would include almost all general rules of behaviour.[141]

But why ownership should be limited exclusively to allocation? Given that living a (meaningful) human life implies the use of external resources, Waldron argues, the question of their allocation 'is a primal and universal concern of human societies'.[142] This premiss leads

[138] Timmerman stresses that during the nineteenth century the term deontology was understood as 'that which ought to be, and not to be done'. In "V—What's Wrong with 'Deontology'?" (paper presented at the Proceedings of the Aristotelian Society (Hardback), 2015).
[139] Wolff notes that any set of property rights embodies a set of rules permitting and prohibiting certain actions. Wolff, "Economic justice," in *The Oxford Handbook of Practical Ethics*, ed. Hugh LaFollette, 2005.
[140] Cohen, "Dialogue on Private Property" *Faculty Scholarship Series* Paper 4360 (1954). See also Kant's discussion in the Doctrine of Right, section 1, The Metaphysics of Morals 1991, p 82 [261].
[141] Waldron, *RPP*, p 32.
[142] Ibid., 34.

him to promote an instrumentalist view of ownership.[143] Here Waldron follows Hume, for whom the main function of justice was to solve allocation problems.[144] In contrast, for authors like Kant or Hegel, private ownership is intrinsically related to individual freedom.[145]

One way to harmonize these, seemingly, opposing approaches is distinguishing between the nature and the value of ownership. The functionalist approach focuses on what ownership does –to allocate resources. This much is undeniable. The axiological view, for its part, centres on what makes ownership valuable from a normative standpoint, such as its potential as a means for the realization of other moral values. For example, Kantians argue that private ownership rights provide agents with the necessary means to pursue their own ends free from arbitrary interferences. Similarly, common or collective ownership rights provide groups with the necessary protections so they can preserve and practice their traditions way of life while satisfying their basic needs (more on this on the next subsection). Given this, a functionalist and an axiological approach are not at odds with each other. To embrace the former is neither equivalent with rejecting, nor supporting, the latter. On the functionalist approach, ownership has a narrower scope, whereas on an axiological approach it is wider, for it entails the moral considerations that grounds it.

Third, ownership qua social institution need not be codified into, nor be part of a legal system or sovereign state. A social practice, a tradition, a convention, or an agreement that allocates resources in a similar manner as ownership does, could be considered an instance of ownership. In *A Theory of Property*, Munzer defines conventions as 'a standing solution to a problem of coordinating behaviour, which solution, over time, assumes a normative

[143] If taken to the letter, this implies that in conditions of superabundance, in which allocation problems would not arise, ownership will become superfluous. I reject this line of reasoning in Chapter XXXX.
[144] For an analysis on Hume's theory see Cruise, "The Elements of a Humean Theory of Justice" (Ph.D., The University of North Carolina at Chapel Hill), 2020.
[145] For a discussion on Hegel see Waldron, *RPP*, p chapter 10; and for a discussion on Kant see Ripstein, *Force and Freedom*., particularly chapters 4 and 8

character.'[146] This understanding is relevant for this project, since most of the current debate on private ownership rests on the background assumption that there is an authority –a state– with both the duty and the capacity to enforce property rights. This does not hold in outer space, or in the international arena, for in the latter there is no authority equivalent to that of the state. At best there are international agreements, in specific issue areas, supported by states. However, the fact that there is neither a common set of rules –a system of justice, nor a common authority –a sovereign– to enforce them, should not be considered a limitation. On the contrary, history shows that practical agreements can become international normative institutions.

In his influential *The Tragedy of the Commons*, despite Hardin promoting private ownership as the solution, he underscores that the key element in any normative system is that their rules must be mutually agreed: 'The social arrangements that produce responsibility are arrangements that create coercion, of some sort.' Specifying, 'To many, the word coercion implies arbitrary decisions of distant and irresponsible bureaucrats; but this is not a necessary part of its meaning. The only kind of coercion I recommend is mutual coercion, mutually agreed upon by most of the people affected.'[147] The relevant takeaway here is the emphasis on *mutually agreed* coercion, as it implies that a state-like authority with enforcing capacities is not a necessary condition for a regime to be effective. What matters is that the relevant stakeholders reach an agreement mutually deemed authoritative. Consider the following example: worldwide allocation of radio waves and orbital slots is the exclusive prerogative of the International Telecommunications Union (ITU). The ITU is a non-Governmental international organization founded by the initiative of Napoleon III in 1865 –by the name of International Telegraph Union.[148] During the XIX century, the proliferation of telegraph communications in Europe and North America created various practical problems eg when

[146] Munzer, A Theory of Property 1990, p 76.
[147] Hardin, "The Tragedy of the Commons" *Science* 162 (1968), p 1247.
[148] Soroos, "The commons in the sky: the radio spectrum and geosynchronous orbit as issues in global policy" *International Organization* 36, no. 3 (1982).

lines crossed national borders, 'messages had to be stopped and translated into the particular system of the next jurisdiction.'[149] To overcome them, representatives of 20 states signed an agreement to standardize equipment and make services more efficient. In time this agreement evolved into a transboundary normative institution, that allocates airwaves and orbital slots among competing claimants.

In its beginning, the ITU was merely a set of mutually agreed rules to solve a collective action problem. Over time, it became a normative institution whose functioning is akin to, if not the same as, the institution of ownership. This is relevant, first, because there is no set of common rules to govern outer space –except those prohibiting all meaningful actions, and no authority to enforce them. Thus, if and when a regime governing off-Earth resources is established, it its beginnings it will be a set of mutually agreed rules. And second, the case of the ITU illustrates how agreements that were born with a specific purpose over time can acquire normative effects not bargained for. Chapter 5 argues that the provisions of outer space international treaties, especially its prohibitions, are the result of the political rivalry of the Cold War, and the counterbalancing tactics between the United States and the Soviet Union. That is, they were originally designed as a political compromise between two rivals, but now function as the normative point of reference to govern human activities beyond Earth. This is questionable, to say the least.

Fourth, insofar as ownership is a social institution, it is historically and culturally contingent. Jakab underscores that in ancient Rome ownership was the product of specific historical developments, a 'legal institution in motion' reacting to new challenges from its social, economic, and political environment. For example, in regards of agricultural lands, utility maximization was ingrained in Roman Law: whereas bad agrarian cultivation techniques were judged an offence within the jurisdiction of the censors, a proficient farmer was

[149] ITU, "Overview of ITU's History (1)".

considered for the highest form of commendation.[150] Similarly, Radin emphasizes 'Not only did the elements of abstract dominium vary with the objects on which it was exercised, but they varied with the relations of the persons affected. Tutors were called *domini* when they did certain things and not when they did others.'[151] In this sense, *dominium* (ownership) was more a complex of privileges, a class of possible activities, rather than a set of fixed rights.[152]

Roman civil law tended to avoid strict definitions, and property rights were not the exception. Roman law's starting assumption was that the extent of the entitlements implied by this institution were fully revealed when weighed against the rights of third parties:

> The content of ownership rights could not be determined in advance since they were only limited by the duty to enjoy that right without unfairly harming other parties…More than all other rights, it essentially became evident only when a third party interfered with the owner's peaceful enjoyment of the object.[153]

In other words, obligations are not only constitutive –fundamental– elements of ownership, but they are the means with which to delineate the privileges it entails. As it can be seen, historically Ownership has been considered a dynamic institution, sensitive to the rugged normative landscape in which it was practiced.

Although he did not address it in those terms, Honoré was aware of this aspect. In his view, 'the concentration of patiently garnered rights' did not exhaust the normative debate. It is worth quoting at length this passage, as it reveals the socially and historically contingent nature of this institution:

> No doubt the concentration in the same person of the right (liberty) of using as one wishes, the right to exclude others, the power of alienating and an immunity from expropriation is a cardinal feature of the institution. Yet it would be a distortion – and one of which the 18th century, with its overemphasis on subjective rights, was patently guilty– to speak as if this concentration of patiently garnered rights was the only legally or socially important characteristic of the owner's position. The present

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[150] Jakab, "Property Rights in Ancient Rome," in *In Ownership and Exploitation of Land and Natural Resources in the Roman World*, 2015, pp 121-24.
[151] Radin, "Fundamental Concepts of the Roman Law" *California Law Review* (1925), p 210.; emphasis in the original.
[152] Harris has argued that the content of ownership interests is an imprecise and fluctuating product of cultural assumptions and, as such, is presupposed by legal regulation. In Property and justice 1996, pp 76-77.
[153] Colognesi, "Ownership and Power in Roman Law," in *The Oxford Handbook of Roman Law and Society*, ed. Paul J. du Plessis, et al., 2016, p 525.

> analysis, by emphasizing that the owner is subject to characteristic prohibitions and limitations, and that ownership comprises at least one important incident independent of the owner's choice, is an attempt to redress the balance.[154]

Relatedly, Waldron notes that in legal theory and practice, the extent of property rights varies significantly depending on the objects. For example, owning a car in England implies different sets of ownership incidents than owning a plot of agricultural land. And both differ from ownership of intangible objects, like market stocks or intellectual copyrights. Further, different agents, such as natural persons or private companies, are entitled to different ownership rights: 'Variations in "subject" as well as variations in "object" can make a difference to the nature of the relation.'[155]

This articulation of (ownership) rights as dynamic normative devices persists to this day. In *The Nature of Rights* Joseph Raz advanced a theory that distinguishes between rights that confer (Hohfeldian) liberties or powers on the holder, and those that impose duties on third parties (Hohfeldian claim-rights). Raz argued that rights can be grounds of duties, which is not the same as establishing a direct correlation between a right and a duty: 'It is wrong to translate statements of rights into statements of "the corresponding" duties. A right of one person is not a duty on another. It is the ground of a duty, a ground which, if not counteracted by conflicting considerations, justifies holding that other person to have the duty.'[156] Further, asserting a right does not settle by itself moral disputes, is but one of the variables, elements, or considerations to contemplate when adjudicating between competing claims. The author emphasizes that 'A change of circumstances may lead to the creation of new duties based on the old right', arguing:

> This dynamic aspect of rights, their ability to create new duties, is fundamental to any understanding of their nature and function in practical thought. Unfortunately, most if not all formulations of the correlativity thesis disregard the dynamic aspects of rights. They all assume that a right can be exhaustively stated by stating those duties which it has already established.[157]

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[154] Honoré, *Making Law Bind*, p 166.
[155] Waldron, *RPP*, pp 26-30.
[156] Raz, "On the nature of rights" *Mind* 93, no. 370 (1984), p 199. Additionally, see discussion in 2.3.
[157] Ibid., 200.

By parity of reason, it can be argued that obligations can be grounds of rights, whose normative implications are not exhausted by any given correlative set of rights' incidents

Finally, if the main function of ownership is to distribute resources, as stipulated earlier, then depending on the distributive principle, three distinct ownership models can be identified: private, collective, and common ownership.[158]

3.2.2 Three Models of Ownership

Although the literature on ownership distinguishes the above-mentioned models, most of the philosophical debate centres on private ownership. Except for Waldron and Mathias Risse, few contemporary authors have explored common and collective ownership as analytical possibilities. It must be underscored that the differences between common and collective ownership these authors identify are not principled, but stipulated to distinguish two distinct approaches that prioritize groups rather than individuals. For instance, when defining common ownership, Waldron remarks that our familiarity with this idea is not rooted in any particular society organized in this fashion, 'for there is no such society', but derived from how almost all societies handle access to public resources, like parks or national reserves. Building on their work, this section first offers a descriptive characterization of the three models, and then highlights relevant normative differences that follow from these descriptions.

Waldron identifies two key elements in private ownership models. First, 'the rules governing access to, and control of material resources are organized around the idea that resources are on the whole separate objects each assigned and therefore belonging to some particular individual.'[159] Similarly, Steiner points out that rights are usually understood as '…a relation between two terms; the name of an agent and the name of an object.'[160] I label this the

[158] Since I am defining ownership as a system of rules, in order to avoid nomenclature redundancies, I prefer the term model, rather than system, to distinguish between the three different ownership systems most prevalent in the literature. Waldron, *RPP*, p chapter 2; see also Risse, *OGJ*. (Risse's book will hereinafter be abbreviated OGJ)
[159] Waldron, *RPP*, p 38.
[160] Steiner, "The structure of a set of compossible rights" *Journal of Philosophy* 74, no. 12 (1977), p 770.

one agent/one object principle. The second element is that 'In a private property system, a rule is laid down 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.'[161] That is, the rightful owner is the final and authoritative decisionmaker for the resource. In this vein, Larissa Katz explains that states and legal systems authorize individuals, through property rights, to act on their best opinions regarding their property.[162] She labels this an agenda-setting authority. In short, the two defining elements of private property are the one agent/one object principle, and the agenda-setting authority ascribed to owners.[163]

The organizing idea behind common ownership –also referred to as joint ownership– is that access and control to material resources is the exclusive prerogative of a group of individuals, although each member has equal rights over these resources: 'In principle, the needs and wants of every person are considered, and when allocative decisions are made, they are made on a basis that is in some sense fair to all.'[164] That is, the group, qua collective, is the sole owner and can exclude third parties, but no member can be excluded from the resources. Risse explains that 'Joint ownership ascribes to each owner rights as extensive as private ownership rights, except that others hold the same rights.'[165] Notice that Hardin's influential parable describes a group of herdsmen who have equal rights towards the grazeland.

In contrast, in collective ownership the organizing idea is that the rules of allocation are determined by reference to the collective interests of the group as a whole. Both Waldron and Risse highlight that the distributive principle prioritizes the collective, even if this comes at the expense of the needs and wants of one or more members of the collective. Thus, Waldron argues that a conception of collective property is not complete unless it defines what is the

[161] Waldron, *RPP*, p 40.
[162] Katz, p 1477.
[163] See also Nozick's definition in , p 171. (hereinafter ASU)
[164] Waldron, *RPP*, p 41.
[165] Risse, *OGJ*, p 110.

collective interest –welfarist, statist, etc., and what procedures are to be used to apply that conception to individual cases: 'material resources are answerable to the needs and purposes of society as a whole, whatever they are and however they are determined, rather than to the needs and purposes of particular individuals considered on their own.'[166]

These analytical characterizations should be understood as a Weberian ideal type, heuristic devices to elucidate what is at stake in each model. Before examining the relevant normative differences that can be inferred from these theoretical descriptions, I want to draw attention to the one element shared by these models: all three consider that the titleholder has, eminently, the right to decide how to use, or not, her property. That is, the owner has the authority to set the agenda for the object in question. Models differ on the kind of agent that is the proper titleholder, and on the distributive principle governing them, but they all recognize the owner as the agenda setter for the resources. I would argue that this is the particular type of interest that Honoré identified in all mature systems of law.

Note that common ownership shares with private ownership the allocation principle one agent/one object, and that no individual stands in a privileged situation in relation to any resource. However, whereas in a collective ownership the interest of the group, qua collective, has priority over individual interests, in common ownership the interests of all individuals have equal value. According to Waldron and Risse, in the latter co-owners do not need to share a common goal, a conception of the good, or sense of community (although that could be the case), to access and use the resource. According to Risse, the key element is that co-owners have equals rights, which gives them equality of opportunity to satisfy basic needs, insofar as the satisfaction of such needs depends on collectively owned resources.[167]

Risse observes that the difference between common ownership and no ownership is identified when we ask how to generate natural private property. The former requires a

[166] Waldron, *RPP*, p 41.
[167] Risse, *OGJ*, p 111.

privatization theory since the challenge is to provide reasons to derive private ownership from a common-pool resource. In contrast, no ownership requires a theory of acquisition, the crucial issue being how to generate rights and duties constitutive of the property at all.[168] If outer space resources are not owned by anyone, as I claim, then an appropriation theory is needed.

Waldron stresses that these characterizations are way too simplistic compared with the complicated rules of most actual systems. Consider collective ownership, which is largely an analytical construct. The few historical examples that resemble this model are those of totalitarian regimes, such as the former Soviet Union or contemporary North Korea. These could be labelled hybrid models, at best, given that in these regimes usually a few actors –their leaders– enjoy property rights akin to those of a private ownership, while most of the citizens are or were governed by collective ownership principles.[169] Similarly, even the system that most directly embodies private ownership –capitalism– recognizes that some areas or resources are 'commonly owned' by the political community ie parks, beaches, etc. Hence, the descriptions of these three models of ownership are just that, descriptions of possible analytical alternatives, of the different shapes and forms that this social institution can take. They help to delineate the contours of the debate, defining what kind of agents are capable of being property owners, what actions fall under the purview of ownership, and what kind of goods or resources could be appropriated.

3.2.3 A 'Common' Conflation

Before moving on, in the debate on common ownership there is a tendency to conflate resources that are allegedly owned in common, with resources that are subject to the tragedy of the commons. It is assumed that commonly owned resources are too common-pool resources.[170]

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[168] Ibid., 111-12; see also Risse, "Original Ownership of the Earth: A Contemporary Approach".
[169] See Feallsanach brief discussion in "Locke and libertarian property rights: Reply to Weinberg" (1998).
[170] Consider just two examples of a very common practice: Vogler, "Global commons revisited" *Global Policy* 3, no. 1 (2012). UNEP, "Making Peace with Nature".

Common-pool resources are characterized by (i) a low level of excludability, as no single actor can establish control and bar others from it, and (ii) high substractibility of use, in that the use of one agent detracts the availability for others. By contrast, global commons are not a kind of resource but *resource domains* or areas that lie outside of the political reach –sovereignty– of any state.[171] The United Nations Environmental Program (UNEP) considers outer space as one of the four global commons, together with the High Seas, the Atmosphere, and Antarctica. This conflation of global commons and common-pool resources is analytically and normatively problematic. Analytically, because it fuses two distinct concepts that only share an adjective; normatively, because it transfers the normative implications from one to the other, which is unwarranted. For, even conceding that the so-called four global commons are indeed owned in some common manner, what makes a resource subject of Hardin's tragedy is not its *commonality*, but whether it is renewable or not, and whether the regimen governing it permits its overexploitation.

In his influential article, Hardin warns about the mutually damaging consequences for individuals when they fail to cooperate when exploiting a *renewable* natural resource.[172] The details of the story are relevant for reaching the conclusions that revolutionized public policy on natural resources. He depicts a group of herdsmen who share a plot of land to graze their animals. If each graze as much as they can –as their own private interest allegedly dictates, the land becomes overgrazed, and overexploitation leads to the depletion of the resource. In economic nomenclature, the costs are shared by all while the benefits accrue exclusively to each decision-maker.[173] To avoid this tragic result, Hardin contends that a system of rules based on entitlements, with enforcement mechanisms, is needed.

[171] Note that the OECD defines global commons as 'natural assets outside national jurisdiction'.
[172] Hardin. (my emphasis)
[173] Laver, "The politics of inner space: tragedies of three commons" *European Journal of Political Research* 12, no. 1 (1984).

The three variables that together substantiate the *tragic* conclusion are, first, the fact that productive land is a renewable resource –properly managed is inexhaustible for all analytical purposes. The primary task of the regimes that govern this type of resources is to solve the collective action problem that they entail. Second, all herdsmen in the example have equal rights of access and use, and presumably they collectively hold a right to exclude non-members of the community. And third, the plot is easily accessible to all parties, which implies that communications and interactions among agents are frequent (thus informal enforcement of rules is possible), and that no party can be easily excluded.

When defining any resource as a global common, implicit in that move is the assumption that applying the same 'local level' solution of Hardin's story would yield similar results at the global level. However, most analysis fail to consider the differences between the 'local' and the 'global' level, and the differing characteristics of a grazing pasture compared to the specific features of each of the four global commons. To begin with, outer space resources –eg orbital slots– are extremely difficult to access, as opposed to pasture for grazing. This is relevant because in Hardin's parable, a system of rules might be enforced by a central government, a local council, or mere tradition. The research program on common-pool resources pioneered by Elinor Ostrom proves that human groups can self-organized, avoiding regulations by central authorities, to prevent over exploitation.[174] Chapter 8 demonstrate that this has not been the case with orbital slots and actors in the space domain.

Furthermore, only one of the so-called global commons –the atmosphere, and one of the resources found in another –fisheries of High Seas, are subject of the tragedy. Fisheries and the atmosphere's carbon absorption capacity are renewable, though subject to overexploitation. Consequently, coordination takes logical and normative precedence to distributive issues because failure to coordinate might exhaust the resource. In contrast, neither the minerals of

[174] Ostrom et al; Dolšak and Ostrom, "The Challengues of the Commons," in *The Commons in the New Millennium: Challenges and Adaptation*, ed. Nives Dolšak and Elinor Ostrom, 2003., among others.

Antarctica, the seabed, or outer space are renewable. They are exhaustible, and therefore a regime to allocate access to these resources is needed; exhaustible resources are not subject to the common's tragedy. Further, because the resources in question are non-renewable, a mechanism must be developed to ensure that (some of) their benefits will reach future generations too. One such mechanism is the Norwegian Oil Fund, a government pension fund established in 1990 which serves as a financial reserve to secure that both current and future generations get to benefit from this resource.[175] In other words, a theory of natural resources justice is needed.

Orbital slots might be the one outer space resource that is also subject to the tragedy of the commons. As it is thoroughly discussed in chapter 8, agents in this domain of activity have incentives to overconsume, but not to cooperate. And overconsumption in this case can render orbits unusable. Distinguishing between common ownership and common-pool resources, is a necessary step to understand the various, differing normative issues at stake in developing a theory of natural resources justice.

So far, I have explored ownership qua institution –as a series of practices and rules that regulate the interactions between agents. The next section explores ownership as a concept, an analytical category that permits to map the normative links that connect agents.

3.3 Ownership, the Concept

The concept of ownership can be unpacked in three main axes. Firstly, the content of ownership, or the set of incidents that define range of prerogatives and protections that ownership affords eg rights to possess, use, alienate, etc. Secondly, its moral grounds, or the

[175] NBIM, "The Fund". The main purpose of the Norwegian oil fund is to ensure that the country's oil wealth is managed in a responsible and sustainable way. Among other measures, its board of directors must include, by law, a philosopher or ethicist. Thus, investments are subject to ethical guidelines that exclude investments in companies that violate certain environmental, social, and ethical standards. Notably, resource rich countries such as Qatar, Kuwait, and Singapore, among others, have adopted similar public policies.

principles or considerations that justify both specific property claims, and the institution as a whole. And finally, the scope, or what part of the world or things fall under its domain. As Honoré noted, 'Whether a system recognizes ownership, and to what extent it permits ownership (who may own, what may be owned), are widely differing questions.'[176] The remainder of the chapter tackles the debate on the content of ownership, approaching it through the Hohfeld-Honoré framework (the question of its moral grounds is properly addressed in chapters 6 and 7; the question of its scope is addressed in chapter 8).

3.3.1 The Content of Ownership: the Hohfeld-Honoré Framework

Tony Honoré's germinal essay *Ownership* has become the standard account for study ownership, and here I shall follow suit. In it, he depicts an account of the *liberal* standard case of *full individual property*, listing the *legal entitlements* usually associated with the institution. Honoré is eminently embarked in a descriptive rather than a prescriptive endeavour, since he sketches how ownership is usually understood, not how it is supposed to be (with one exception discussed later). He identifies 11 leading incidents[177]: 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,[178] the prohibition of harmful use,[179] liability to execution, and the incident of residuarity.

Hohfeld's scheme of decomposing rights into jural relations is ingrained in Honoré's analysis.[180] When addressing each ownership incident, Honoré specifies if they are privileges (eg right to use), powers (eg right to manage), claims (eg right to possess) or immunities (eg

[176] Honoré, *Making Law Bind*, p 163.
[177] Ibid., 165.
[178] The author avoids labelling these incidents rights because the exercise of transmissibility depends on the choice of the holder, implying the capacity to bequeath after death, something that obviously cannot be done.
[179] Scholars tend to agree that 'the prohibition of harmful use' should be considered a general constraint on action, rather than an incident of ownership *per se* eg Waldron, *RPP*; Penner, "The bundle of rights picture of property" *UcLa L. rev.* 43 (1995); Harris; Attas, "Fragmenting property" *Law and Philosophy* 25, no. 1 (2006).. For an opposing view see Breakey, "Who's afraid of property rights? Rights as core concepts, coherent, prima facie, situated and specified" ibid.33, no. 5 (2014), pp 585-86.
[180] Hohfeld, "Some Fundamental Legal Conceptions as Applied in Judicial Reasoning" *The Yale Law Journal* 23, no. 1 (1913); —, *FLC*. See also Penner.

right to security). Following a standard practice in the literature, the present analysis focuses exclusively on Hohfeldian privileges and claim-rights, the so-called first order incidents.[181] As Wenar explains, assertions of privileges and powers have the same logical form, and so do claims and immunities. Because of this structural similarity, broadly acknowledged in the literature,[182] it is presupposed that what can be learned from one should hold for the other. Despite the pervasiveness of Hohfeld's scheme, rights theorists disagree on whether the mere presence of an incident is sufficient for considering said incident a right. On this I follow Leif Wenar's, who posits that for an incident to qualify as a right it must perform a specific function for his holder.[183]

According to Wenar, statements of Hohfeldian privileges (and powers) have the logical structure '*A has a right to phi*', which implies '*A has no Y duty not to phi*'; whereas Hohfeldian claims (and immunities) have the form '*A has a Y right that B phi*', which implies '*B has a Y duty to A to phi*' (where 'Y' is 'legal', 'moral', or 'customary', and 'phi' is an active verb). The former centres on what its holder can do, the latter on what others owe the titleholder. On Wenar's view Hohfeldian incident are rights if and when they perform one or more functions. Roughly put, privileges and powers confer on their holder discretion (not) to perform phi –they are actively exercised. In turn, claims and immunities protect their holder from harm –they are passively enjoyed, and third parties have correlative duties. Specifically, claim-rights entitle their bearer to (a) protection against harm or paternalism; (b) provision in case of need; and or (c) a specific performance of some agreed-upon, compensatory action.[184] Insofar as the owner has a privilege, he has the discretion to decide how his resources can be used, and insofar as he has a claim, he is protected from arbitrary interventions from non-owners.

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[181] Among others see Halpin, "Fundamental"; Brown; Wenar; Hurd and Moore, "Hohfeldian".
[182] Among others see Halpin, "Hohfeld's Conceptions: From Eight to Two"; —, "Fundamental"; Hurd and Moore, "Hohfeldian".
[183] Wenar; —, "The nature of claim-rights" *Ethics* 123, no. 2 (2013).
[184] —, "The nature".

Wenar describes incidents as complex molecular rights because rights consist of one or more combinations of Hohfeldian incidents.[185] For example, the right to possess is both a privilege that confers its holder with the discretion to set the agenda, which is accompanied by a claim, which protects the exercise of the privilege. The former function of the right to possess overlaps with the right to use, a privilege, which also overlaps with the right to manage, considered by Honoré a surrogate of use. Likewise, the function of the right to security, an immunity from arbitrary and illegitimate expropriation, overlaps with the right to possess, qua claim right, creating on others the 'negative' duty not to interfere. It is important to keep in mind this intricate web of functions overlaps, because with so many complexes, non-linear interactions among these jural relations, is easy to slide from one right to the other, and attribute one function to a right that does not have it. Specifically, Wenar warns:

> Assertions of rights can refer to various (combinations of) Hohfeldian incidents. Since these incidents have quite different logical forms, speakers may fall into contradiction if they do not understand the implications of their own assertions. For example, it is not uncommon for a speaker to assert a right that can only be a privilege, and then go on to infer from this assertion that someone owes him a duty.[186]

As the discussion below shows, it is not uncommon to fall into contradictions. For instance, to consider the right to exclude, a claim, the *fundamental* incident of ownership, and then argue that owners have discretion to decide the uses of a thing because they are the exclusive owners. Discretion is the function of privileges; claims are tasked with protecting the exercise of privileges.

3.3.2 The Structure of Ownership's Incidents

Honoré's effort is eminently descriptive. However, he does not limit himself to listing the incidents, for he also offers a view of the internal structure of incidents, how they relate vis-à-vis each other. Unmistakably, Honoré considers one incident distinct from the rest: 'The

[185] Ibid.; Wenar, "The nature of claim-rights".
[186] —, "The nature", p 236.

right to possess, viz. to have exclusive physical control of a thing, or to have such control as the nature of the thing admits, is the foundation on which the whole superstructure of ownership rests.' He defines it as Hohfeldian claim consisting of two aspects, (i) to be put in exclusive control of a thing, and (ii) that others do not interfere. (Because of its emphasis on exclusion, this view falls on what is known today as a *boundary approach* to ownership (3.3.4)). Honoré stresses the distinction between 'the right to possess' from the protection of mere present possession:

> To have worked out the notion of 'having a right to' as distinct from merely 'having', or, if that is too subjective a way of putting it, of rules allocating things to people as opposed to rules merely forbidding forcible taking, was a major intellectual achievement. Without it society would have been impossible.[187]

It could be argued that Honoré's analysis is premised on the idea that the set of incidents comprising ownership are not symmetrical, for he treats one of them as foundational (fundamental), for the right to possess justifies the superstructure of ownership. Hence, it follows that all other incidents are ancillary to it.

A different way to put the idea that one incident is normatively fundamental is to say that other incidents are made intelligible by reference to the *right to possess*; they make sense when viewed through its lens. For instance, say that ownership over object O comprises the 11 incidents of *full liberal ownership*, and that agent A holds the incident of transmissibility, whereas agent B holds the other 10 incidents. Who would most likely be consider *the owner*? Both or she who holds 10 incidents? Without further information, we would probably assume that B is the owner, and that she transferred to A the power (of transmissibility) to sell O on her behalf eg real-estate agents. Such a conjecture seems more plausible than considering A and B symmetrically situated towards O, to consider them equal owners. This is so not because B is the titleholder of a greater number of incidents, but because only rightful owners can

[187] Honoré, "Ownership", p 232. Notice how this articulation presupposes the two defining elements of private property, the one agent/one object principle, and the agenda-setting authority.

legitimately sell (their) property. And the owner is usually considered she who has the right to possess. Although it cannot be ruled out that, due to convoluted legal circumstances, ownership incidents over O were distributed between A and B in the aforementioned manner, in that event we would probably conclude that B's title is somewhat limited, not that A is as much the owner as B.

If a canonical text on ownership considers one incident normatively distinct from the others, these gives us reasons to follow the analytical and normative path pioneered by Honoré, or so I believe. Accordingly, this thesis builds on the same premises, namely, that ownership comprises an aggregate of Hohfeldian incidents, in which one of the incidents is fundamental. At this point one caveat must be stressed: regarding self-ownership, I contend that the fundamental incident is the right to use, not the right to possess. I further two reasons to justify my departure from Honoré's on this.

First, in chapter 4 I defend an articulation of self-ownership that assumes a non-dualist stance on the mind-body problem. This implies that every person can only be possessed, in a normatively relevant manner, by herself, thus rendering moot the right to possess. Hence, it cannot be fundamental in self-ownership. I argue that the right to use (oneself), a Hohfeldian privilege, is the fundamental incident in self-ownership. The second reason has to do with the nature of privileges and claims. Hurd and Moore argue that the content of a right determines whether is a claim-right or a privilege: 'if the content specifies that an act is to be done by the holder of the right, then the right is in reality a privilege; if the content specifies that the act is to be done by the holder of the correlative, then the right is a claim-right.'[188] Given that the present theory centres on moral agency, is more coherent to ground ownership on an incident that is actively exercised, than on one that is passively enjoyed, as Honoré does when defining the right to possess as a claim.

[188] Hurd and Moore, "Hohfeldian", p 303.

At this point, the relation between Hohfeldian privileges and claims must be further explored.

3.3.3 On the Relation between Hohfeldian Liberties and Claims

One of the advantages of Hohfeld's scheme is that unpacking assertions of rights into its fundamental components, and its correlative positions, permits to map the normative links tying titleholders with third parties. The problem is that emphasizing the subdivision of rights puts in the background the process that should follow all analysis, that of synthesis. Breaking up the whole to understand it through its parts is as important as putting the parts back together, to appreciate or reassess the whole with the insights gained. Hence, after unpacking ownership into its Hohfeldian constituents, what was analytically separated must be put back together. In other words, after unpacking ownership into privileges and claims, these must be put together coherently and cogently.

Why this is truism is relevant? It is usually stressed that a salient problem of Hohfeldian privileges is that, despite entitling its holder to (not) engage in a conduct, 'All that the Hohfeldian liberty [privilege] secures is that the liberty holder does not owe a duty to the other party not to perform that conduct',[189] but it does not specify what third parties can or cannot do. Hohfeld posited that the correlative of a privilege is a the extremely underdetermined neologism no-right:[190] 'Hohfeld uses the phrase, "no-right," as if the term labelled some thing. But it is plain from his usage that what he means to designate is the absence of some thing.'[191] Because privileges do not create duties of non-interference, they do not protect its titleholder, so the argument goes. And the failure of Hohfeldian privileges to protect its holder led Hurd

[189] Halpin, "Correlativity", p 94.
[190] A recent debate on this particular Hohfeldian correlative shows that there is no agreement on what Hohfeld meant with the neologism a no-right, how it should be interpreted, nor what are its legal and normative implications: Hurd and Moore, "Hohfeldian"; —, "Replying to Halpin and Kramer: Agreements, Disagreements and No-Agreements"; Kramer, "On no-rights and no rights" *The American journal of jurisprudence* 64, no. 2 (2019); Halpin, "No-Right and its Correlative"; —, "On kno-rights and no-rights"; McBride, "The Dual Reality of No-Rights" *The American Journal of Jurisprudence* 66, no. 1 (2021).
[191] Hurd and Moore, "Hohfeldian", p 307.

and Moore to depict them as 'second class citizens in the republic of rights.'[192] Citing a previous book by Hurd, the authors propose as a solution the category of *permissions*, which they portray as 'a combination of both Hohfeldian claim rights and Hohfeldian privileges', explaining 'In this gluing back together of what Hohfeldians would put asunder in the analysis of rights, Hurd is in the good company of Kant, Hillel Steiner, John Kleinig, and many others.'[193] While putting the pieces back together is mandatory, it could be said that the problem was overemphasized.

My main contention is that privileges and claims go together, they come in pairs. For analytical purposes one can and should study them separately, hence we studied them through Hohfeld's fundamental conceptions. But once we put them together, the worry about privileges not protecting its holder becomes unfounded.[194] Privileges cannot protect its titleholders, for that is not their function. The question is that privileges very rarely, if at all, exists on their own, in a moral vacuum, as they are generally accompanied by claims. Recall that Wenar described (usual) privileges as being 'insulated by protective claims and immunities' (p 74), which suggests that privileges come in tandem with claims. Privileges and claims are but pieces of a whole, and therefore they must be studied as pieces of a larger normative puzzle. Given this, I contend that the privileges are the fundamental incident of ownership because they are actively exercised, which is in line with a theory that construes agents as authors of their own moral life. As such, privileges better capture what is normatively relevant about moral agency. Because Hohfeldian claims endow its holder with protection, they delineate the extension of protections required by privileges: 'the role within Hohfeld's scheme of the claim-right to non-interference (with its correlative duty not to interfere) in this combination is to assess precisely just what is the extent of protection afforded to the liberty [privilege].'[195]

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[192] Ibid., 303.
[193] Ibid., 333.
[194] Halpin, "Choosing Axioms", pp 241-43.
[195] Ibid., 243.

I further claim that the discretion endowed by privileges is what makes other incidents intelligible. For instance, say that Alexis has a Hohfeldian claim over a football ball, but lacks the privilege to use it. In such a scenario, Alexis could prevent others from using it, if he so chooses. However, given that he cannot use it either, then no one can actually use the ball. In addition to being counterintuitive, this suboptimal situation contravenes Locke's non-wastage proviso, for we have a ball that can only be admired from a distance, but cannot be used. Contrariwise, if Alexis only holds the privilege to use the ball, but does not have a claim protecting this privilege, although this is more closely related to what we normally understand as ownership (see 3.2), Alexis would be at the mercy of the goodwill of third parties to respect their plans. Such a state of affairs promotes the use of the resource, but fails to protect the owner. This is suboptimal and unfair. A claim without and accompanying privilege is incomprehensible, for it does not resembles what ownership is, and impedes any and all agents from using the resource, which is illogical, and unfair, assuming that resources are relatively scarce. Further, in such a scenario it is hard to identify who the owner. By contrast, a privilege without an accompanying claim more closely resembles ownership, but it is insufficient to safeguard the owner's interests. This example supports the contention that incidents with the logical form of privileges are normatively fundamental, for they make intelligent other ownership incidents –claims. Going back to Hurd and Moore, the question is not whether privileges fail to protect its titleholder, but that privileges must come hand in hand with claims, because the former justify the latter.

To sum up, the contention that in ownership Hohfeldian privileges are fundamental should be understood as the result of a synthesis process. First, we unpack ownership into incidents, identifying the specific function of each incident. Then, given that privileges endow its holders with discretion, this make other incidents –claims– intelligible, for their function –

protection– make sense when they are accompanying the former. Thus, privileges are fundamental.

The next section surveys the three main private ownership models identified in the literature.

3.3.4 Three Articulations of Private Ownership

The contemporary debate has centred on whether is possible, and logically consistent, to 'fragment' ownership into various bundles of incidents, or whether it should be understood as a unitary concept. As explained by Munzer,

> The idea of property –or, if you prefer, the sophisticated or legal conception of property–involves a constellation of Hohfeldian elements, correlatives, and opposites; a specification of standard incidents of ownership and other related but less powerful interests; and a catalogue of "things" (tangible and intangible) that are the subjects of these incidents. Hohfeld's conceptions are normative modalities. In the more specific form of Honoré's incidents, these are the relations that constitute property. Metaphorically, they are the 'sticks' in the bundle called property.[196]

The 'sticks' and 'bundle' referred to is the one of the most prominent analytical approaches to ownership in the literature, also known as bundle-of-rights. Under this light, the debate could be viewed as an analytical dispute over how to construct, or how to flesh out,[197] an 'essentially contested concept'.[198] Three camps can be identified: *full liberal*, *bundle* and *integrative* theories.

Honoré's characterization of *full liberal private ownership* is best interpreted as a Weberian ideal type, in which all incidents are necessary and jointly sufficient conditions for private ownership. This idealized construct is epitomized in Blackstone's oft quoted assertion: '[ownership is] 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'.[199] According to Jakab, this conception of ownership finds its root in the

[196] Munzer, p 23.
[197] Ostiguy.
[198] Gallie, "Essentially contested concepts" (paper presented at the Proceedings of the Aristotelian society, 1955).
[199] Blackstone as quoted in Grey, "The disintegration of property" *Nomos* 22 (1980), p 75.; see also Sohm, Institutes of the Roman Law 1892., chapter II

interpretation of the Roman law by legal scholars of the late nineteenth century, who stressed the 'absolute, unlimited, and exclusive character of ownership'. Bar general constraints on action, ownership was saw as a despotic power morally justified.[200] To the best of my knowledge, no contemporary author argues that private ownership does or should entail all 11 incidents –Honoré less than anyone. Hence, his account serves as a benchmark with which to compare more restricted articulations of private ownership, such as bundle and integrative theories.

As its names suggests, on the 'bundle of rights' approach (hereinafter BOR), claims, privileges, powers, and immunities represents sticks in aggregated packages of incidents. On this view, no single incident, or set of incidents, is a necessary condition for ownership. Rather, any given set of ownership incidents is considered a sufficient condition. Competing articulations disagree as to which incident, or combination, are necessary, and which are not.[201] The rationale behind is that not all objects, purposes, and uses of property either entail or require the same set of incidents. As was discussed in (3.3), the idea that different objects require different rights is far from novel. What is novel, though, is the extreme to which it has been taken.

In *The Disintegration of Property* Thomas Grey contends that there are multiple meanings associated with ownership. This multiplicity prevents the use of the concept in an overarching way, and therefore implies that it is no longer a coherent or relevant analytical category, since it has no single, univocal definition.[202] He claims that different agents might hold distinct, disjoint bundles of incidents, thus arguing –contra Honoré–that any given set of incidents constitutes an instance of ownership; that is, all incidents are sufficient, none is necessary. From this, it follows that there might be more than one owner. This, in turn, leads

[200] cited in Jakab, p 108.
[201] Gaus, "Property," in *The Oxford Handbook of Political Philosophy*, ed. David Estlund, 2012; Grey; Waldron, "What is private property" *Oxford J. Legal Stud.* 5 (1985); Christman.
[202] Grey.

to the disintegration of ownership, as now there is one object of property, but more than one agent is the titleholder. If ownership disintegrates, so too should disintegrate its related titles, and entitlements. In the literature this problem is known as the relativity of title problem.[203]

Katz claims that BOR theories promote an instrumentalist approach to ownership. Instrumental in that ownership's main task is to determine which set of incidents best promote 'some important set of interests, such as the maximization of aggregate wealth, the promotion of moral virtue, or the preservation of some form of equality.' She stresses that inasmuch as ownership can take any form or shape, BOR theories 'take the structure of individual property rights to be up for grabs, to be determined in whatever way best promotes some societal goal.'[204] These theories end up closely related to a collectivist model, since it is some form of common good which defines the extent of incidents entailed by an ownership claim. Moreover, on the BOR approach, owners' set of incidents are defined ex post, rather than ex ante, as they are 'the output of a judicial balancing of uses, the sticks that a court has handed out in a particular case after comparing the efficiency or utility of conflicting uses.' [205]

In a sort of middle ground, *integrative* theories do not entirely discard the fragmentation thesis, but contend that the concept has a certain coherence and integrity that prevents it from being disaggregated and reordered in any arbitrary way. Zeroing in on use (privileges) and exclusion (claims), Mossof asserts that elements of exclusive acquisition, use, and disposal represent a conceptual unity that serves to give full meaning to the concept. On this view, the discretionary and authoritative powers of the owner to determine the uses of a resource constitute a necessary condition for ownership.[206] Similarly, but focusing on immunities, Attas

[203] See among others Fox, "Relativity of Title at Law and in Equity" *The Cambridge Law Journal* 65, no. 2 (2006); Rostill, "Fundamentals of property law: possession, title and relativity"University of Oxford), 2016; Newman, "Hohfeld and the Theory of in Rem Rights: An Attempted Mediation" (2017). Notice that Harris advances a definition of title that is significantly different from the that of Steiner: 'The conditions, within a particular property institution, which must be satisfied before a person can slot into the protection of its trespassory rules. Quoted in Katz, "The Concept of Ownership and the Relativity of Title" *Jurisprudence* 2, no. 1 (2011), p 194.
[204] —, "Ownership and social solidarity: A Kantian alternative" *Legal Theory* 17, no. 2 (2011), pp 119-20.
[205] —, "Exclusion and exclusivity in property law" *University of Toronto Law Journal* 58, no. 3 (2008), p 276.
[206] Mossoff, "What is property? putting the pieces back together" *Ariz. L. Rev.* 45 (2003).

claims that one essential feature of ownership is what he calls continuity, the right to security understood as immunity from expropriation.[207] He distinguishes between continuity and transferability incidents, and argues that the former cannot be coherently restricted to create 'partial' property rights, because if ownership can be taken depending on contingent circumstances, then it could hardly be said that the object was actually anyone's property. Notice that most theories consider claims the fundamental incident of ownership.

Integrative theories that focus on exclusion have been characterized as the *boundary approach* to ownership. A boundary approach recognizes a coherent idea of property, centred on the exclusion of others. The problem, however, is that this approach ends up promoting a theory of non-ownership, as emphasizing exclusion shifts the focus from the owner to non-owners: 'A boundary approach, in effect, relies on a process of elimination to distinguish owners from non-owners: an owner is the last person standing after the exclusion of everyone else from the object owned.'[208] Compared to an articulation centre on the actions an agent can perform, BOR provides the weakest account of the owners' special position.

One way to illustrate the shortcomings of BOR is to try to justify common ownership of Earth (or global commons) with it. If indeed the essential element of ownership is the power to exclude third parties from our common property, then whom do we exclude as a species from our planet? Since, as far as we know, there is no extra-terrestrial life in the solar system, it is very odd to claim that we own the planet because we do not exclude anyone from it. Now, if ownership depends on excluding a group of beings, and to comply with this we exclude the other animal species of the planet, this path is not very promising either. This implies that we must expel them all, which is both impossible and a self-defeating since we need them to survive. Alternatively, we must accept that our ownership of the planet is extremely weak

[207] Attas.. See also Ciriacy-Wantrup and Bishop, "" Common Property" as a concept in natural resources policy" *Natural resources journal* 15, no. 4 (1975), p 715.
[208] Katz, "Exclusion", p 277.

because we cannot effectively exclude animals, which borders with nonsense. This argumentum ad absurdum aims to stress the analytical limitations of considering exclusion (Hohfeldian claims) as the fundamental element of ownership. It could be objected that common ownership should be interpreted as a right not to be excluded from the benefits Earth can provide. On the one hand, the boundary approach is depicted explicitly as the capacity to exclude third parties, thus rendering moot this objection. On the other hand, there are various circumstances in which an agent could claim an interest in not being excluded from a resource eg the world cup final. If having an interest in not being excluded is sufficient to establish a property right, then private property, as we know it, would not exist.

The above shines a light on how ownership should be constructed. From a structural (constructivist) point of view, the main problem with boundary approaches is that they invert the conceptual order of ownership. Theories of this sort consider the right to exclude fundamental, but Hohfeldian claims (and immunities) cannot by themselves justify use, for they provide protection. And it would be difficult to claim that an agent is effectively the owner of a resource if he has no right to use it. To justify use rights, a BOR must incorporate a privilege or a power into their apparatus. There are two ways this can be achieved. One path is to consider privileges or powers as equivalent with exclusion. Although plausible, this move has a price, as they will cease to be exclusion-based approaches. Alternatively, use rights could be considered ancillary to exclusion, which requires a subsequent justification to derive the former from the latter. It is not an impossible task. Nevertheless, if exclusion is considered the fundamental element of ownership, among other implications, it will lead us to reformulate the essential distinction identified by Honoré, quoted earlier, as follows:

> To have worked out the notion of 'having a right to exclude' as distinct from merely 'excluding', or, if that is too subjective a way of putting it, of rules excluding people from things as opposed to rules merely forbidding forcible exclusion, was a major intellectual achievement. Without it society would have been impossible.

Framed in this fashion, the assertion loses much of its strength and appeal. And it does so, partly, because when one thinks of their property, like a jacket or a guitar, the first thing that comes to mind is not 'I can exclude others from it!' Rather, one ponders if one will wear the former to stay warm or as a statement of personal identity, or if the latter will constitute a healthy hobby or a tool with which to express oneself under the limelight.

Why ownership disintegrates in academia but not in real life? One plausible explanation is that although there is room for debate at the margins, the institution of ownership must have a core that centres it and structures it. A core that prevents the concept from being disaggregated and reordered arbitrarily. That such a core exists is the premiss on which integrative theories of ownership build upon, and why I believe they are analytically more appealing than the alternatives. Holding on to this intuition, the next section expounds the integrative ownership theory that informs this thesis, specifying its core element.

3.4 Ownership, an Agenda-Setting Authority

Larissa Katz's(2008) 'agenda-setting' theory of private ownership has two focal points: the prerogatives of the owner vis-à-vis her property –privileges and powers– that ground her agenda-setting authority, and the standing of the owner vis-à-vis non-owners –the hierarchical nature of this special authority.

Before proceeding, notice that defining the owner as the final decisionmaker has a long pedigree. Honoré stated 'The right (liberty) to use at one's discretion has rightly been recognized as a cardinal feature of ownership.'[209] Nozick contended 'The central core of the notion of a property right in X, relative to which other parts of the notion are to be explained, is the right to determine what shall be done with X'.[210] Finally, Waldron argued 'The owner of a resource is simply the individual whose determination as to the use of the resource is taken

[209] Honoré, "Ownership", p 233.
[210] Nozick, p 171. Additionally, notice that Nozick treats this agenda-setting incident as the fundamental element, for all other incidents must be explained in relation to it. The relevance of this will become apparent when discussing the structure of self-ownership in chapter 4, and the appropriation theory offered in chapter 7.

as final'.[211] What distinguishes Katz's articulation is not so much its guiding idea –the owner as the final decisionmaker, but the analytical support and normative grounding she advances. Her theory combines the institutional and conceptual dimensions of ownership previously discussed.

3.4.1 A Special Authority

Katz's theory construes private ownership as a public office, in which owners have a *special* authority to define the permissible uses of an object. In a general sense, an office is a position created by a constitution or a legislative act, in which the occupant is charged with exercising a function, and thus involves the power to exercise limited authority, and has a definitive tenure. Private ownership, Katz argues, is similar to a private office, inasmuch as in the owners function is to define the uses for objects, charging owners with the authority to govern private relations regarding their property: 'Ownership is the way that we publicly confer the authority on some, owners, to make decisions about things on behalf on everyone.'[212]

As opposed to public authority, like that of a judge, which must stand as a common decision, and justified in such terms, private ownership is a kind of authority that is not meant to be a common or collective decision. 'Rather, it is *his* decision what we are all bound to respect because of his position.' She stresses that this private authority is absolute in an 'older, more illuminating sense' than what we understand today: 'in its exercise, owners are *absolved* from the normative constraints that legitimize public decisions.'[213] That is, the owner is not under an obligation to justify its decisions to third parties. The owners' decision does not have to satisfy a goodness criterion, in that it is not supposed to promote any given state of affairs, nor does it need to accord with a certain conception of the good. Insofar as the decision falls within the realm of the morally permissible, the owner does not owe explanations to anyone.

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[211] Waldron, *RPP*, p 39.
[212] Katz, "The Regulative Function of Property Rights" *Econ Journal Watch* 8, no. 3 (2011), p 241.
[213] —, "Property's Sovereignty" *Theoretical Inquiries in Law* 18, no. 2 (2017), p 304. (emphasis in the original)

Couched in these terms, two challenges follow. First, why should the owner have this authority? Second, granting such an authority raises a series of autonomy-related worries. Regarding the former, ownership is undeniably a mechanism for solving the collective action problem that is distributing resources among competing claimants. Even if all agents are utterly selfless, and approach others in good faith, with a commitment to take into account their interests, competing life plans, conceptions of the good, and so forth, in circumstances of reasonable disagreement about ends a plurality of agents could legitimately assert rival claims over resources. Considering the question of ethical disagreement about ends, it is in everyone's interest that someone determines the agenda for each thing. Private ownership as an agenda-setting power solves this by allocating each agent broad powers to decide what is a proper use of a resource. The ulterior function of this authority is to increase effective freedom: 'If there is no agenda setter managing our resources and coordinating our uses, we each face a reduced sphere of freedom: our capabilities are depleted where we must fight to gain access to a resource or are diminished where we withdraw from use to avoid conflict.'[214]

So, returning to the original question, why should the owner have this authority? Katz advances an answer that is both principled and pragmatic. Say that owners must take into consideration the interests of everyone that could be affected by their decision. Such a stance implies an enormous epistemic burden on owners, not just to properly identify who might be affected by their decisions, but additionally to weigh up different interests and other moral considerations. It is unreasonable, and unfair, to require private individuals 'to inform themselves about the content and moral merits of other's views and also to act exclusively on this information, were it available to them.'[215] Compounded with this, there are freedom-based reasons not to impose such burdens on owners. Citing Waldron, Katz stresses that we would suffer from 'moral exhaustion' if there were no private sphere, no area of self-regarding

[214] —, "Spite and Extortion", p 134.
[215] Ibid., 1480.

considerations, in which to retreat from the claims of others: 'Unlike public officials, owners have no more private sphere to which they can retreat than the world made up of things they control.'[216] At some point, having control over oneself must imply being protected from external interferences; it must imply a Hohfeldian claim and/or immunity.

Taken together, these considerations shed light on why ownership absolves the owner from justificatory burdens. As was discussed in 2.1, this thesis builds on an account of agents as 'finite rational beings'. The finitude of agents comprises the fact that all individuals have natural 'limitations', and consequently, there are limits as to what can be demanded from agents. In this context, taking seriously the idea that 'ought implies can' should set limits as to what could be expected from owners. One such limit is that it is not reasonable to expect agents to be capable of identifying all relevant parties affected by their decisions, nor to define a fair moral criterion, or algorithm, to weight the competing interests of third parties against its own interest.

As persuasive as this explanation might be, on the flip side of the coin is the question of the interests of non-owners, and how their finitude should set corresponding limits on the owner's authority. More specifically, what are the limits of an owner's special authority? As discussed in 2.2, Katz appeals to the common law principle of abuse of right. Officials in public offices abuse their authority when they decide for the wrong reasons, reasons that go beyond their jurisdiction. Analogously, owners abuse their office when they aim to cause harm.[217] The rationale behind can be broken down as follows: ownership is an office by which we solve a coordination problem –allocation of resources, entrusting owners with the authority to decide regarding their property, decisions that are binding on non-owners. This authority is limited

[216] Ibid., 1481.
[217] Katz, "Regulative function", p 242.

exclusively to what constitutes a worthwhile use of a thing.[218] Anything beyond this constitutes an abuse of the office:

> Owners lack the standing to make decisions that govern any other aspect of our lives, and so when they use their power qua owner in order to get us to go along with their plans for their lives (rather than just their views about what constitutes a worthwhile use of a thing), they abuse their right.[219]

Undoubtedly, the line separating what constitutes a worthwhile use of thing, and what counts as an imposition on others is blurry. However, a natural starting point to draw the divide is the broad notion of general constraints on action, one of which is intentionally harming third parties (spite). Now, there is the related issue of how acts of original appropriation can set back the interests of third parties. Although I provide a more detailed analysis in chapters 4 and 7, at this point there are two arguments worth highlighting.

First, the finitude of agents entail that persons cannot produce things by willing them into existence. Therefore we must act in the world to satisfy our basic needs and pursue plans. Consequently, to survive and flourish I need to appropriate resources free from arbitrary external interferences. Regardless of whether I physically possess my property, I need others to respect it anyway eg if I go out hunting I need others to respect my hut while I am out. Then, it is a demand of reason that I respect the acts of appropriation of others.[220] Second, I argue that all acts of appropriation are subject to sufficientarian constraint. Justice does not impose the same demands above and below the sufficiency threshold: agents have considerable latitude to discharge duties above this threshold, if there are any, whereas below they do not.

When ownership is construed as the exclusive authority to set the agenda for objects it promotes freedom, enabling agents to pursue their ends. It frees them from a veto power that third parties might otherwise have. Both egalitarians and libertarians could agree on this. Through this prism, poverty is morally troublesome not so much because the worst-off have

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[218] —, "Spite and Extortion", p 134.
[219] Ibid., 135.
[220] Westphal.

unsatisfied needs but, above all, because by not having control over certain objects, they end up dependant on third parties to satisfy their needs and wants; they cannot pursue their projects by their own means, on their own accord. I further explore this in 4.1.2.

3.4.2 Exclusivity, not Exclusion

A distinctive feature of ownership as an agenda-setting authority is how it structures the relations among agents: centred on the standing of the owner vis-à-vis non-owners. This articulation is premised on the idea that ownership's central concern is not the *exclusion* of all non-owners but the preservation of the owner's *exclusive* position to define the permissible uses of her property. Katz claims that boundary approaches trade on an ambiguous use of the term exclusive, conflating an *exclusive right* with the *right to exclude*:

> In conflating the concept of an exclusive right with that of the right to exclude, proponents of a boundary approach trade on an ambiguity in the meaning of 'exclusive.' There is a distinction between a right that is exclusive in the sense that it has the function of excluding others from the *object* of the right and one that is exclusive in the sense that its holder occupies a special position that others do not share.[221]

Ownership is an exclusive right, but exclusivity is not the essence of the institution, since there are many exclusive positions that are not ownership. For example, judges have exclusive jurisdictions in their courtrooms, or sovereign states have exclusive jurisdiction within their territories. Thus, the key aspect is the exclusive position of the owner:

> Ownership requires not that others keep out so much as that they 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.[222]

Two elements of common law bring out the relevance of the distinction between exclusion and exclusivity. First consider two similar practices protected by the law, the Roman law device of servitudes, and the Scandinavian custom of *Allemansratt*.

[221] Katz, "Exclusion", p 277.
[222] Ibid., 278.

In Roman law individual interests were always weighted against the interest of the collective. This is illustrated with the so-called rights of servitudes –way, passage, driving cattle to water, among others. Servitudes had two main normative effects, to empower the holder of a servitude right, permitting her to conduct certain activities; correlatively, servitudes restricted the privileges of the owner of the servient property by prohibiting certain actions.[223] Notably, once established, servitudes became attached to the land, so subsequent owners must forever respect them.[224] Servitudes clearly challenge the exclusionary power of owners, as they permit third parties to transgress the physical boundaries of land. However, servitudes did not challenge the position of the owner, nor her authority to determine the proper uses of land. It is worth keeping in mind, servitudes could not be *in faciendo*, that is, to make another do something herself. For example, servitudes could not make the owner turn a land for growing crops into land for livestock, thus they did not challenge the agenda-setting authority of owners. They only limit the capacity of the owner to exclude others, for specific purposes. Similarly, the principle of *Allemansratt* ensures that anyone can use rural land for recreational purposes, '*so long as these uses are not inconsistent* with the uses to which the owner has decided to put the land.'[225] For example, hikers and recreational users can pick flowers or mushrooms, or even stay overnight, but they cannot interfere with any economic activity on the land, like trampling a ploughed field or disturbing livestock. Likewise, third parties must respect the privacy of the homeowner, by staying away from his dwelling.

Servitudes and *allemansratt* exemplify that exclusion is not a defining feature of ownership, and thus why Hohfeldian claims cannot be fundamental in ownership. Rather, it is the owner's decision-making authority, privileges, what is fundamental in the institution, and the set of incidents comprising ownership rights. Consider the debate on whether minor

[223] Mousourakis, Roman law and the origins of the civil law tradition 2015.
[224] Jakab.
[225] Katz, "Exclusion", p 299. (empahsis in the original)

incursions on one's body, say cutting a lock of hair, are justified if they bring about a good outcome, say save a life. On a boundary approach to self-ownership, these kinds of hypotheticals would necessarily rule out all incursions in one's body, even in cases as the one described. By contrast, an agenda-setting articulation of self-ownership can better accommodate these cases, insofar as cutting a lock of hair does not constitute a challenge to an individual's life plans –in general, simple cases as the one just described. This quick remark does not intend to settle a sophisticated debate. Rather, it intends to zero-in on the idea that the institution of ownership should be centred on the owner, not on third parties.

Moving to the second element of common law relevant for this discussion, consider the law of adverse possession, by which a squatter –a mere possessor, is transformed into the owner once the limitation period has elapsed. Among the different conditions that must be met,[226] the trespasser must, first, be possessing the land in question without the owner's permission –it cannot be consensual. And second, and more significant, the use of the land must be inconsistent with the owner's plans. For example, if the owner uses the land for agricultural purposes, and the trespasser grow crops in the land, it does not satisfy the requirements of adverse possession: 'Acts of possession that are consistent with the owner's present or future plans for the land will not amount to ouster. The inconsistent use test insulates the true owner against squatters so long as the latter's use of the land does not interfere with her agenda.'[227] The trespasser must use the land in a manner that is significantly different from what the original owner had intended for it, to constitute a rightful challenge to the owner's exclusive position.

The inconsistency test brings to the fore the core element of ownership. For the law, trespass is not sufficient to legitimize the squatter's claim, as this only challenges the

[226] She refers specifically to common law jurisdictions, such as Canada, England, or Australia, and highlights that each system sets similar, though different requisites.
[227] Katz, "Exclusion", p 291.

gatekeeping capacity of the owner. Boundary approaches miss the mar for, if physical possession were a sufficient condition, then squatters would not need to challenge the owner's defined uses. An act of occupation transforms a mere possessor into the owner if and only if (and because) trespass is accompanied by actions directly threatening the standing of the owner:

> The inconsistent use approach to adverse possession, in fact, speaks to the core characteristics of ownership and, at the same time, to the limited relevance of exclusion to the concept of ownership…[the squatter] threatens the essential core of the owner's position only by challenging the owner's more basic agenda-setting function, by showing that her use is inconsistent with the original owner's agenda.[228]

Put differently, if trespassing were a sufficient condition to legitimize an ownership claim, this would render moot Honoré's distinction between 'merely having' and 'having a right to' possess. Framing ownership exclusively as a gatekeeping capacity fails to account for certain practices and legal entitlements, like servitudes, that are not only protected by the law, but that seem morally permissible. Private ownership as an agenda-setting authority provides a more parsimonious answer to these challenges.

As noted before, the key element in Katz' articulation is the position of the owner regarding non-owners. As such, it is better described as a supreme right rather than a position of power. The inevitable reference of a supreme authority is the notion of sovereignty. Consider Daniel Philpott's definition of sovereignty, as *supreme legitimate authority within a territory*. Sovereignty is a supreme, overriding authority because: 'In the chain of authority by which I look to a higher authority, who in turn looks to a higher one, the holder of sovereignty is highest. No one may question it or legitimately oppose it.'[229] Likewise, an owner's decision is final, and it is so not because others need to be excluded from the property, but because there is no chain of authority, as only the owner can legitimately decide: 'While others may be in a

[228] Ibid., 292.
[229] Philpott, "Sovereignty: An introduction and brief history" *Journal of International Affairs* 48, no. 2 (1995), p 356.

position to make some decisions that affect the resource without undermining the possibility of ownership, the owner's position –like the sovereign's– is necessarily supreme. It is a position that can neither be derived from nor subordinate to another's.'[230]

However, while ownership is *like* sovereignty, it is not *a kind* of sovereignty. There is a conceptual connection, in that both are forms of supreme authority –there is no appeal to any higher authority or ruler.[231] Ownership shares with sovereignty how they establish hierarchical structure of relations, not the range of powers vested on its holder. Katz distinguishes the legal sovereignty of the office of ownership from the moral sovereignty of the person. The former is a special kind of authority grounded on the legal apparatus in which it is exercised. Moral sovereignty, instead, refers to the power each person has to direct her own life as she sees fit – the ideal of autonomy. The main difference is that persons are owners of a variety of objects, and their agenda-setting power has different implications regarding each object: land could be the subject of servitudes, whereas bicycles are not. In contrast, our personal powers, moral faculties, physical strength, and so on, all constitute one consolidated sphere of moral autonomy. The protection of moral sovereignty requires the protection of our life-plans, and our capacity to use our powers to pursue them. This is what the forbearance obligation aims to capture, the normative implications of giving due respect to personal autonomy and freedom.

3.5 Final Remarks

This chapter reviewed the debate on ownership, identifying two distinct senses or dimensions: ownership as a normative institution, systems of rules for allocating resources which define the range of available options to agents; and ownership as a concept, an analytical device to elucidate what owners can and cannot do with their property. Specifically, it examined the structure of the concept utilizing the Hohfeld-Honoré framework. Following Honoré, it was argued that there is an incident that is fundamental vis-à-vis others. Honoré

[230] Katz, "Exclusion", p 295.
[231] —, "Property's Sovereignty", p 310.

considered the right to possess fundamental. Departing from Honoré, I contended that the right to use should be fundamental, for it is a privilege. Inter alia, I argued that if the content of a right determines that the act is to be done by the holder, then it is a privilege. I advance an articulation of ownership as a special agenda-setting authority, and setting the agenda is performed by the holder. This partly supports the view that ownership should be structured upon Hohfeldian privileges. Coupled with the above, I argued that privileges come together with claims, for the latter are tasked with effectively protecting the exercise of privileges, and therefore the intertest of its holder.

I opened the chapter stating that ownership is the backbone of this thesis. However, perhaps another body-related simile better illustrates its role. Because ownership is dynamic, rather than frame it as a rigid structure that supports the analytical body, ownership is arterial in this project, as it will branch out in each chapter, perfusing the arguments with the idea that an owner has a special authority, by virtue of which she can modify the normative landscape. This authority is capable of creating rights on she who exercises it, and duties on third parties. Nevertheless, it is not a limitless, as will be developed in depth in the following chapters.

4 (Left-)Libertarianism and Self-Ownership

If there is a tradition of thought for which ownership is foundational, that is libertarianism. The characterization of agents as self-owners, and the stringent limits it imposes on others – particularly the state, are probably the two features that distinguish libertarianism from other traditions of thought. As will become apparent, there is significant variance in how authors construe and define self-ownership, as well as the role it plays in different theories, whether it is the fundamental element, or whether derives from other considerations. This chapter addresses these questions.
It first contends that, in philosophical enquiries, traditions of thought provide the analytical context in which arguments are deployed (4.1). It then maps normative theories according to their structural features, furthering reasons to prefer an obligation-based account of libertarianism (4.2). Building on these ideas, it then offers an overview of the debate on libertarianism, as a means to locate the forbearance obligation within this tradition, (4.3), with special attention on self-ownership (4.4). Final remarks close the analysis (4.5).

4.1 On Philosophical Enquiries and *Traditions of Thought*

Simon Caney identifies three distinct approaches to philosophical research. One alternative is to focus on thinkers and assess their work. A second strategy is to centre the analysis on *traditions of thought*, appraising their relative weaknesses and strengths. Finally, one could evaluate the arguments for and against certain courses of actions, guided by the question 'What should we do?'.[232] This thesis follows a mix approach: whereas the guiding question of the project is: what shall we do with ultra-terrestrial resources?, it frames it within the libertarian tradition. The reason is that, as Caney suggests, when focusing on (what to do

[232] Caney, Justice Beyond Borders: A Global Political Theory 2005, p 16.

with) normative problems, the analysis benefits from drawing on the knowledge of competing traditions of thoughts, because arguments for and against certain propositions are located within traditions. He stresses that arguments rarely pertain to one issue exclusively, and what makes traditions of thought such is that they apply a similar line of reasoning to various topics. One advantage of framing problems through differing lenses is that it helps to illuminate elements of both the arguments and the traditions themselves. Similarly, G.A. Cohen argued that in political philosophy it is essential to understand the possibility of another, different point of view, because many philosophical problems are problems:

> Only because they arise on the ground of clashes of radically opposed points of view. And the significance and interest of at least many philosophical claims are discerned with particular clarity within a field of apparently inconsistent propositions among which we must choose, where the relevant claim is one contestable option.[233]

Notably, Caney warns against tradition-driven research, as it tends to reify them as 'monolithic entities' with distinct identities. The analytical role of traditions is, or should be, to provide the intellectual context in which the arguments are located. What truly matters, nevertheless, is what we should do, the prescribed courses of action and their justification, not which tradition, if any, won the dispute.[234] On this point, it should be clarified that this thesis was not conceived as an effort to vindicate left-libertarianism. Rather, as the project progressed, I realized that the overall ideas it promoted had a natural affinity left-libertarianism. For this reason, I characterize the theory on offer as left-libertarian, to facilitate the assessment of its arguments. Given the limited attention that political philosophers have dedicated to outer space activities, tackling these problems within the debate between egalitarianism and (left) libertarianism will help to better understand what justice demands in this domain.

[233] Cohen, On the currency of egalitarian justice, and other essays in political philosophy 2011, p 232.
[234] Caney, p 18.

4.2 On the Structure of Normative Theories

While discussing Rawls' theory of justice, Ronald Dworkin suggested a tripartite classification of political theories into goal-based, right-based, and duty-based.[235] Although this scheme is not exhaustive –eg it cannot easily accommodate virtue theories,[236] in time this 'tentative' classification has become a fitting approach to mapping normative theories. Dworkin's system could be labelled 'structural', in that it categorizes theories according to how different normative elements fit together. Particularly, it centres on those moral principles, judgments, or considerations that a theory treats as fundamental, in the sense that other, non-fundamental considerations are derived from the former. Mackie explains that for a theory to be X-based means that 'X' is the only undefined term, and all other moral terms are defined or derived in relation to 'X'. Thus, a moral theory is X-based 'if it forms a system in which some statements about Xs are taken as basic and the other statements in the theory are derived from them, perhaps with the help of non-moral, purely factual, premisses.' He underscores that the key aspect is that the theory is not just formally structured around X, but its main purpose, and thus 'the basic statements about Xs should be seen as capturing what gives point to the whole moral theory.'[237] The claim that the present theory is obligation-based should be understood against Dworkin's taxonomy of moral theories, for it considers its fundamental element the forbearance obligation.

Dworkin explained his scheme, and illustrated the difference between fundamental and derivative considerations, analysing rule-consequentialism. Roughly put, consequentialists' are goal-based theories of justice, which consider results or states of affairs the primary locus of value, judging actions or policies according to the overall consequences they have.[238] For

[235] Dworkin.
[236] Waldron, *RPP*, p 65.
[237] Mackie, "Can there be a right-based moral theory?" *Midwest Studies in Philosophy* 3, no. 1 (1978), p 358. (see also Waldron's discussion in RPP, p 64-6)
[238] Dworkin defines a goal as 'a nonindividuated political aim, that is, a state of affairs whose specification does not in this way call for any particular opportunity or resources or liberty for particular individuals.' In p91.

example, Milligan argues that we have a moral duty to preserve our species, which gives us instrumental reasons to promote an off-Earth private ownership regime.[239] The rationale behind this is that such a system will create the correct incentives for the private sector to develop the technologies necessary to exploit ultra-terrestrial resources, and thus to prevent or mitigate the effects of an existential risk event.[240] In Milligan's theory, rights are ancillary to the duty we have to preserve our species. What is relevant is not that each action carried out off-Earth effectively reduces existential risks, but simply that, taken together, they do promote that goal. It follows then that for property rights to be legitimate, most actions in outer space must further this goal. Taken at face value, one could make the argument that, today, there are no legitimate rights in outer space, given that only a minority of satellites are dedicated to tracking potentially dangerous asteroids, whilst the vast majority facilitates communications and navigation on our planet, for productive and recreational purposes.[241] Note that on Dworkin's scheme, what defines a theory as goal-based is not whether or not it includes rights, but rather what is the ultimate consideration on which all the rest of the analytical scaffolding is built. Milligan's theory is goal-based because property rights only exist to the extent that they promote the preservation of humankind.

4.2.1 A Novel Approach to Libertarianism

'Although there are many paths to libertarianism',[242,] (see table 1) due to the colossal influence of Nozick's *Anarchy, State, and Utopia* (hereinafter ASU), most of these paths begin as rights-based theories, built upon the right of self-ownership, such as those of Steiner or Otsuka. SO is probably one of the few, if not the only concept in political philosophy whose

[239] Milligan, "Property rights and the duty to extend human life" *Space Policy* 27, no. 4 (2011).
[240] Bostrom defines an existential risk as one that threatens the premature extinction of Earth-originating intelligent life or the permanent and drastic destruction of its potential for desirable future development. In "Existential Risk Prevention as Global Priority" *Global Policy* 4, no. 1 (2013).
[241] I do not claim that this is an insurmountable objection to Milligan's theory, but it does show the rickety foundations of an ownership system grounded in a consequentialist rationale.
[242] Thrasher, "Social Contractarianism," in *The Routledge Handbook of Libertarianism*, 2017.

most influential definitions and characterizations have been forwarded by its detractors. For instance, G.A. Cohen aptly captured what SO connotes when he defined it as the 'fullest right a person (logically) can have over herself provided that each other person also has just such a right.'[243] How full is this right? He illustrated with an of quoted analogy: an agent has *morally* over herself all the rights that a slave-owner *legally* had over a slave, and that similar, if not equally robust rights can be claimed over unowned external resources. This analogy captures a distinctive feature of SO: it is usually considered the most maximalist right one can think of in political theory.

Despite its influence, SO is not treated uniformly throughout theories. Libertarians like Peter Vallentyne, Michael Otsuka, or Eric Mack, treat SO as the fundamental premiss from which libertarian conclusions follow.[244] Likewise, critics such as Cohen or Lowe consider it too its core element, and dedicating insightful analyses to lay bare what are (on their view) its unpalatable implications.[245] For these authors, the concept of self-ownership almost amounts to a political theory in itself. In contrast, Brennan and van der Vossen persuasively suggest that in Nozick's theory SO is the logical conclusion of taking personal liberty as the founding premiss. That is, SO is the explanandum not the explananda. The authors highlight that Nozick mentions self-ownership only once in ASU, and claim that if one were to delete that paragraph, it would not have an impact on the overall argument.[246] To put this in perspective, in *Self-ownership, Freedom, and Equality* Cohen uses the concept more than 500 times. These figures suggest that SO is essential for Cohen, but not for Nozick, for it is quite plausible to support

[243] Cohen, Self-ownership, freedom, and equality 1995.
[244] Mack, "Self-ownership, Marxism, and Egalitarianism: Part II: challenges to the self-ownership thesis" *Politics, Philosophy & Economics* 1, no. 2 (2002); ibid.; Mack, Libertarianism 2018; Otsuka, Libertarianism without Inequality 2003, p Chapter 1; Vallentyne et al; Vallentyne, "Left-Libertarianism and liberty" *Debates in Political Philosophy* (2009); Narveson, The libertarian idea 2001.
[245] Cohen, *SOFE*; Lowe, "The deep error of political libertarianism: self-ownership, choice, and what's really valuable in life" *Critical Review of International Social and Political Philosophy* (2018).
[246] Brennan and van der Vossen, "The Myths of the Self-Ownership Thesis," in *The Routledge Handbook of Libertarianism*, ed. Jason Brennan, et al., 2017, p 200. As point of fact, most of the arguments advanced by Nozick against redistributive justice, in the second part of ASU, do not rely on self-ownership. See also Cleaver, "The idea of self-ownership" (Doctorate, Cardiff University), 2011.

Nozickian libertarianism without resorting to self-ownership, while it is impossible to make sense of Cohen's critique without it.

Table 2 – The Diversity of Libertarianism

Theorist	Foundation	Method	Political implications
Ayn Rand	Intuitionistic (natural law)	Philosophical	Minimal state
Murray Rothbard	Intuitionistic (natural law)	Economic	Anarchism
Robert Nozick	Intuitionistic	Philosophical	Minimal state
Michael Huemer	Intuitionistic	Philosophical	Anarchism
Milton Friedman	Consequentialist	Economic	Minimal state
David Friedman	Consequentialist	Economic	Anarchism
James Buchanan	Contractarian	Economic	Minimal state
Loren Lomasky	Contractarian	Philosophical	Minimal state
John Tomasi	Contractarian	Political	Safety net
F.A. Hayek	Consequentialist	Economic/Political	Safety net

Source: John Trasher, Social Contractarianism

These figures should invite us, first, to reassess some of the criticism levelled at libertarianism –at least those targeting Nozick's account, since they might be targeting an intellectual mirage. Second, the figures should invite us to reconsider the structural role given to SO, and subsequently its alleged limitlessness. For, if Brennan and van der Vossen's contention is correct, and SO is indeed the explananda, then it must be ancillary to some other moral consideration. This opens the way to explore the possibility of an obligation-based articulation of libertarianism.

Brennan and van der Vossen hold that SO is the conclusion of taking liberty as the founding premiss. However, they do not provide a robust justification supporting this thesis. Besides, even such a justification was provided, there are reasons to question how far it can take us. Kymlicka argues that liberty is an elusive moral ideal, and any attempt at defining the necessary conditions for liberty might be foolish. However one defines it, he asserts, the definition is always going to be either too inclusive, failing to distinguish the normative appeal

of liberty from other moral values, like equality or dignity; or alternatively, the definition will be too restrictive, failing to capture regular intuitions of what is valuable in liberty.[247]

The obligation-based account of left-libertarian I advance considers SO ancillary to the forbearance obligation. I argue that an obligation-based account is not only analytically possible, but normatively preferable to other alternatives (2.3). When SO is considered the fundamental element of a political theory, it becomes fertile ground for overexpansive interpretations of the entitlements it warrants. Additionally, it fosters a proprietarian conception of justice that tends to reduce ethical considerations to ownership rights.[248] I would argue that most of the counterintuitive or unpalatable implications for which libertarianism is (in)famously known, are the result of treating self-ownership as the fundamental element. An obligations-based account is less prone to these problems, since any given set of entitlements is shaped and defined by the moral obligations that grounds it, thus avoiding the maximalist objection. For example, such a construal forbids selling oneself into slavery, as this would be a contradiction in conception, for if everyone sells themselves there would be no masters, and in will, for hardly anyone would will to be treated as a slave. Additionally, I believe this approach better captures what is morally appealing about SO: it respects the moral standing of agents as autonomous beings or project-pursuers.

Before moving on, two points should be clarified. First, this thesis it is not an exegetic exercise of ASU nor a defence of Nozickian-like libertarianism. This obligation-based libertarian theory is 'structurally' related to Nozick's theory, inasmuch as SO is not the premiss but a derivative element. Second, given the emphasis on obligations, it might be inferred that I am advancing a Kantian articulation of libertarianism, a project some have argued to be

[247] Kymlicka, Contemporary political philosophy: An introduction 2002. See also Hart's critique of Rawls' A Theory of Justice, and specifically to the 'equal liberty principle' in "Rawls on Liberty and its Priority" *The University of Chicago Law Review* 40, no. 3 (1973).
[248] Thrasher; —, "Self-ownership as personal sovereignty" *Social Philosophy and Policy* 36, no. 2 (2019).

impossible.[249] As has been pointed out before, the present proposal is 'Kantian' in that it draws on his analysis of obligations, and on the general secondary literature on his oeuvre. However, it departs from Kant's work in several respects eg it does not endorse the metaphysical foundation of his political theory. To be explicit: the theory on offer is not a Kant-esque reading of libertarianism, nor this is an effort to reconcile Nozick's 'impressionistic' use of Kant ideas with the latter's work.[250] Rather, I am offering an obligation-based theory which aims to harmonize two moral principles, liberty, and equality, by means of a constructivist approach to normative theorizing.

4.3 Left-Libertarianism, an Overview

At the risk of oversimplifying the contemporary debate, left-libertarianism can be described as the effort to traverse a middle ground between two traditions of thought often presented as being in the antipodes of each other, namely, libertarianism and egalitarianism. Both libertarianism and egalitarianism, like other traditions of thoughts, elude univocal definitions, as each refers to a diversity of theories concerned with politics, economics, and justice.

Broadly speaking, libertarians strongly value individual freedom, and accordingly argue that persons are entitled to an extensive sphere of personal liberty. This sphere sets stringent limits on what others –mainly the state– can do, particularly in terms of wealth (re)distribution. As summarized by Narveson: 'Libertarianism is a thesis about justice, which concerns the socially acceptable use of interpersonally coercive force, specifically regarding the question of which, if any, distributions may be coercively procured by law or other legitimate means.'[251] The libertarian idea of personal liberty is related to what JS Mill described

[249] Williams, "Kant and Libertarianism," in *Kant on Practical Justification*, ed. Mark Timmons and Sorin Baiasu, 2013; see also Ciatti, "Kant and the self-ownership thesis: the reasons behind a difficult marriage".
[250] Taylor, "A Kantian defense of self-ownership" (2004).
[251] Narveson, "Libertarianism vs. Marxism: Reflections on GA Cohen's Self-Ownership, Freedom and Equality" *The Journal of Ethics* 2, no. 1 (1998), p 3.

as the self-regarding sphere of life, 'the appropriate region of human liberty', which compromises the inward domain of consciousness, of thought and feeling, and absolute freedom of opinion and sentiment on all subjects, practical or speculative, scientific, moral, or theological.[252] The perimeter of this self-regarding sphere is usually demarcated by an understanding of liberty as the absence of imposed costs.[253] Tibor Machan provided a definition that helpfully epitomizes this stance:

> The political philosophy that is called libertarianism (from the Latin libertas, liberty) is the doctrine that every person is the owner of his own life, and that no one is the owner of anyone else's life; and that consequently every human being has the right to act in accordance with his own choices, unless those actions infringe on the equal liberty of other human beings to act in accordance with their choices.[254]

As this definition suggests, the core libertarian value is that individuals are holders of rights. First and foremost, individuals have rights over themselves, over the fruits of their labour and, consequently, to appropriate unowned natural resources.[255] In terms of public policies, the libertarian commitment to personal liberty and independence leads them to promote a wide range of civil rights, like gay marriage or drug decriminalization.[256] It also leads them to defend the idea that only a minimal state can be rightfully justified, whose main purpose is the protection of personal liberties and property, through the enforcement of commonly agreed rules.

Libertarians and egalitarians tend to have significant overlaps on matters of civil liberties. Where they undoubtedly diverge is on the (re)distributional implications of their doctrines. Notably, this is a source of disagreement within libertarianism. Whereas left-libertarians believe that appropriation of natural resources is constrained by other (egalitarian)

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[252] Mill, Utilitarianism and On Liberty 2003, p 96.
[253] Lester, "Liberty as the absence of imposed cost: The libertarian conception of interpersonal liberty" *Journal of Applied Philosophy* 14, no. 3 (1997).
[254] In the prelude of the chapter by Hospers, "What Libertarianism Is," in *The Libertarian Alternative, essays in social and political philosophy*, ed. Tibor R. Machan, 1974, p 1.
[255] Brennan et al., "Introduction: Respecting and Caring," in *The Routledge Handbook of Libertarianism*, ed. Jason Brennan, et al., 2018; Vallentyne, "Left-Libertarianism and liberty"; Vallentyne et al.
[256] Van Der Vossen, Libertarianism, in Oxford Research Encyclopedia of Politics ed^eds Oxford University Press.

moral considerations,[257] right-libertarians reject such positions.[258] These differences explain why earlier I used the term core values, instead of premises: even those who find their home in the libertarian neighbourhood have trouble identifying common grounds on which to build their theories. For example, Otsuka commented that in discussions with Vallentyne and Steiner before penning a joint article, they realized that their mutual commitment to egalitarianism was more 'an overlapping consensus than a shared comprehensive doctrine.'[259]

Egalitarianism, broadly speaking too, refers to a family of theories built around the principle of equality. Its core premiss is that all individuals are moral equals, or have equal moral worth. Insofar as we are equals, in the normatively relevant sense specified by the theory, we are either entitled to be treated equally in some respect, to relate as equals, or to an equal amount of whatever the theory uses as a metric of justice; or to a combination of all of the above. Although all egalitarians put front and centre the principle of equality, this is practically the only point of confluence between its variants. Egalitarians differ on three main issues: first, on what should be the proper 'currency of egalitarian justice'[260] –whether equality of (opportunity for) welfare, resources, 'primary goods', capabilities, among others. Second, on what is the proper 'site' of equality[261] –whether on institutions or on the choices that these institutions make available to agents (individual actions). And third, on the value of equality – whether inequality is in itself bad or because other reasons make it unjust (telic and deontic in Parfitian nomenclature),[262] whether it has non-instrumental or instrumental value, and/or whether it has intrinsic or extrinsic value.[263]

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[257] Vallentyne et al.
[258] Nozick.
[259] Otsuka, "Owning persons, places, and things," in *Hillel Steiner and the Anatomy of Justice*, ed. Stephen de Wijze, et al., 2009, p 132.
[260] Cohen, "On the currency of egalitarian justice" *Ethics* 99, no. 4 (1989).
[261] —, "Where the action is: On the site of distributive justice" *Philosophy & public affairs* 26, no. 1 (1997).
[262] Parfit, Equality or priority? 1995.
[263] For overviews of these distinctions and how they related to each other see Moss, "Egalitarianism and the Value of Equality" *Journal of Ethics and Social Philosophy* 3, no. 3 (2009); and O'neill, "What should egalitarians believe?" *Philosophy & Public Affairs* 36, no. 2 (2008).

To some extent, all plausible political theories could be labelled egalitarian, inasmuch as they all endorse some version of the idea that, at least initially, prior to any personal decisions and wrongdoings, all individuals are entitled to equal rights eg libertarians hold that all individuals have equal self-ownership rights.[264] But to understand egalitarianism in this manner would reduce it to a mere formal demand –equality of something, blurring the divide between egalitarianism and most other political theories. The substantive difference that distinguishes egalitarians from libertarians is not so much where agents begin, but how they begin and end, and consequently the resulting distributive differences that each tradition considers morally justified.

Broadly speaking, libertarianism holds that justice must protect the entitlements of agents, and safeguard the processes through which these can be legitimately transferred. Correspondingly, any result that respects these principles, even if it leads to drastic inequalities, cannot be deemed unfair or unjust. Egalitarians reject this position, inter alia, drawing attention to the effects that the natural and social conditions of agents have on their final situation –their starting points and the paths each has to navigate. These concerns are well captured in what is considered the core idea behind luck egalitarianism: that inequalities derived from voluntary choices are acceptable, whereas those resulting from unchosen features or circumstances are not.[265] Left-libertarianism intends to traverse a common ground, protecting an agents' entitlements by recognizing individuals full or robust self-ownership rights, while correcting some of the inequalities derived from differences in circumstances by considering world resources as commonly owned.

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[264] Notably, in the Stanford Encyclopedia of Philosophy entry on egalitarianism, Lockean rights –ie Nozick's theory– are considered one of the plausible answers to the equality of what question. Arneson, Egalitarianism, in Stanford Encyclopedia of Philosophy ed^eds Edward N. Zalta.Metaphysics Research Lab, Stanford University. Summer.

[265] Scheffler, "Equality as the Virtue of Sovereigns: A Reply to Ronald Dworkin" *Philosophy & Public Affairs* 31, no. 2 (2003); Dworkin, Sovereign virtue: The theory and practice of equality 2002.

There are egalitarians who believe the left-libertarian project is a hopeless endeavour because it allegedly lacks coherent foundations.[266] Fried contends 'the label "left-libertarianism" houses disparate moral intuitions that share little but a name.'[267] Yet, this overlooks the fact that the same holds true for egalitarianism, for there are significant differences between resource egalitarianism, the capabilities approach, and luck-egalitarianism, to name just a few. It is no secret that both traditions of thought are broad churches, each housing various congregations claiming to be the best interpreters of what the principles of liberty and equality respectively command. Left-libertarians' rejoinder to the incoherence critique asserts that if recent proposals have not been quite persuasive, this is largely explained by the specific conception of egalitarianism –luck or welfare egalitarianism– that was reconciled with libertarianism.[268] Building on this insight, and considering that both traditions accommodate dissimilar articulations within their quarters, I argue that every left-libertarian theory must specify which articulation of each tradition it intends to bring together.

On the 'libertarian side', the present theory is novel, as it considers the right of self-ownership ancillary to a universal perfect obligation to forbear from imposing our decisions on others.[269] Although novel, this approach is not unheard-of: detractors of libertarianism, like Lippert-Rasmussen, and defenders, like van der Vossen and Schmidtz, have suggested, from starkly different analytical standpoints, that SO should not be taken as the fundamental principle of a political theory, but as derivative of some other moral consideration.[270] The construal I advance draws on the debate that explores the intersections, and differences, between the Kantian literature and the libertarian tradition.

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[266] Fried; Risse, "Does left-libertarianism have coherent foundations?" *Politics, philosophy & economics* 3, no. 3 (2004).
[267] Fried, p 78.
[268] Quong, "Left-Libertarianism: Rawlsian Not Luck Egalitarian" *Journal of political philosophy* 19, no. 1 (2011); see also Wendt, "The sufficiency proviso," in *The Routledge Handbook of Libertarianism*, ed. Jason Brennan, et al., 2018; Thrasher, "Social Contractarianism".
[269] I take the cue for this formulation from Katz, "Spite and Extortion", p 1473.
[270] Lippert-Rasmussen; Van Der Vossen and Schmidtz.

On the 'egalitarian side', it offers a sufficientarian account on which the satisfaction of basic needs limits what others can appropriate. It must be clarified, the theory can be labelled sufficientarian because it shares the main tenet with this doctrine, but it is a defence of sufficientarianism. As explained by Shield, sufficientarianism is committed to two main tenets. First, to the priority principle, as it argues that distributions should prioritize the worse-off. And second, to what he defines as the 'shift thesis', which holds that once persons have secured enough, the moral utility of benefiting them cease to impose demands of justice. This implies that a different set of moral reasons apply above and below this threshold.[271] This project assumes that the moral space is segmented, and that the demands of justice vary in each distinct region. Specifically, that we have a sufficientarian claim towards natural resources that sets limits on appropriation. This explains why the theory can be labelled sufficientarian. Although not an original approach, as a sufficientarian account of left-libertarianism has already been advanced,[272] the theory is novel in that egalitarian claims are also ancillary to the forbearance obligation. This contrast with most left-libertarian theories which ground their egalitarian concerns on a different, supplementary principle.

4.4 The Problem of Self-Ownership

For heuristic purposes, the literature on SO can be mapped along two axes or dimensions. One is defined by the focus of the analysis, whether it centres on the term 'self' or the term 'ownership'. The former answers the questions of what is owned, and how, by providing an account of who the owner is; the latter answers the question of what it means to own something (or someone), by providing an account of what ownership is –usually fleshed out through the Hohfeld-Honoré framework.[273] The second axis is defined by the type of

[271] Shields, "Sufficientarianism" *Philosophy Compass* 15, no. 11 (2020).
[272] Wendt.
[273] Hohfeld, "Some Fundamental Legal Conceptions"; —, *FLC*; Honoré, "Ownership".

defence or criticism of self-ownership, whether it is internally (in)coherent or (in)determinate, or whether its implications conflict with other considered moral beliefs.

Analysis centred on the noun self tend to treat SO as a principle of entitlement, exploring the moral and political significance of the human body. For Locke, and those on this tradition, the relation between an agent and its body is of such moral worth that, in addition to justifying general constraints on action, such as the duty not to kill, it also serves as the moral grounds of all positive or civil rights, including ownership rights (and, by extension, to justify the state). Depending on how robustly SO is construed, it licences voluntary slavery, selling body parts or personal physical services such as prostitution, among other controversial implications. For Kant, and his contemporary followers, the problem with this construal is not its determinacy, but its incoherence. On this view, persons are simply beyond the scope of ownership, because only objects can be owned, and persons are not objects. Hence the conclusion that owning oneself is incoherent.[274] Note that Lockeans and Kantians start from the same premiss, the physical aspects of agents have normative implications, yet they reach mutually exclusive conclusions.

On the opposite side of the 'self' dimension, it is possible to locate contemporary authors such as Lippert-Rasmussen or Fabre. Drawing on the philosophy of mind debate, they analyse SO through the dualist approach to the mind-body question. On this view, the person is a composite of the physical body, and the 'self' –either the mind, thoughts, or some other category that is distinct from the body.[275] Although they recognize a special connection between these two components, the body is something that agents 'have', 'possess', or 'occupy'. That is, the body is a part of the person, but it is merely one of many parts. As a result

[274] Cohen sucintly recaps Kant's intricate argument: (a) persons are not things, and (b) only things can be owned, therefore (c) persons cannot be owned (and thus cannot own themselves). He stresses, however, that one can hold (a) and not (b), and accordingly reject (c). For, from the fact that persons are not things, it does not necessarily follow that persons cannot be owned. In *SOFE*. See also Phillips, Our bodies, whose property? 2013.
[275] Fabre, Whose body is it anyway? : justice and the integrity of the person 2006; Lippert-Rasmussen.

of this dualism, the physical body, qua resource, is not significantly different from other external resources. Hence, if and when an agent sells a part of her body, or engages in physical services such as sex, the agent is not selling itself nor the person, but merely a part. Controversially, this standpoint would consider, in extreme cases, the redistribution of body parts or the provision of personal services as demands of justice.[276]

Now, on the other side, the analysis centred on the term ownership usually interpret it as a qualifier rather than a noun: rights to the self are modelled on ownership rights. Because SO is modelled on ownership, the prevalent strategy is to sift SO through the bundle-of-rights approach to ownership. One of the problems with this approach is that it is subject to Grey's disintegration objection, transforming self-ownership into an extremely labile concept. For, if ownership can be decomposed in any given assortment of Hohfeld-Honoré incidents, then there are as many articulations of self-ownership as there are combinations of incidents. And if SO does not have a clear and defined structure, this in turn leads to analytical confusions (further discussed in chapter 7).

The two axes to map the literature on SO should be viewed as orthogonal to each other: objections of incoherence, indeterminacy, and inconsistency, and their respective defences, can be targeted at either the self-related or ownership-related dimensions of the concept. For example, whereas Kant considered the idea of self-ownership incoherent because persons are not objects, Moller argues that SO is incoherent because it cannot justify the right to exclude, which, in his view, is the fundamental element in the ownership chain.[277]

Regardless of whether the analysis focuses on the noun or the qualifier, the coherence and consistency of SO are usually examined through intuition-pumping exercises aimed at confronting SO with other considered moral beliefs. Influential hypotheticals and thought

[276] Fabre.
[277] Moller, "Redistribution and self-ownership" *Social Philosophy and Policy* 36, no. 2 (2019), p 198.(emphasis on the original)

experiments explore the legitimacy of the redistribution of eyes (natural and artificial), the taxation of vests weaved with an agent's own hair, or the mutual rights and obligations that link two castaways in a desert island, who differ in terms of either abilities, or their time of arrival, among others.[278] Defenders of SO use these examples to ascertain the coherence and consistency of SO, and to determine its robustness eg whether it licenses or prohibits minor incursions on one's body, say cutting a lock of hair, to save numerous lives. Critics use them to demonstrate the moral inconsistency of SO –it licenses voluntary slavery. (It cannot be ignored that authors on both sides simply take for granted that previous considered moral beliefs or intuitions are an apt criterion to determine the plausibility of SO, and very rarely offer justifications for what these 'considerations' entail or demand.)

Especially among detractors of SO and libertarianism, every time a counterintuitive conclusion is (said to be) reached, this is taken as a reason strong enough to go back to the principle and either modify it or discard it. More often than not, authors dismiss the principle too quickly. In this regard, it is worth keeping in mind that Rawls' reflective equilibrium only advocates that the analysis should go back and forth between principles and other moral considerations. Very little effort is devoted, if at all, to assessing the possibility that, in light of the challenges presented by libertarianism, what needs to be changed is our previously considered moral beliefs.

Relatedly, Lowe notes that counterexamples can only show that something, somewhere in the theory, has gone wrong.[279] Counterexamples help to bring to the front the practical implications of abstract principles. In doing so, they help to determine the content of concepts or principles, delineating their boundaries, and elucidating their practical implications. However, very rarely a counterexample constitutes, in and by itself, an irrefutable argument

[278] Cohen, *SOFE*; Otsuka, *Libertarianism without Inequality*; Taylor, "A Kantian defense of self-ownership"; Lippert-Rasmussen; Lowe..
[279] —.

against a theory. In this regard, van der Vossen and Schmidtz criticize the tendency of the academic discussion to try to resolve problems related to SO by attending, eminently, to analytical variables, such its internal or external coherence, how absolute it must be in relation to the demands of life in community, or what is its maximum extension compatible with that of others, to name but a few. The authors emphasize that, outside philosophy, ownership is an institution that evolves along with the problems of people and society. And, in real life, people act as self-owners, regardless of its coherence or robustness.[280]

4.4.1 Defining Self-Ownership and Self-Owners

The preceding overview of the debate on self-ownership leaves us in a position to locate the present theory: approaching it from the ownership dimension, it unpacks self-ownership in Hohfeldian incidents, arguing that the catalogue of incidents comprising self-ownership should be structure on a Hohfeldian privilege, the right to use (7.3). I further argue that these rights are innate, in that self-owners have them by virtue of being moral agents (7.4). I contend that the axiomatic approach (2.3) supports the logical plausibility of arguing that one incident can be fundamental vis-à-vis others. Coupled with this, I will now put forth two arguments, one analytical, one normative, for considering privileges the fundamental incident.

Regarding the former, recall that Hurd and Moore argue that the content of a right determines whether it is a privilege –those describing actions performed by the holder, or a claim –those describing actions performed by third parties. Recall, too, Machan's definition of libertarianism: 'the doctrine that every person is the owner of his own life…and that consequently every human being has the right to act in accordance with his own choices' (p 138). If, for the sake of the argument, it is granted that this definition is representative of self-ownership, and given that it describes actions that are to be done by the titleholder, then it follows that self-ownership has the logical form of a Hohfeldian privilege.

[280] Van Der Vossen and Schmidtz.

Moving on to the normative argument, I contend that the term 'self' should be understood eminently as reflexive. Here I want to borrow from Cohen to depict my understanding of the term self in self-ownership: 'It signifies that what owns and what is owned are one and the same, namely, the whole person.'[281] My reading of this passage, which is not an exegetical claim about Cohen's argument, it must be stressed, is that self-owners are whole integrated beings. This view fits naturally with the account of agents this theory draws on, as finite rational beings. Because agents have physical limitations, it follows that agents must act in the world to satisfy their needs and wants. Therefore they must have the right to act in the world. Because self-owners are whole integrated beings, then agents are coextensive with their bodies, for what owns and what is owned are one and the same. In other words, my articulation of self-ownership draws on a non-dualist stance on the mind-body problem. This I cannot support, but I will make explicit its assumptions, and the research it builds on.

Carter construes SO grounded on a conception of the person that is 'more or less' physically coextensive with an entire living organism. Agents are embodied beings with certain cognitive, volitional, and physical powers, all of which constitute a cohesive whole. Below I offer an argument derived from this non-dualist stance which is worth previewing now: because agents cannot be physically possessed by other agents, the catalogue of incidents comprising SO does not includes the incident *right to possess*. This means that the incident that for Honoré justified the entire superstructure of the institution is absent in SO.

Carter advances a respect-based morality, in which respect for agents comprises recognizing the integrity of agents as a given fact, where integrity connotes wholeness or completeness. His stance defends the coherence of SO as a basic right (fundamental), arguing that it must entail a set of rights (incidents) that effectively protect and uphold the integrity of agents. Such a conception of agents entails that a non-normative fact, their physicality, or their

[281] Cohen, *SOFE,* p 69.

bodies, has normative (and political) implications. Specifically, it grounds (a) stringent (ownership-like) rights over themselves, (b) claims towards natural resources, and (c) a right to appropriate external objects.[282]

Whatever the catalogue of incidents that make up SO rights, these are innate rights: moral agents have them by virtue of being agents. Historically, the moral debate distinguishes two broad categories of rights: those with which one is born, and those that one must acquire. Kant labelled them respectively the innate right (to freedom), and acquired rights; HLA Hart distinguished between general and special rights; and recently Kolers advanced the distinction between status-based and achievement-based rights (see 6.2). Nomenclature issues aside, a common thread is that there are two classes of rights, and that there are certain rights that persons have qua beings. I argue that self-ownership rights are of this kind. Agents have these initially, prior to any wrongdoings or personal choices whose consequences might reasonably modify the initial set. Further, I contend that SO rights are morally on a par (explicated below) with ownership rights over external objects. There is a certain 'equivalence' between these two species of rights, but certainly there is an asymmetry between what it means to own oneself and what means to own external objects. I will now elaborate.

4.4.2 Rights over Objects and Rights to the Self, Parity not Symmetry

The roots of the term self-ownership are usually traced back to Locke's assertion 'every man has a *property* in his own *person*: this nobody has any right to but himself. The *labour* of his body, and the *work* of his hands, we may say, are properly his.'[283] This is usually read as establishing a one-to-one equivalence between property rights and those that individuals have over their bodies. I do not intend to dispute this interpretation, as there is textual evidence

[282] Carter, "Self-ownership and the Importance of the Human Body" *Social Philosophy and Policy* 36, no. 2 (2019).
[283] Locke, p § 27.

supporting its plausibility. Instead, I propose that we understand it in a new way; that we construe SO rights as 'on a par' with ownership rights over objects.

Ruth Chang explains that *parity* is a fourth, sui generis way in which two items can be compared beyond being better (stronger), worse (weaker), or equal to one another. Two or more objects are on a par when they are (i) qualitatively very different in some attribute –what she labels the covering value (V), and yet (ii) they are in the same neighbourhood overall with respect to the covering value. She defines tetrachotomy as follows: 'If two items can be compared with respect to some V, one must be better or worse than the other, the two must be equally good, or they must be on a par with one another. So if none of these relations holds, the items are incomparable with respect to V.'[284] For example, Bach and Beethoven are both great composers, yet they are different. It could be almost impossible to determine a criterion with which to judge which one is better, or even to determine if they are equally as good. However, it is unreasonable to say that they cannot be compared, since they have at least one common element: they are both composers (V). Further, they are both regarded as outstanding composers. Consequently, taking into account that there is no clear-cut criterion with which to make a meaningful comparison, and the fact that they share a common element, then it is plausible to argue that both are on a par composition-wise. They are neither the same, nor better or worse, they are on a par.

Likewise, I contend that SO rights are neither stronger nor more important than ownership rights, but they are not equal either. What are the differences that make them on a par rather than equal, and what do we gain by assuming the parity thesis? Regarding the former, the main difference is that the catalogue of incidents that comprise SO rights is different from property rights: self-ownership does not comprise Honoré's 11 incidents. For instance,

[284] Chang, "The possibility of parity" *Ethics* 112, no. 4 (2002); —, "Parity: An Intuitive Case" *Ratio* 29, no. 4 (2016).

ownership over objects implies the right to possess the thing. However, in the previous chapter I argue that no one but ourselves can possess us, thus rendering moot this incident. Additionally, Penner recently puts into question the usual understanding of the incident of transfer. As its name suggests, it is assumed that one agent transfers her incidents to another. However, he highlights that Hohfeld explicitly stated that rights cannot be transferred. Rather, what happens conceptually is that the 'alienor's right extinguishes, and the 'alienee's right is newly created. That is, rights are not transferred, but they extinguish and are created in tandem.[285] Given this, and assuming a non-dualist stance, an agent could only extinguish her rights to her body by dying, as these rights are created, and disappear, together with the agent. From this standpoint, conventional legal 'transfers' of rights are logically impossible. If property rights cannot be transferred conceptually because they are created and extinguished in tandem, it is plausible to argue that SO rights are innate, in that they are created together with the agent. However, because of the non-dualist assumption, one agent's SO rights cannot be extinguished and created in another, different agent. The parity thesis about property rights and SO rights supports such conclusion.

I have shown how ownership and self-ownership differ, now I will highlight what they share, and thus make them on a par. Both rights are on a par regarding a covering value: how they structure relations among agents. As argued in 3.4, ownership is a form of authority that establishes a hierarchal structure of relations, in which each agent has a special standing vis-à-vis others in matters pertaining their property. Similarly, self-ownership should be understood as the special authority that agents have to set the agenda for their lives, which necessarily includes their bodies, as well as decisions pertaining to their self-regarding sphere. Thus, self-ownership establishes a hierarchal structure of relations among agents, by which has a special

[285] Penner, Property Rights: A Re-Examination 2020, pp 20-21.

standing vis-à-vis others in matters pertaining themselves; self-ownership transforms agents into small scale sovereigns.[286]

So, what do we gain by assuming the parity thesis? For one, it helps to circumvent coherence objections premised on the equivalence between both types of rights. Attas critiques SO on the grounds that if one has ownership-like rights over oneself and the fruits of one's labour, then it follows that children are the property of their parents (insofar as they are extensions of their DNA, the result of their effort, volition, and so on). And if children are the property of others, then they are not self-owners. Hence, SO is incoherent.[287] Parity diffuses this line of reasoning on the grounds that while both rights establish a hierarchical structure of relations among agents –their covering value, [288] they differ in their grounding and purpose. SO incidents are innate rights, they are 'created' together with the agent (more on this in 7.4). Thus, although child's are the result of their parents 'efforts', they are not the 'fruits of their labour', and consequently SO is not incoherent.

Similarly, it helps to address objections about the maximalism and indeterminacy of self-ownership, and in doing so to avoid the problems that rights-based theories have. More concretely, parity forbids voluntary slavery because it is inconsistent with the forbearance obligation. Viewed through the Hohfeld-Honoré framework, the right to sell oneself to slavery could be construed as the incident of transfer of title, a power by which an agent changes his normative situation and that of others by selling himself. Parity prevents such an incident to be part of the catalogue of SO right. Why? Because no other person can possess an agent. Third parties can, through coercion, force others to act in certain manners, including but not limited to body movements. Yet, no third party can possess an agent's body in the same manner as a

[286] Hart as cited in Thrasher, "Self-ownership as personal sovereignty".
[287] Attas, "Freedom and Self–Ownership" *Social Theory and Practice* 26, no. 1 (2000).
[288] Sage would frame the question as both rights having the same form. In "Is original acquisition problematic?" (2018).

third party can possess someone else's bicycle. Hence, the right to possess is immaterial in self-ownership. Self-owners cannot sell themselves into slavery, for this conceptually impossible.

To sum up, private ownership rights and self-ownership rights are on a par regarding a specific covering value: how they establish a hierarchical structure of relations between agents. On this structure, the rightholder has a special authority that transforms him into the legitimate final decisionmaker for the thing (himself).

4.5 Final remarks

Left-libertarianism's distinguishing feature is its effort to traverse a middle ground between right-libertarianism and egalitarian theories. I would say that it is not an effort to combine the libertarian and the egalitarian traditions, but to take seriously the moral challenges that each confront us with. On the libertarian side, the challenge is to ensure the conditions so that the agents can 'freely and sovereignly' (as the Chilean saying goes) exercise their personal autonomy, free from the decision-making power of third parties. On the egalitarian side, the challenge is to prevent the unavoidable inequalities resulting from the exercise of autonomy by a plurality of agents from restricting the freedom of those who have fewer opportunities or resources.

In the remainder of the thesis I contend that these challenges can be successfully addressed by considering the forbearance obligation the fundamental element of a left-libertarian theory, and consequently consider self-ownership, and its comprising incidents, ancillary to this principle of obligation. On this construal, self-ownership is a special of authority, and SO incidents are on a par with ownership incidents; they have similar normative effects, but they are different in nature, and content. The catalogue of liberties and protections that comprise SO is a function of what is warranted by the forbearance obligation. This

sidesteps common objections to self-ownership –eg voluntary slavery, while retaining its most appealing feature: the idea that self-owners, and not others, are in control of their lives.

This chapter concludes Part I.

PART II: THE ARGUMENT

5 Outer Space Treaties: Liberty, Equality, and Impermissibility beyond Earth

The idea that humankind is the common owner of the natural world has a long pedigree in political thought. Roman law considered that the nature –physical characteristics– of certain resources, such as air or the oceans, make them common to all. Recently, it has been argued that certain human traits make us all common owners of Earth. Regardless of how deep its roots are, or how compelling it might be, the fact that an idea is either intuitive or has a long history says nothing about its normativity, nor about the robustness of its moral grounding. The general objective of chapters 5 and 6 is to advance reasons to consider natural resources as res nullius. If such a case can be substantiated, then it should be logically possible to (first) appropriate ultra-terrestrial resources.
The present chapter focuses on the international treaties regulating outer space activities, corpus juris spatialis (CJS). It assesses CJS from a normative standpoint, a task that, to the best of my knowledge, has not been done before. It first reviews its main aspects (5.1), then analysing the so-called Outer Space Treaty (5.2), and the Moon Agreement (5.3). The overall argument defended is that the bans on sovereignty and ownership do not have moral grounds, and therefore should be rejected. Then, the chapter further investigates the normative and practical ramifications of CJS, exploring and discarding one potential moral justification for both bans (5.4). It finishes with the conclusion (5.5).

5.1 On Corpus Juris Spatialis

In International Relations (IR) literature, international regimes are generally defined as *social institutions consisting of agreed upon principles, norms, rules, procedures, and programs that govern the interactions of actors in specific issue areas*.[289] They are voluntary binding agreements that limit the range of permissible options to the contracting parties. In IR

[289] Levy et al., "The study of international regimes" *European journal of international relations* 1, no. 3 (1995), p 274.

the international state system is consistently compared to the state of nature, because there is neither a common set of rules that bind all relevant political units –states, nor a supranational legitimate authority, a ruler or sovereign, to enforce these rules. Hence, international regimes are the closest thing to an inter-state social contract –more properly ad hoc social contracts, as they are voluntary agreed restrictions on liberties on the actions of states, pertaining to specific *issue areas*. Independent of the motivations and/or strategic considerations that gave rise to any given regime, insofar as they are voluntary, binding agreements that constrain the possibilities of those who subscribe them, they are normative devices that should be open for such a scrutiny.

Celestial bodies in space may be classified under one of three categories of international law: *res nullius*, a thing that is not yet part of sovereign authority but is susceptible of appropriation; *res extra commercium* (REC), something that is beyond appropriation; and *res communis humanitatis* (RCH).[290] Although in the legal literature it is questioned the analytical purchase of transposing Roman legal terms to areas –physical and legal– radically different,[291] I utilize them nonetheless insofar as they provide a suitable frame for the discussion. Defining the proper status of outer space resources is relevant because their status largely determines whether they could be appropriated or not, what moral considerations, if any, should be considered when assessing an ownership claim, and thus what are the limits of property rights.

The first of the five treaties comprising CJS, generally referred to as the Outer Space Treaty, bans sovereignty claims and national appropriation, effectively treating them as REC. A subsequent treaty, the so-called Moon Agreement, changed their status from beyond ownership to commonly owned by mankind, thus becoming RCH. It also asserts that a regime

[290] Laver, "Public, Private and Common in Outer Space: Res Extra Commercium or Res Communis Humanitatis Beyond the High Frontier?" *Political Studies* 34, no. 3 (1986); Jenks, "International law and activities in space" *International & Comparative Law Quarterly* 5, no. 1 (1956); Williams, "The law of outer space and natural resources" ibid.36 (1987).
[291] de Man, p chapter 4.

to govern them should be negotiated when it becomes feasible to access and exploit them, which could be interpreted as opening the door for private appropriation (or at least not ruling it out). Notice how these treaties have, first, significantly reduced the range of permissible activities beyond Earth, and second, changed the status of ultra-terrestrial resources twice, without providing reasons, normative or otherwise, to justify either the restrictions or the changes.

There is a fertile debate in the legal literature as to what the proper interpretation of CJS. By contrast, political theory is strangely silent on the matter, as there are almost no normative analyses appraising the moral and practical implications of outer space treaties. This chapter commences the task of redressing this imbalance, by providing a normative assessment of CJS. Consequently, rather than assessing the class of actions that these treaties license, prescribe, or proscribe, the analysis focuses exclusively on the soundness and robustness of the moral grounds of its provisions.

The ensuing analysis focuses on two of the five treaties: on the 1967 *Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, otherwise known as the Outer Space Treaty (hereinafter OST), which establishes the sovereignty and national appropriation ban; and on the 1979 *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, also known as the Moon Agreement (hereinafter MA), which address private ownership.[292] These are the two treaties in which it is possible to distinguish normative elements with which to elaborate such an analysis. The other three, the so-called Rescue Agreement (1968), Liability Convention (1972), and Registration Agreement (1975), are more practical in nature, regulating the safety and rescue of spacecrafts and astronauts, and liability for damage caused by space objects, among other practical issues derived from permissible space activities.

[292] UNOOSA, International Space Law : United Nations Instruments 2017.

It must be noted that not all treaties have been signed and ratified by all countries, and consequently the scope of each treaty differs. Thus, it could be objected that it is inaccurate to claim CJS effectively constitutes a binding international regime. That objection would prove difficult if I were examining the legal implications of CJS. For the task at hand, I will bracket the question of the scope of different treaties since I intend to assess their moral grounds.

5.2 Outer Space Treaty: the Sovereignty Ban

5.2.1 A Rights-based Regime

The first international agreement regulating human activities beyond Earth is the Outer Space Treaty (OST), negotiated by the United Nations Committee on the Peaceful Uses of Outer Space. It came into effect in 1967. If Dworkin's scheme to map normative theories (4.2) is used to categorize international regimes, then the regime promoted by the OST –and CJS in general– could be described as plural, since it includes both rights and a goal in its apparatus. Further, both rights and the (egalitarian) goal are justified by appealing to the principles of liberty and equality, and to the idea that outer space is the 'province' of our species.

A distinct feature of the OST is that it sought to define common minimums that all parties could support –an overlapping consensus of sorts. This is relevant because, at the time of the negotiations, it was expected that subsequent treaties would expand and refine its provisions. This explains why the OST is neither exhaustive nor comprehensive. Consider the following fact: although the OST is the treaty with the widest geographical scope –the whole universe, it consists of 17 short articles; by contrast, the Law of the Sea Treaty, which governs the widest geographical terrestrial area, comprises hundreds of lengthy articles.[293] Further, out of the 17 articles of the OST, only three have a significant normative content: Article I establishes the prerogatives and claims that the parties to the treaty enjoy, whereas articles II

[293] Johnson, The Outer Space Treaty, in Oxford Research Encyclopedia of Planetary Science ed^eds Peter Read.Oxford University Press.

and IV set limits and restrictions to the rights and freedoms secured in article I. The other 14 articles spell out, to some degree, the practical implications of the other three. For example, article III establishes that parties to the treaty should carry out activities in accordance with international law, while article VI establishes that states party to the treaty bear the responsibility for any activities, whether these are carried by governmental or non-governmental actors.

A general characteristic of CJS is its nebulousness. Not only do different treaties promote principles and doctrines that often contradict each other,[294] but the dispositions of each treaty are so vague that they give room to contradicting interpretations. For instance, Article I of the OST affirms ample freedoms while attaching imprecise and overarching demands:

> The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.
> Outer Space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality, and in accordance with international law, and there shall be free access to all areas of celestial bodies.[295]

Appealing to freedom and equality, it secures access to, and use of outer space to all countries. Additionally, it appears to include an egalitarian concern –broadly construe– when requiring that exploration 'shall be carried out for the benefit and in the interests of all countries'. Insofar as this broadly egalitarian concern entails a 'patterned distribution', since it must benefit all, this could plausibly be read as promoting a morally justified state of affairs. Even if we consider this egalitarian concern reasonable, or morally appealing, without a specific distributing principle or a distribuenda –eg the resources themselves or the potential economic benefits derived from them, assertions like this tend to create more problems than they solve. For

[294] Tennen, "Outer space: a preserve for all humankind" *Hous. J. Int'l L.* 2 (1979); Gabrynowicz, "The province and heritage of mankind reconsidered: A new beginning" (paper presented at the The Second Conference on Lunar Bases and Space Activities of the 21st Century, Hueston, Texas, 5-7 April, 1988 1988).
[295] UN, OST.

example, should the samples of moon regolith that NASA brought back to Earth be distributed equally among all countries? If every state receives their share, are they the rightful owners? Can they legitimately set their agenda, such as to use them or sell them at will? If so, can less developed countries sell their 'share' of regolith to promote the development of their population?

These may seem like rhetorical questions, but in 1998 a Florida man was arrested for attempting to sell a lunar rock the size of a fingernail. The rock, originally a present from then-President Richard Nixon to the Honduran government, was sold to him by a 'retired Honduran military officer'.[296] Similarly, NASA sued a 75-year-old woman who was selling a tiny moon rock. She was the widower of a NASA engineer, who allegedly received the rocks –a paperweight, the size of a lipstick, containing lunar material– as a gift from Neil Armstrong.[297] How should we interpret these cases against Article I? According to the principle of freedom of use, neither the Florida man nor the widow committed a crime (if both legitimately obtained their lunar rocks). A charitable reading of the principle 'to the benefit and interest of all' would argue, first, that both were under the scope of the principle, insofar as they are citizens of signatory countries; and second, that the Florida man and the widower were justified, because they both had a legitimate interest, and therefore the corresponding right to benefit from these resources. By contrast, under the appropriation ban of Article II (see below), not only neither of these sales have been permitted, but NASA could not have sued as an owner, as no one is supposed to own outer space resources, and consequently no one can claim property.

Recall that O'Neill argues that principles of obligations should be preferred over principles of entitlement, among other reasons, because the latter are prone to the problems of

[296] Porter, "Customs agents seize 4-billion-year-old moon rock", *CNN*, 1998.
[297] Dolan, "NASA detained a 75-year-old woman selling a tiny moon rock. An appeals court says she can sue", *Los Angeles Times*, 2017; Sampathkumar, "Woman sues Nasa for right to own moon dust 'given to her by Neil Armstrong'", *The Independent*, 2018.

maximalism and indeterminacy. I argue that both of these problems can be identified in the wording of article I, and on the legal ramifications examined. The analysis of one article and its practical implications are far from being a knockdown argument. But it does give us reasons to doubt of the effectiveness of principles of entitlements to deliver what they promise.

Article II, the most influential and controversial part of the OST, is also the shortest. In a mere 30 words it transforms the whole universe into *res extra commercium* –beyond appropriation– by banning sovereignty and ownership claims: 'Outer 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.'[298] In other words, according to Article I states can use and even settle in other celestial bodies, but according to Article II neither using resources nor establishing bases could ground any entitlement whatsoever to the resources they use or the areas they settle in.

As suggested earlier, the OST is characterized by a vagueness and ambiguity in its wording that has allowed its provisions to be the subject of convenient interpretations. Article II is usually construed as a continuum, with a restrictive end in which national appropriation, analogous to (European imperial) territorial expansion is prohibited, and a more permissive end, in which some governmental, private, and or mixed governmental-private uses are allowed.[299] Likewise, there are minimalist and maximalist interpretations of the 'peaceful purposes' clause of Article IV.[300] Whereas the maximalist proscribes all military activities, the minimalist reading forbids only aggressive behaviour, thus permitting all kind of self-defence strategies and weapons systems, such as the US Space Force military branch.[301]

[298] UN, OST.
[299] Johnson.
[300] UN, OST.
[301] Cheng; Goedhuis, "Reflections on some of the main problems arising in the future development of space law" *Netherlands international law review* 36, no. 3 (1989); Shaw, International Law 2008, p 545.

Article II has quite problematic implications. From a practical standpoint, how can anyone use a non-renewable, exhaustible resource, such as decomposing ice into hydrogen to fuel a spaceship and oxygen for its crew, and not appropriate these resources in any meaningful sense? (Later I address the difference between natural resources –eg lunar regolith– and their 'sources' –eg the moon). From a normative viewpoint, what is troublesome is that the OST establishes a physical frontier to the moral permissibility of actions, and therefore to the impacts of purposeful actions on the normative terrain. If an individual or a group settles in an uninhabited, unclaimed terrestrial territory, this is usually considered grounds for some kind of entitlement. For example, current self-governed British Overseas Territory of Bermuda finds its origin in a group of survivors of a shipwreck that washaway in an uninhabited island in the Atlantic. Margaret Moore argues that if Bermuda's territorial claim seems defensible, is because the island was uninhabited, and thus 'There were no other human beings present to make rival claims', stressing that 'Islands are clearly demarcated spaces, surrounded on all sides by water.'[302] Since Roman law onward it is assumed that settling in an uninhabited terrestrial plot of land, or carrying out (economically) relevant activities, such as working the land or building infrastructure, generates entitlements that favours she who performs them. Almost all current nation-state, to a lesser or greater extent, partly justify their territorial rights appealing to this Lockean idea.[303] Nevertheless, CJS sets a physical threshold in the moral space, by which the same act is rights creating if and only if it is performed on Earth, as off-Earth its effects are immaterial. Non-terrestrial resources share many of the relevant characteristics of Bermuda prior to the shipwreck: they are uninhabited, clearly demarcated plots of land (surrounded by the vacuum of space). If in the future a group of castaways washaway on Mars, CJS would not recognize them an equivalent territorial right. What could

[302] Moore, A Political Theory of Territory 2015, p 2. (emphasis in the original)
[303] Nine, Global justice and territory 2012.

possibly explain this substantial difference? Why does the same action have normative effects on Earth, but none when performed off-Earth? The OST offers no reason. This asymmetry has no moral explanation. Rather, it is better explained by their historical context, or so I argue.

Before exploring the historical and political context, it must be highlighted that article IV, the only remaining article with normative content, establishes outer space as a denuclearized domain, reserved exclusively for peaceful purposes. It specifically prohibits carrying 'nuclear weapons or any other kinds of weapons of mass destruction', and the testing of weapons and carrying military manoeuvres off-Earth.[304] So far, this is one of the greatest achievements of CJS, since outer space remains nuclear free.

5.2.2 Explaining the Sovereignty Ban

The OST and all other treaties comprising CJS were drafted and signed during the Cold War, when space exploration was more a proxy battlefield for the United States and the Soviet Union, than a collective endeavour aimed at expanding the boundaries of humanity. They are the result of the international political rivalry of the time, and consequently their provisions reflect the declared, and covert, interests of both superpowers. They were designed explicitly to secure free access to both adversaries without seeking preauthorization of any kind, and to avoid the militarization of, and nuclear proliferation in outer space. Implicitly, they were designed to limit the possibilities of whoever ended up winning the Space Race. It was a political strategy to prevent certain actions from grounding sovereignty or ownership claims, such as the first robotic landing on the Moon by the Soviet Union in 1966, or the landing of the Apollo astronauts in 1969.[305] The ban on sovereignty and appropriation are better explained by the political manoeuvring of the time than by a commitment to normative principles: 'The extreme competition between the USA and the USSR in the conquest of space and the fact that

[304] UN, OST.
[305] Leib.

neither was sure to win the race worked in favour of the exclusion of territorial sovereignty in Outer Space.'[306]

Notably, the OST is part of a series of international treaties and institutions created after the Second World War, aiming to regulate the activities of the states in relation to global resources, such as the Convention on International Civil Aviation, or International Telecommunications Union. This historical background explains why a significant portion of the OST is not original: the Test Ban Treaty directly influenced its formal and final clauses, and several provisions of the Antarctic Treaty (AT) were transplanted to the OST, such as the ban on sovereignty claims.[307] It is worth pausing briefly to compare the AT with the OST, first, because both treaties deal with territories that lie beyond sovereign borders, the so-called global commons; and second, because of their respective *sui generis* approach to the problem of sovereignty over said territories.

The Antarctic Treaty was signed in 1959 by 12 countries who had significant interests at the time. Seven of them –Argentina, Australia, Chile, France, New Zealand, Norway, and the United Kingdom– had already claimed territory on the white continent, the other five – Belgium, Japan, South Africa, the Soviet Union, and the United States– had an active role on of the International Geophysical Year 1957-58. Prior to the AT, the white continent was a no-man's land, because in the absence of a regime or recognized claims, each state felt free to do whatever deemed necessary to secure their interests. For instance, the representatives of governments began to tear down the flags and destroy the scientific stations of their adversaries, as well as send rival expeditions to the same places. Further, several appeals before the International Court of Justice were presented to challenge the scope of territorial claims.[308]

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[306] Oosterlinck, "Tangible and intangible property in outer space" (paper presented at the IISL Colloquium on the Law of Outer Space, 39 th, Beijing, China, 1997), p 5.
[307] Husby p. 362; See also Johnson 2018
[308] Abdel-Motaal, "Averting the Battle for Antarctica" *Yale Journal of International Affairs* 12, no. Spring (2017); Howkins, Frozen Empires: An Environmental History of the Antarctic Peninsula 2017; *Antarctica Cases (United Kingdom v. Argentina; United Kingdom v. Chile)*, (1956).. The Hague.

To a large extent, the AT is the result of the growing tensions in the Antarctica Peninsula, but more significantly, the unexpected consequence of an attempt led by India for Antarctica to remain under the administration of the United Nations. This served as a cohesive factor among states with stakes in the continent, who put their differences aside and worked together to keep all other countries at bay from Antarctica.[309]

The twelve original signatories can be grouped depending on whether they have made territorial claims or not: first, the seven states that had formally asserted a claim; second, the United States and Soviet Union, who have not claimed territory, but reserved the right to do so in the future; and finally all other states, who did not recognize any type of present or future claims in Antarctica. It is often stated that Article IV of the Antarctic Treaty, the one that addresses the problem of sovereignty, is a masterpiece of creative,[310] ambiguous,[311] or ingenious[312] legal writing, because the final document achieves the impossible: to represent the positions of these three groups of states. Such is the ambiguity of the AT, that it has been defined as either 'the first continent to abandon, and to push beyond, the modern doctrine of sovereign territoriality',[313] or as a mechanism that perpetuates European imperial logic on uninhabited territories.[314]

The AT wording is quite distinct, as it is mostly framed in terms of how the treaty should not be construed. It specifically states that nothing contained in the treaty shall be interpreted as: (a) a renunciation by any Contracting Party of previously asserted rights of or claims to territorial sovereignty –hence protecting the interests of the 7 states that had claimed

[309] Howkins, "Chilean Antarctic Science, 1946/59" in *2nd Scar Workshop on the History of Antarctic Research*, ed. José Retamales.
[310] Triggs, "The Antarctic Treaty System: A model of legal creativity and cooperation," in *Science Diplomacy*, ed. Paul Arthur Berkman, et al., 2011.
[311] —, "The Antarctic Treaty Regime: A Workable Compromise or a Purgatory of Ambiguity" *Case W. Res. J. Int'l L.* 17 (1985); Joyner and Theis, Eagle over the ice: the US in the Antarctic 1997.
[312] —.
[313] Keane, "Antarctica: Notes on the fate of sovereignty" *Aurora Journal* 35, no. 1 (2015).
[314] Scott, "Ingenious and innocuous? Article IV of the Antarctic Treaty as imperialism" *The Polar Journal* 1, no. 1 (2011).

territory; (b) as a renunciation or diminution of any potential claim to territorial sovereignty as a result of its activities or those of its nationals, which left the door open for the US or the Soviet Union to assert territorial claims in the future; and (c) as prejudicing the position of any Contracting Party as regards its recognition or non-recognition of any other States right of or claim, that is, it does not accept any claim. Consequently, article IV does not solve the problem of sovereignty, nor 'freeze' sovereign claims. Rather, it was engineered to protect the interests of all parties without any of them having to give up their claims. It could even be argued that the TA is the closest to a Pareto Improvement in the South Pole, since it advances the situation of all parties, by institutionalizing a regime that protects their interests and regulates relations between the actors, without harming the position of anyone involved.

One of the complexities of assessing sovereignty claims in Antarctica is that different countries appealed to different principles to legitimize their claims: Norway and the United Kingdom highlighted their respective history of exploration and human settlements; Australia, Argentina, and Chile, appealed to geographical proximity and to historic titles to support their claims; additionally, these last two countries also claimed 'geological continuity', arguing that the mountain range that is located on the northern Antarctic Peninsula is the continuation of the Andes.[315] The impossibility of finding a common ground to settle differences, and the reluctance of all parties to renounce their interests, explains the vagueness of the 'solution' of the Antarctic Treaty –it settles without adjudicating. It also explains why it has been so 'successful': everyone wins, and no one loses. In contrast, in the case of outer space no one can appeal to 'relative proximity'. The US might build a case on previous history on the Moon, but considering that their manned missions have spent only a few hours there, it would be a weak case at best.

[315] Howkins, "Chilean Antarctic Science, 1946/59".

The relevant upshot is that the OST ban on sovereignty claims is better understood as a melange of Cold War legal and political manoeuvring, than as an effort to preserve outer space for the benefit of humankind. Both bans are better understood a mechanism to limit the gains of whoever end up winning the space race, in a scenario in which neither of the two rival world powers was certain of success. They ensure that if one of the parties does not triumph, neither will the other. The problem is that, despite the fact that the OST was never designed to ascertain the moral grounds for governing human activities in outer space, now it is considered off-Earth moral point of reference, or its magna carta.[316]

5.3 The Moon Agreement: the Private Ownership Ban

The Moon Agreement is, generally, quite similar to the OST. Both enshrine ample rights of use and exploration, the nuclear ban, and the clause permitting scientific exploration. While the OST is quite clear on what it prohibits –sovereignty and national appropriation, it is mostly silent about what private individuals or corporations can permissibly do. The Moon Agreement directly tackles the question of private ownership, but it in the same ambiguous manner of the OST.

Just like the OST, Article 4 of the MA refers to an underspecified egalitarian principle of equal access, when it declares that the exploration and use of the moon 'shall be carried out for the benefit and in the interests of all countries.' Additionally, it extends the scope of the principle by addressing the question of intergenerational justice that the OST omitted, as well as declaring a prioritarian consideration: 'Due regard shall be paid to the interests of present and future generations as well as to the need to promote higher standards of living and conditions of economic and social progress and development'.[317] It could be argued that any plausible theory of justice, and therefore any plausible international regime, should include the

[316] Johnson.
[317] UN, MA.

interests of future generations, as well as promote higher standards of living. However, the MA, just like its predecessor, does not offer moral grounds to support either of these goals, nor a clear distributive principle to achieve them.

One of the least clear aspects of the MA is what class of actions are prescribed and which ones proscribed. Articles 6, 8 and 9 enshrine the principle of freedom of scientific investigation, and the principle of equal access, granting the right to land objects, and place personnel, equipment, and or facilities on lunar surface. These entitlements give the idea that agents in this domain have ample room for exercising their autonomy. Such a conclusion is less clear when considering the content of Article 11.

Paragraph 1 of said article defines the moon and its natural resources as 'the common heritage of mankind', effectively changing the moon's status from beyond ownership to commonly owned by humankind. At the same time, paragraph 2 reiterates the sovereignty ban of the OST. And then, paragraph 3 explicitly bans appropriation of any kind by any agent:

> Neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non-governmental organization, national organization, or non-governmental entity or of any natural person. The placement of personnel, space vehicles, equipment, facilities, stations, and installations on or below the surface of the moon, including structures connected with its surface or subsurface, shall not create a right of ownership over the surface or subsurface.[318]

Notice how the first paragraph of article 11 defines ultra-terrestrial resources as the common property of all, while the two subsequent paragraphs ban sovereignty and ownership respectively. In other words, the Moon Agreement permits anyone to wander the solar system, to settle and stay for as long as anyone wants in any celestial body, because it is everyone's property. At the same time, however, it argues that these actions have no normative consequences, for they cannot ground ownership or sovereignty claims. That is, the MA too presumes that there is physical frontier to the normative impacts of human activities.

[318] Ibid.

Despite this blunt prohibition of appropriation, paragraph 5 of Article 11 opens the door for a regime to govern appropriation on outer space: 'States parties to this Agreement hereby undertake to establish an international regime, including appropriate procedures to govern the exploitation of the natural resources of the moon as such exploitation is about to become feasible.'[319] And paragraph 7 specifies

> The main purposes of the international regime to be established shall include: (a) The orderly and safe development of the natural resources of the moon; (b) The rational management of those resources; (c) The expansion of opportunities in the use of those resources; (d) An equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries, as well as the efforts of those countries which have contributed either directly or indirectly to the exploration of the moon, shall be given special consideration. [320]

Two things are worth emphasizing. First, given that the MA embraces the principles of liberty and equality, and considering its egalitarian concern, article 11 could be described as left-libertarian. Second, when taking together the common ownership claim, and the bans on sovereignty and appropriation, it seems that the normative work of common ownership, rather than securing access to the benefits of these resources, gives humanity a veto power on outer space activities. For, unless a commonly agreed regime has been negotiated, no normatively relevant action is considered permissible. Thus, common ownership does not provide its titleholders with use rights –Hohfeldian privileges, but with the power to prevent others from using common resources. Unpacked in Hohfeldian incidents, it is a claim-right that exist in a vacuum, as it does not provide protection to any privilege, but only limits the liberties of others.

Probably because of its inconsistent and demanding implications, the Moon Agreement is generally considered a 'failed treaty'. Unlike the Outer Space Treaty, the MA has been ratified only by 17 states, which means that for 176 states, 91% of the total, it is not binding. No major spacefaring nations have subscribed to it. By contrast, 105 countries, including all

[319] Ibid.
[320] Ibid.

major spacefaring powers, have signed the OST. Actually, when states wish to signal the international community their intentions to become a spacefaring actor, they sign and ratify the OST; the same is not true of the MA.[321]

5.4 On the Normative and Practical Effects of CJS

5.4.1 On Ultra-Terrestrial Common Ownership

As mentioned before, celestial bodies in space may be classified under one of three principles of international law: *res nullius*, a thing that is not yet part of sovereign authority but is susceptible of appropriation; *res extra commercium* (REC), something that is beyond appropriation; and *res communis humanitatis* (RCH). Note how *res extra commercium* and *res communis humanitatis* presume that humans have jurisdictional authority over ultra-terrestrial resources. One of the cornerstones of international law is that legitimate jurisdiction extends so far, but no further than, a state's territory.[322] Consequently, the jurisdictional authority of states, extends so far, but no further than their territories.[323] CJS necessarily implies a jurisdictional claim. Whereas the MA does so by claiming celestial bodies and their resources as our common property. For its part, the OST indirectly implies it, when declares that they are beyond ownership. Given that REC refers to 'things that are prevented by a rule of law from being the objects of private property',[324] and historically has been associated with state or public ownership,[325] proclaiming outer space as beyond ownership could plausibly be interpreted as an indirect claim of jurisdiction. The point is that a necessary condition for a regime to legitimately impose a limit is that the agents and objects affected by the restriction are effectively within its jurisdictional scope. And while all of humanity could plausibly be

[321] Johnson.
[322] Mann; Shaw.
[323] UN, 1962, Permanent sovereignty over natural resources.
[324] Sohm, p 225.
[325] Mackenzie, Studies in Roman Law, with Comparative Views of the Laws of France, England, and Scotland 1876; Metzger, "Making the doctrine of Res Extra Commercium visible in United States Law" *Tex. L. Rev.* 74 (1996).

considered under the scope of CJS, inasmuch as governments are representatives of their constituents in the international arena, it is questionable whether the whole universe is under the scope of humanity.

Now, turning to more practical problems. The Outer Space Treaty converted the moon from *res nullius* to REC with the declaration that 'outer space, including the Moon and other celestial bodies, is not subject to national appropriation.' In turn, the MA transformed the moon from REC to RCH, from something that was beyond ownership, to something owned by us all. The crux of this distinction concerns the range of possibilities for the accumulation of economic surplus, either by states, individuals, or corporations, as a result of activities in space. A REC is much more amenable to profit-making activities that do not require explicit national appropriation (as a dumping ground for waste products for example),[326] and therefore is much more open to a tragedy of the common's scenario, such as the one currently experienced with space debris.[327] The problem of space debris underscores both, the importance of establishing a common framework for outer space activities, and the idiosyncratic interpretations of the peaceful purposes clause discussed earlier. In 2007 China performed a successful anti-satellite test, which destroyed a decommissioned weather satellite. This event contributed more than 35,000 pieces of orbital debris, increasing the amount of space junk by roughly 25%.[328] This shows that the absence of a regime permits a sub-optimal use of resources. This, contrary to what the treaties aim to promote, does not benefit but rather harms all humanity.

Relatedly, recall that both the OST and the MA enshrine the principle of freedom of scientific investigations. This leaves an undefined area for exploitation for 'research purposes'. As noted by a commentator: 'One of the main shortfalls of the Moon Treaty is that it seems

[326] Laver, "Public, Private and Common in Outer Space", pp 364-65.
[327] Damjanov, "Of defunct satellites and other space debris: Media waste in the orbital commons" *Science, Technology, & Human Values* 42, no. 1 (2017); Muñoz-Patchen, "Regulating the Space Commons: Treating Space Debris as Abandoned Property in Violation of the Outer Space Treaty" *Chi. J. Int'l L.* 19 (2018); Wang.
[328] Shackelford, "Renewed space rivalry between nations ignores a tradition of cooperation", *The Conversation*, 2019.

that exploitation of natural resources is acceptable as from now on an experimental basis but that the rules governing real exploitation would be established later.'[329] This legal loophole is strikingly similar to the 'research whaling' approach used by Japanese, Icelandic, and Norwegian authorities to bypass the international moratorium on commercial whaling.

Even conceding that outer space is a global common –a claim I dispute in chapter 6, legal scholars have yet to agree on the implications of the CHM principle. Laver highlights that 'Something which is REC is beyond ownership by any, while something which is RCH is owned by all.'[330] Thus, 'Under a CHM regime, "ownership" of the region would be legally absent. The CHM conceptually entails the principle of non-proprietorship…The key consideration would be access to the region, rather than ownership of it.'[331] Others contend that although global commons are not subject to private ownership, each person has a derivative right to utilize them —usufruct—unless constrained by international law.[332] Buxton has argued that the CHM focuses more on the uses for the benefit of humankind, than on the ownership status. The author acknowledges that 'It may prove difficult, however, to distinguish the idea of access from that of ownership.'[333] Notably, egalitarian author Chris Armstrong considers the use of CHM as another way of saying that the questions of allocation has been postponed, rather than resolved.[334]

The fact of the matter is that the allocation of outer space resources will need to be resolved sooner rather than later. As suggested before, egalitarian principles, as the one enshrined by the OST and MA, pose significant challenges when applied to finite, exhaustible resources. When considering future generations, a finite, exhaustible resources cannot satisfy

[329] Oosterlinck, p 9.
[330] Laver, "Public, Private and Common in Outer Space", p 364.
[331] Joyner, "Legal implications of the concept of the common heritage of mankind" *International and Comparative Law Quarterly* (1986), p 194.
[332] Sprankling, The International Law of Property 2014, p 117.
[333] Buxton, p 692.
[334] Armstrong, p 205.

all claims, since at some point in the future there will be a generation that will not be able to enjoy it. This is true of all finite natural resources, whether they are privately or commonly owned. To the extent that they entail an intergenerational problem, a distribution mechanism is needed to secure that at least a share of the benefits derived from these resources are allocated among competing generations. And neither the MA, nor the common heritage of humankind doctrine offer such a mechanism.

Finally, if the underlying premise of CHM holds, if we are all effectively co-owners of the Moon and all other celestial bodies, then this implies that the real issue is not appropriation, but the privatization of ultra-terrestrial natural resources. This is particularly relevant, because even if we interpret the MA's ban on appropriation in the most restrictive sense –no one may claim anything, its provisions are ambiguous regarding the exploitation of the resources contained in them. Roman law made a distinction between *source* and *resource*, in the sense that the sea was considered *res communis omnium*, for example, but the resources it contains, like fish stock, were *res nullius* and thus could be appropriated. In other words, the *source of resources cannot be appropriated* but the resources themselves are amenable to appropriation.[335] This distinction is enshrined in the Law of the Sea, which forbids the appropriation of the high seas, but recognizes private property rights over the resources extracted from them. Hence, there are those who interpret the MA ban on ownership as a prohibition on appropriation of the source –the Moon– but not its resources –lunar regolith, helium, water, etc. In this vein, regardless of whether celestial bodies in space are considered *res extra commercium* or *res communis omnium*, it does not follow from either of these categories that their resources, like valuable minerals, could not be the subject of private appropriation. Given that there are various private and government-lead initiatives to reach and

[335] Oosterlinck. (emphasis in the original); see also Jakab, "Property Rights in Ancient Rome," in *Ownership and exploitation of land and natural resources in the Roman world*, ed. Paul Erdkamp, et al., 2015; Mousourakis, The historical and institutional context of Roman law 2015.

exploit outer space resources, it is not unreasonable to frame these projects as competing claims towards finite resources. If this holds, then a mechanism to weight claims, and allocate resources will be needed.

To sum up, although the Moon Agreement definition of ultra-terrestrial resources as the common heritage of humankind might have an intuitive appeal, to secure equal access to (the benefits derived from) outer space resources, claiming that all humans are co-owners of the universe tells us very little about how these resources should be allocated, and what justifies such a distribution. Whether what is needed is a *privatization* or an *appropriation* theory is less relevant than the fact that *a theory* for allocating resources is, indeed, needed.

5.4.2 Potential Moral Grounds for the Prohibitions

So far, I have argued that *corpus juris spatialis* does not offers moral arguments to support the ban on sovereignty and ownership claims. On the contrary, moral considerations such as fairness or justice were second order priorities, if at all. Rather, I contended that the most troublesome normative implications of CJS are explained by the international political arithmetic of the Cold War. This notwithstanding, from the fact that CJS does not provide moral grounds, it does not follow that such arguments do not exist. I will now consider, and discard, one such ground.

If the political international context in which the treaties were negotiated has explicative power, as I suggested earlier, then we should also consider other international processes prevalent at the time. Specifically, the decolonization of European empires and the subsequent transformation of former colonies into new states. In the same period in which the Antarctic Treaty (1959) and the Outer Space Treaty (1967) were discussed and approved, the borders of the world were being redrawn. The international community, through the recently created UN, promoted a series of policies and doctrines aimed at facilitating the emergence and consolidation of these new republics. One of these was the 1962 General Assembly resolution

1803 (XVII) on the Permanent Sovereignty over Natural Resources (PSNR). This recognizes the right of peoples and nations over their natural wealth and resources, including the exploration, development, and disposition of natural resources, including the right to nationalize and expropriate them.[336] As noted by Mancilla, at the time this seemed reasonable, since the PSNR was the way developing nations had to secure access to and control of the benefits derived from natural resources of their territories. This is no minor issue, considering that most of these resources were exploited by companies controlled by nationals of their former colonial rulers. If PSNR aimed to secure less developed countries access to the benefits derived from natural resources, then one could interpret the OST ban as an effort to ensure that some of benefits derived from ultra-terrestrial resources will also reach states that do not have the means to access and exploit them –non-spacefaring nations. In short, if the PSNR recognizes sovereign resource rights to ensure access to benefits, the OST denies sovereign rights to ensure everyone's access to the benefits from outer space resources. These two policies seek the same goal through different means.

However, if securing access to the benefits derived from ultra-terrestrial resources is what justifies the bans on sovereignty and ownership, such a stance presupposes a fortiori that benefits are or will be generated. I argue that a regime that prohibits all forms of appropriation does not generate the conditions, or incentives, for benefits of any kind to be created. This renders moot the moral justification of the bans on sovereignty and ownership. Regardless of how they will be distributed, whether according to an egalitarian, prioritarian or libertarian principle, a necessary condition for deriving benefits from any given resources is that agents can access and exploit resources. If the only permissible action is to contemplate these resources, then such a regime does not generate the conditions for benefits to exist in the first

[336] UN, PSNR.

place. Consequently, if securing access to benefits is what justifies the prohibition, insofar as there are no benefits, there are no grounds to support the bans on sovereignty and ownership.

5.5 Conclusion

Chapter 4 described left-libertarianism as the effort to harmonize two moral principles, liberty, and equality. Given this, and considering the preceding analysis, corpus juris spatialis might well be described as left-libertarian. As it has been showed, its provisions assert ample, and undefined, rights of use and exploration for everyone, thus embracing the principle of liberty, together with enshrining underdefined egalitarian, or prioritarian, considerations, such as declaring that outer space exploration should be carried out for the benefit and in the interests of all countries. Granted, characterizing CJS as left-libertarian is quite bizarre, to say the least. Depicting it in these terms, however, does not aim to expand the frontiers of left-libertarianism. It rather aims to bring to the front the outmost importance of coherence when piecing together different normative ideals.

The regime that follows from the provisions of CJS fails to properly norm activities. On the one hand, it establishes blunt prohibitions on sovereignty and ownership claims, but the wording of its provisions leaves ample room for interpretation, as well leaving loopholes such as the scientific purposes clause. On the other hand, the rights it establishes are as vague as they are expansive, and consequently they are not claimable, as there is no institution specifying who should discharge the associated duties.

Taken all into account, it can be concluded that there are no moral reasons to uphold the ban on sovereignty nor the ban on ownership. Both prohibitions are inconsistent with the forbearance obligation, as they entail an imposition on the will of agents with an interest in the domain of outer space.

6 Common Ownership and Global Commons: On What we Owe as a Species

El error consistió
en creer que la tierra era nuestra
cuando la verdad de las cosas
es que nosotros somos de la tierra

The mistake we made was in thinking
that the earth belonged to us
when the fact of the matter is
we're the ones who belong to the earth
Nicanor Parra

This chapter explores the most thorough theory substantiating common ownership, Mathias Risse's theory of humanity's common ownership of Earth, with the purpose of demonstrating that such rights are unwarranted. It first briefly overviews the history and implications of common ownership (6.1). Then it distinguishes between claims towards natural resources and ownership rights over them, explicating the difference between status-based and achievement-based rights theories (6.2). Building on these distinctions, it sketches Risse's status-based theory, detailing its three main tenets (6.3), to then present objections to these and their implications (6.4). Finally, it explores the scope of claims towards the natural world (6.5). It closes with a conclusion (6.6).

6.1 Common Ownership, a Long-held Assumption

One of the most pervasive assumptions in political theory is that natural resources are commonly owned by humankind. Most classic theories, like those of Hobbes or Locke, assumed that God bequeathed Earth to mankind in common. Others, like Grotius, believed that things that cannot be physically possessed, or are overly abundant, like air or the oceans, were common property of humankind. Kant, who carried out insightful analysis on the normative implications of certain facts about terrestrial life, such as the proximity principle of political

obligation,[337] considered natural resources commonly owned,[338] but did not morally ground this claim. For centuries this was a background assumption, a platitude, until common ownership came to the fore in recent decades thanks to the debate on global commons – Antarctica, the High-Seas, Outer Space, and the Atmosphere– and the principle of Common Heritage of Humankind. In the contemporary debate on distributive justice, except for libertarian authors like Nozick or Otsuka, for whom natural resources are unowned, common ownership is the default position of most egalitarian theories, such as Armstrong's *Justice and Natural Resource*.[339] When addressing this question, Armstrong claims: 'It would be a mistake to suppose that the task of a theory of natural resource justice is in the first instance to adjudicate between these competing visions.' In his view, justice demands a 'patchwork allocation of resource rights so that some resources might be owned by individuals or collectives, but for others no single agent will exercise a full set of rights.'[340] Contra Armstrong, I contend that one of the tasks of a theory of (natural resource) justice is to define their moral status. For one, this necessarily influences its distribution; for another, even a patchwork allocation of ownership rights, to be just, needs to be morally grounded.

From an analytical standpoint this is an unavoidable task. Whether a theory considers them unowned or commonly owned helps to identify its strategy to ground ownership rights, in either status or achievement. Status theories recognize rights based on who the claimant is. For instance, Risse's theory of humanity's common ownership of Earth –a secularized version

[337] Waldron, "Who is my neighbor?: humanity and proximity" *The Monist* 86, no. 3 (2003); —, "The principle of proximity" *NYU School of Law, Public Law Research Paper*, no. 11-08 (2011); Huber, "Putting proximity in its place" *Contemporary Political Theory* (2019).
[338] Shell notes that Kant's position varied throughout his life: 'As a student of the "economy of nature," the young Kant called man a "stranger on earth, who owns no property." As an aged philosopher, compiling notes toward what he hoped would be his crowning work, he declared himself "proprietor of the world."' In "Kant's Theory of Property" *Political Theory* 6, no. 1 (1978), p 78.
[339] Armstrong.
[340] Ibid., 25.

of Grotius' theory– roots them in the biological fact that we are earthlings.[341] Achievement theories, in turn, ground rights contingent on the performance of a normatively relevant action: Locke's labour theory of private property. Kolers observes that achievement comes with a price, though, because failure to satisfy the criterion necessarily implies that rights have not been created.[342] For example, despite Locke promoting a theory that considered labour the achievement criterion, he infamously claimed that natives of the American continent were not the rightful owners of the lands they inhabited, because their practices were wasteful, not as productive as those of the farmers of *Devonshire*.[343] In other words, because American natives had not laboured 'properly', in the fashion of British farmers, they fail to create ownership rights to their land. This illustrates how achievement risks being and undue imposition of an idiosyncratic moral criterion.

This chapter aims to ascertain the proper status of external objects –natural resources– that came to be without the intervention of any agent –human beings. I argue that our species does not have ownership rights over terrestrial resources. If this holds, it follows that there are no global commons (and subsequently, no 'intellectual commons'[344] either). This has two salient implications for this project. First, if I can show that our species does not own the resources of its planet of origin, this undermines the strength and merit of the idea that ultra-terrestrial resources –the entire cosmos– is our common heritage. Second, rejecting common ownership implies that egalitarians have one less argument on which to anchor their redistributive arrangements. Notice that this is particularly damning for left-libertarians, who root their egalitarian concerns in the claim that resources are owned 'in some egalitarian

[341] Risse, *OGJ*. (hereinafter OGJ); see also —, "Original Ownership of the Earth: A Contemporary Approach"; —, "Common Ownership of the Earth as a Non-Parochial Standpoint: A Contingent Derivation of Human Rights" *European journal of philosophy* 17, no. 2 (2009).
[342] Kolers, "Attachment to Territory: Status or Achievement?" *Canadian Journal of Philosophy* 42, no. 2 (2012).
[343] Locke, pp §37, §41, and §43.(emphasis in the original)
[344] Shiffrin, "Lockean Arguments for Private Intellectual Property," in *New Essays in the Legal and Political Theory of Property*, ed. Stephen Munzer, 2001.

manner'. The chapter follows a two prong strategy: first, to assess the scant, but thorough arguments defending humanity's common ownership which are found in Mathias Risse's aforementioned theory. And second, to contrast its implications with other appropriation theories, particularly the so-called maker's right doctrine.

The discussion of Risse's theory serves three analytical purposes. Firstly, it clarifies the difference between having a claim towards natural resources, and ownership rights over them (2.1). Secondly, it explicates the difference between status-based and achievement-based rights theories (2.2). Risse advances a status-based theory that grounds common ownership rights on basic needs. The objections I raise to his theory should hold against theories of the same class –status-based, and to justifications of the same sort –needs (3). Thirdly, if my arguments against Risse's theory hold, it follows that natural resources should be considered unowned (4), and thus subject to being appropriated (chapter 8).

Just as Rawls simply presumed that peoples had a right to the territory on which they live, an assumption that has been consistently challenged in the territorial rights literature, egalitarians simply to take for granted that natural resources are our species' property. In *The Myth of Ownership* Murphy and Nagel remark 'Any convention that is sufficiently pervasive can come to seem like a law of nature—a baseline for evaluation rather than something to be evaluated', arguing 'Property rights have always had this delusive effect.'[345] Unquestionably, the authors had in mind what I refer to as private property rights. Nevertheless, their assessment could and should be extended to the notions of common ownership and global commons, which I believe have had this delusive effect for a long enough period of time.

[345] Murphy and Nagel, The Myth of Ownership: Taxes and Justice 2002, p 8.

6.2 On Claims, Rights, and their Moral Grounding

6.2.1 Claims Towards Natural Resources, not Ownership Rights

To explain the difference between a claim towards a resource and an ownership right, an example might help to fix ideas. In Patagonia, a region with low population density, livestock ranchers leave their animals to pasture on large fields, which are not under permanent human care. In normal circumstances, hikers in Patagonia cannot kill native wildlife or private livestock that is someone else's property. However, the local custom dictates that if someone is lost in the wilderness, she can kill a sheep to eat and survive. The only condition is to lay the skin of the animal in a visible place, and in a manner that makes it clear that it was a human, not wildlife, who killed the animal. The exceptional circumstances grant the lost hiker a limited claim to perform the actions needed to secure her survival, no more. She cannot sell the extra meat, or the animal's wool or skin, because those actions go beyond basic needs. In contrast, in normal conditions the owner has a discretionary power to decide whether to kill the entire flock or only one of them, it can decide to kill them to make a profit or simply for fun,[346] and it can sell the whole animal, or parts of it. Instead, the lost hiker can perform a limited set of actions if and only if (and because) her survival is at stake.

In Hohfeldian nomenclature, the above example can be unpacked as follows: in normal conditions, the owner of a resource has a combination of privileges, claims, powers, and immunities, whereas a non-owner –such as the lost hiker– has no incidents, it has no rights.[347] Wenar explains that each Hohfeldian incident performs one or more functions. Roughly put, privileges and powers confer on their holder discretion to perform, or not, certain actions –they are actively exercised. In turn, claims and immunities protect their holder from harm –they are passively enjoyed, as they create duties on third parties not to interfere. Specifically, claim-

[346] Whether ownership rights morally justify these and other similar actions on animals is a matter that I cannot address here.
[347] Hohfeld, "Some Fundamental Legal Conceptions".

rights establish, first, that for any right holder there is a third party who has a duty; and second, claim-rights entitle their bearer to (a) protection against harm or paternalism; (b) provision in case of need; and or (c) a specific performance of some agreed-upon, compensatory action.[348] Insofar as the owner has a privilege and a power, he has the discretion to decide how his resources can be used, and insofar as he has a claim and an immunity, he is protected from arbitrary interventions from non-owners.

However, in special circumstances, such as life-threatening emergencies, the claim and immunities of the owner cannot fill, by themselves, the space of rights –to borrow Nozick's illustration, as the needs of the lost hiker triggers (b). In virtue of the emergency, the non-owner has a claim towards the resources necessary to withstand the emergency. The exceptional circumstances grant the lost hiker a limited claim to perform the actions needed to secure her survival –to kill someone else's animal. In the spirit of the non-wastage proviso, there might be granted an ancillary claim to make a poncho out of the wool to stay warm, and so on. Regardless, the only permissible actions are those necessary to meet basic needs. In such cases, the limited claim-right is not grounded in the performance of an action, or on an ascriptive characteristic of the agent (see next subsection). Rather, the claim is morally rooted on the combination of a biological fact about the agent –earthlings need terrestrial resources to survive, and the out-of-the-ordinary circumstances. The compound effect of these two elements modifies the normative landscape, encroaching the owners' claim-rights and immunities, and bestowing on the hiker limited claim-rights towards specific resources. This makes morally permissible the performance of a reduced set of actions that would otherwise not be.

Ownership rights, as traditionally understood and exercised, entail various Hohfeldian incidents. Most ownership theories grant owners the authority (privileges and powers) to decide the permissible uses of a resource, protected from external arbitrary interferences

[348] Wenar, "The nature".

(claims and immunities). Even those exercising one of the weakest private ownership rights, such as minority shareholders, have a say on the destiny of a company when they vote in the annual general meeting, and each can exercise it as she sees fit. In contrast, a claim establishes that an agent is entitled to a limited set of prerogatives, depending on both the circumstances and the nature of the agent. More significantly, a claim-right grounded in needs lacks a relevant element of ownership rights: the owner's authority to decide the permissible uses of a thing – to set its agenda. A claim-right generally provides its holder with protections against arbitrary interferences, not use rights (liberties or privileges). In cases such as the lost hiker, a claim-right grants its holder limited use rights, only because of the conjunction of special circumstances with biological facts about our nature. In normal circumstances, claim-rights do not have this effect –and should not, I would argue. This is relevant because on Risse's theory 'common ownership is no simple use right but a more complicated disjunctive right either to use (in the narrow sense) resources and spaces to satisfy one's basic needs or else to live in a society that does not deny one the opportunity to satisfy one's basic needs'.[349] That is, his theory appeals to the fact that humans have needs to justify the whole range of Hohfeldian incidents entailed by ownership rights –the complicated disjunctive right, as well as grounding a novel right to migrate if an individual's community of origin does not satisfies her needs.

Although I sidestep this last implication, the crux of my argument against common ownership rights should hold against it too: needs –(b)– can at best ground limited claims towards natural resources, and thus serve as a sufficientarian proviso on appropriation; needs, in and by themselves, simply cannot root either ownership or migratory rights.

6.2.2 Grounding Ownership Rights: Status or Achievement?

In the context of the territorial rights debate, Kolers explains that any such theory must address the question of attachment or particularity, defined as the link between a particular

[349] Risse, *OGJ*, p 112.

group and a specific territory with the normative force to produce a territorial right. In other words, it must justify the creation of (territorial) rights. He identifies two main strategies: achievement and status. An 'achievement' is any demonstrable activity that an agent can now perform or continue performing, like occupying, labouring, or providing basic goods. In turn, 'status' is generally an ascriptive characteristic that an agent has or lacks, irrespective of anything the agent might perform or not, 'either because what had to be done to get it could only have been done in the past (such as being the first settlers)', or because the action depends on certain idiosyncratic properties, such as sharing a particular religious belief, or following local traditions.[350] He illustrates this explaining that the claim that all Jews are entitled to live in Israel rests on a status-based argument which considers membership in the Jewish community as sufficient for granting residence rights in Israel. No action is required to have this right. By contrast, an achievement whose criterion to grant territorial rights is first occupation, for example, demands a specific action –occupation, in a determined time frame – it must be done before anyone else.

Mutatis mutandis, Kolers' categorization serves to identify how different ownership theories justify common ownership rights over natural resources. Any theory that considers natural resources as (i) unowned, and (ii) subject to being appropriated, necessarily entails an achievement criterion in its apparatus. This is because if status would suffice to create rights, then (i) would not obtain in the first place (the problem would be privatization, not appropriation). Given that (i) entails rejecting status as grounds of rights, then all theories adopting (i) must necessarily address the question of how to create ownership rights (ii).[351] Generally, this is solved by including an achievement criterion, like labouring or occupation.[352]

[350] Kolers, p 102.

[351] Note that Locke 's theory has a similar structure, but differs on (i), as it considers the natural world common to all (because it was bequeathed by God to humankind). However, it leads to similar, if not the same results: if natural resources are considered unowned (i), then (ii) leads to appropriation, whereas if resources are considered commonly owned (i^a), then (ii) leads to privatization.

In contrast, if a theory grounds common ownership in either an ascriptive or descriptive feature of human beings, such as the moral importance of autonomy or membership of our species, then it is a status-based theory.

Another way to frame the difference is through H.L.A. Hart's distinction between *special rights*, those arising out of particular events such as a contract, and *general rights*, those which the right-bearer enjoys regardless of any particular event or contingency.[353] Through this prism, achievement theories grant *special ownership rights* on those who successfully satisfy the criterion, whereas status theories recognize a *general ownership right* to all who share the relevant characteristic. Framed in this fashion, this chapter aim is to determine if a general ownership right over natural resources can be grounded in needs. Risse's theory serves this purpose well.

Risse defends the twin project of ascertaining the proper status of natural resources, and revitalizing the ideas of Hugo Grotius, inter alia, because of the contemporary debate on Global Commons, and the Common Heritage of Mankind (CHM) principle. On the one hand, Grotius is generally considered the forefather of the concept of global commons. His ideas draw from Roman Law,[354] which considered natural resources as common to all –*res communes*, because they were supposed to be accessible for everyone.[355] From this, it is plausible to infer an appeal to the capacity of these resources to satisfy basic human needs as grounds of rights. On the other hand, for the last five decades international treaties on the high seas, Antarctica, and Outer Space have referred to the CHM as their guiding principle.[356] The CHM asserts that areas and resources that lie outside of the political reach –sovereignty– of any state, should be available for everyone's use and benefit, taking into account future generations and the needs

[353] Hart, "Are there any natural rights?" *The Philosophical Review* 64, no. 2 (1955), p section II.
[354] Schrijver and Prislan, "From Mare Liberum to the global commons: Building on the Grotian heritage" *Grotiana* 30, no. 1 (2009); Risse, *OGJ*; Rossi, Sovereignty and Territorial Temptation: The Grotian Tendency 2017.
[355] Mousourakis, *The historical and institutional context of Roman law*, p 114.
[356] Risse, *OGJ*, p Ch 5.

of developing countries.[357] As such, the CHM is a status-based principle, for it is membership in our species that grants all individuals an entitlement to benefit from these resources. (All international treaties concerning the so-called commons, in one form or another, enshrine the core principles of the CHM doctrine.[358])

Risse's theory combines elements from Grotius, the Roman tradition, and CHM. As I detail in the next section, his theory grounds both ownership rights and human rights on the biological fact that we need terrestrial resources to survive. It is not (too) farfetched to argue that human rights are or should be status-based, since one can assume that such theories aim to include all human beings, while excluding non-humans. However, it is farfetched to argue that ownership rights should have the same status or grounding as human rights, and that the moral importance of satisficing human needs could create ownership over all existing natural resources –which follows from arguing that the CHM principle should govern outer space. If taken to the letter, this implies that humans are the rightful owners of the whole universe. It is estimated that there are between 100 billion and 200 billion galaxies. Our galaxy alone, the Milky Way, has approximately 100 billion stars in it, and our sun is only one of them. According to the CHM principle, we own them all because we have needs. This *argumentum ad absurdum* intends to highlight that an appeal to needs must have a limit, otherwise all other moral considerations would be subsumed under its scope. Needs are extremely salient in any moral theory because the concept entails an overriding demand. In normative discussions, needs are used as a Dworkinian 'trump', in that they are supposed to prevail when conflicting with other moral considerations, such as merit or desert.[359] However, needs can only have that

[357] Wolfrum, "The principle of the common heritage of mankind" *HEIDLEBERG J. INT'LL.* 43 (1983).
[358] SAT, 1959, The Antarctic Treaty. ; UN, OST; UN, MA; UN, 1982, Convention on the Law of the Sea.
[359] Doyal and Gough, A theory of human need 1991; Reader and Brock, "Needs, moral demands and moral theory" *Utilitas* 16, no. 3 (2004).

overruling effect if they have a delimited normative scope. If not, then we should simply forget about theories of justice, and focus on theories of need.

If it holds that needs have limits as grounds of rights, it follows that as the normative pull of needs recedes, other moral principles and considerations increase their traction. I argue that when sufficiency considerations cease to impose demands of justice, an achievement criterion is better apt to ground ownership rights than status. If this holds, then any plausible appropriation theory should be pluralist, in that it needs to accommodate various normative considerations when assessing ownership claims and distributing ownership rights.

6.2.3 Having a Right to (Outer Space Resources)

At this point it could be objected that it is otiose to resolve the question of the moral status of natural resources, given that we are the only species capable of significantly exploiting Earth resources, and certainly the only one capable of reaching and exploiting off-Earth resources. This notwithstanding, the normative relevance of this problem comes to light if we zero in on an aspect of Honoré's essay that hitherto has been largely unnoticed, but which becomes salient in the context of this project.

As discussed in **Error! Reference source not found.**, in *Ownership* Honoré stressed the distinction between 'the right to possess' and the protection of mere present possession, considering the former the foundation on which the whole superstructure of ownership rests. This distinction is quintessential for the task at hand. From a historical standpoint, whether we 'merely have' terrestrial resources or have rights towards them, was overridden by the (biological) fact that we need Earth resources to survive, and because we have interacted with them since time immemorial. In contrast, as a species we survived and flourish without ultra-terrestrial resources, and we have not interacted with them in any meaningful way. That is, we cannot ground claims on survival or on a prior relation. Hence, ultra-terrestrial resources shed new light on Honoré's challenge, as they compel us to ask questions that we have not had the

need to answer before. For, even if we ground common ownership of Earth on the fact that humans happened to evolve on this planet (more on this later), this fact does not take us very far regarding ultra-terrestrial resources. Alternatively, if we ground it on the fact that we are the only species –that we know of– with moral agency or advanced reasoning, then this necessarily excludes severely mentally disabled humans from the scope of justice, a bullet not all egalitarians are willing to bite (taken to its extreme, it leads to the repugnant conclusion that this subset of humans do not have rights over natural resources).

If the superstructure of ownership rests on the distinction between 'having a right to' from merely 'having', then this challenges authors defending either common or private property rights. Nozick was well aware of this point:

> We should note that it is not only persons favoring private property who need a theory of how property rights legitimately originate. Those believing in collective property, for example those believing that a group of persons living in an area jointly own the territory, or its mineral resources, also must provide a theory of how such property rights arise; they must show why the persons living there have rights to determine what is done with the land and resources there that persons living elsewhere don't have (with regard to the same land and resources).[360]

Nozick's solution was the historical entitlement theory, according to which legitimate ownership rights originate from the combination of the principles of rightful initial acquisition and justice in transfers. Critics of Nozick often stress that the history of natural resources is tainted with forced appropriation.[361] Notice, however, that the objection does not questions the tenets of the historical entitlement theory; it only argues that if applied, it would render illegitimate most current private property rights. Be that as it may, a forward-looking application of the theory is not subject to this objection. Except for orbital slots and Lagrange points (chapter 8), which have been allocated and are currently in use, outer space resources

[360] Nozick, p 178. Also quoted in Exdell, "Distributive justice: Nozick on property rights" *Ethics* 87, no. 2 (1977), p 147.
[361] Among others, see Kymlicka; Cohen, "Self-ownership, world-ownership, and equality". Note the Sandel actually contends that we should simply ignore any 'original sin'.

present us with the opportunity for applying the entitlement theory ex nihilo, thus avoiding cumbersome historical facts. (A proper appropriation theory must wait until the next chapter.)

In contrast, authors defending egalitarian distributions of terrestrial resources have omitted this task. In *Self-Ownership, Freedom, and Equality*, Cohen argues that if one regards resources as jointly owned, this prevents self-ownership from generating inequalities that egalitarians condemn. However, he only stipulates common ownership as an alternative, and ultimately discards it because of its implications: it renders self-ownership –an idea he does endorse– merely formal, and because it implies a veto on the will of others (more on this later).[362] But Cohen never offered a principled defence for common ownership, it was simply a plausible analytical alternative. From a different standpoint, Vallentyne et al. claim that natural resources are owned 'in an egalitarian manner', [363] and they leave it at that, without furthering reasons as to why all humans are co-owners. For his part, and notably before penning the joint article on left-libertarianism just quoted, in a footnote of *Libertarianism without Inequality*, Otsuka offered a justification of sorts, where he reasons that in the absence of the belief that Earth was previously owned by a (heavenly) being who transfer his rights to our species, 'it is reasonable to regard the Earth as initially unowned.'[364]

One remarkable exception to this tendency is Risse's theory of common ownership of Earth, which will be discussed in full now.

6.3 Common Ownership of Earth: the Tenets of Risse's Theory

In the context of the global distributive justice debate, and with the specific aim of deriving human rights from a non-parochial perspective, Risse advanced the thesis that

[362] —, "Self-ownership, world-ownership, and equality", p chapter 4.
[363] This particular formulation is quite prevalent in left libertarian writers eg. Vallentyne et al; Vallentyne, "Left-Libertarianism"; among others see Risse, "Original Ownership of the Earth: A Contemporary Approach".
[364] Otsuka, *Libertarianism without Inequality*, p 22 n44. Mack advanced a similar line of reasoning in "Self-ownership, Marxism, and Egalitarianism: Part II: challenges to the self-ownership thesis", p 240.

humanity, irrespectively of when or where individuals where born, commonly owns Earth.[365] He explains, first, that the theory is a secularized version of the doctrine that was prevalent among political theorists of the seventeenth and eighteenth centuries, specifically Grotius theory. Second, his articulation of human rights construes them as natural rights whose justification depends on natural attributes of persons and facts about the nonhuman world.[366]

Risse roots collective ownership on three claims: (1) the resources of our planet are necessary to meet human needs –the most important of which is survival, since Earth is humanity's natural habitat –I label this the shared habitation claim; (2) the satisfaction of basic human needs matters morally, and matters more than any environmental value, such as protecting the biosphere –I label this the anthropocentric claim; and (3) to the extent that resources have come into existence without human interference, nobody has a greater claim based on any contributions to their creation – I label this the non-creator claim. He clarifies that shared habitation is a descriptive claim, whereas the anthropocentric and the non-creator are normative ones.[367] On Dworkin's scheme, Risse's can be described as a rights-based theory, in which the moral justification of these rights appeal to a plurality of normative considerations –the aforementioned three claims.

Regarding the content of the rights derived from these premises, Risse explains that common ownership does not grant everyone a claim to every object on the planet, but rather that all humans have some symmetrical claims to them. What follows from this symmetry is a distributive principle centred on needs: 'If basic needs satisfaction is morally significant and the resources required to that end exist independently of human accomplishments, then all human beings must have an opportunity to make ends meet.'[368] From this assertion it follows

[365] Risse, "Original Ownership of the Earth: A Contemporary Approach"; —, "Common Ownership of the Earth as a Non-Parochial Standpoint: A Contingent Derivation of Human Rights"; —, *OGJ*.
[366] —, *OGJ*, pp 89-93.
[367] Ibid., 113-14.
[368] Ibid., 117.

that co-owners do not have equal Hohfeldian liberties and powers over resources. They do not have the prerogative to decide how resources are to be used, nor to veto uses. That is, a Pakistani farmer does not have a say on how the Niagara basin should be managed, nor can an Iowa entrepreneur veto the ban on climbing Uluru imposed by the Anangu people.[369] What co-owners do have is an equal Hohfeldian claim-right to satisfy basic needs, no more (and no less). This plausible inference notwithstanding, Risse asserts that the liberty, claim, and immunity rights constitutive of collective ownership are entailed by the three claims. Moreover, he contends that it is the third one 'that does important work', since 'All human beings have claims to original resources and spaces, which cannot be constrained but what other have accomplished either in the present or in the past.'[370] In other words, the non-creator claim is capable of, first, grounding the full gamut of ownership incidents. And second, this claim construes needs as an overriding consideration, one that trumps the effects of any achievement criterion, but whose scope is delimited by the satisfaction of basic needs. Despite Risse's openly declared intentions, I would argue that rather than describing ownership rights, the non-creator claim depicts a sufficientarian distributive principle, which amounts to a *general claim* on Earth resources, and thus as a proviso on appropriation.

The next section addresses in reverse order each claim qua grounds of ownership rights. The aim is to show that Risse's theory cannot ground ownership rights; at best it can ground *limited* claims towards resources.

6.4 Objections to Common Ownership

6.4.1 The non-Creator Claim

It is perplexing to argue that because no one contributed to the creation of an object –a whole planet in this case– everyone owns said object. Why not the opposite? Although

[369] These examples hint at an objection to common ownership put forth by Murray Rothbard, and to Risse's riposte. In ibid., 109.
[370] Ibid., 117.

perplexing, not uncommon. When discussing self-ownership and world-ownership, Cohen draw the same conclusion as Risse: 'It is reasonable to think, with respect to external resources that have not been acted upon by anyone, that no one has more right to them than anyone else, and that equal rights in them should therefore be instituted.'[371] However, there is an unwarranted conflation here, for to argue that no one has more right is significantly different from arguing that equal rights should be instituted. Actually, if no one is a maker, should not we conclude that nobody is the owner? For sure, no one should have more rights than others. But the relevant question is why anyone would have rights to begin with?

What is perplexing and troublesome about this stance is that it contradicts long held intuitions on ownership. For example, it contradicts the foundations of intellectual property rights, the so-called doctrine of maker's right.[372] In *The Lockean Theory of Rights*, A. John Simmons remarks that one of the most widespread or enduring intuitions in political philosophy about ownership rights is that labouring –creating or improving, provides she who labours a special claim towards the object in question. Nozick, Cohen, and Waldron, among many authors, have thoroughly expounded the various flaws of Locke's *mixing* labour theory: at best, it is incomplete, at the very least, is incoherent.[373] Less harshly, it leaves many questions underdeveloped.[374] Despite all its shortcomings, it captures one relevant aspect of labouring: it is a purposive action performed by a moral agent. As such, it is the embodiment and manifestation of personal autonomy, insofar as labouring was one among many options available to the agent.

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[371] Cohen, *SOFE*, p 110.
[372] Sreenivasan, The limits of Lockean rights in property 1995.
[373] Waldron, "Two worries about mixing one's labour" *Philosophical Quarterly* 33, no. 130 (1983).
[374] For example, the majority of Locke's appropriation examples are of hunting, gathering or agriculture, which do not transform or create objects with labour, which undermines the 'mixing' element, as oppose to artifacts created with resources. For more on this see Simmons, The Lockean theory of rights 1992., particularly chapter 5.

As Simmons summarize it, regardless of all the objections that his theory has faced throughout the centuries, and 'However badly he defends his views, we might say, surely Locke is onto something.'[375] When an agent must decide whether to rest, have fun, or committing its strength, will, and talents, to access and use a resource, and either improves it or significantly transforms it to create something new, the intuition is that these actions must have normative consequences. They must change the normative landscape in a manner that favours she who performed them, compared with those who, faced upon the same decision, decided not to –ceteris paribus all other factors. This is, I believe, what Locke was onto, and why despites its many problems, his theory is still normatively attractive, and much discussed.

Broadly construed, the doctrine of maker's right posits that if an agent makes something ex nihilo, or significantly improves or changes a resource, to the point that the result could be considered something new, then she has created a special entitlement in the products of their making –a property right.[376] Consider international copyright law, for example, which recognizes in the creator of an artistic work or a computer program an exclusive right over the use of her creation, and the benefits derived from it, for a period of 50 years approximately. The rationale behind copyright law appeals to the intuition that being the creator of a thing generates special entitlements towards that thing. These entitlements are not limitless since there is a sunset date to them. But rights have been created, which now inhabit the moral space. Similarly, Simmons argues that those who innocently discover unowned external objects, or those who use them to craft new artifacts, have created a special entitlement, a special right towards said objects, and thus ought to be allowed to keep them (if it does not harm others) or that it would be wrong for others to take them away.[377]

[375] Ibid., 223. C
[376] Sreenivasan.
[377] I take the cue from Simmons, *The Lockean theory of rights*, p 223.

Even those who resist the doctrine of maker's right concede that creators should be compensated and acknowledged for their work. That is, they concede that a normatively relevant action, such as labouring, does generate entitlements, although they dispute the robustness of the rights created.[378] What is questioned, then, is not the tenet of the theory, but the expansiveness of ownership incidents usually derived from making, and their alleged strength. To the best of my knowledge, no author questions that performing normatively relevant actions has the capacity to modify the normative landscape (this is further discussed in 7.2). By parity of reason, if making creates ownership rights, then not creating should give rise to no rights, neither private nor common. The most confusing argument in Risse's theory is what I label the non-creator claim, the idea that not contributing to the creation of natural resources generates a general ownership right over them. Part of the confusion might be explained by the influence Grotius' ideas.

Despite being considered the forefather of the notion of global commons, Grotius did not advance a status-based theory. Quite the opposite, his ideas combined an achievement element –occupation, coupled with considerations of the natural characteristics of the resources in question. He reasoned, first, that 'those things which cannot be occupied or were never occupied can be proper to none because all propriety hath his beginning from occupation.'[379] Hence, ownership depends on the performance of an action. And second, Grotius argued that those resources that are so abundant that they could satisfy the demands of everyone, should be 'common to all and proper to none.' He provides two examples:

> Of this kind the air is for a double reason, both because it cannot be possessed and also because it oweth a common use to men. And for the same cause the element of the sea is common to all, to wit, so infinite that it cannot be possessed and applied to all uses, whether we respect navigation or fishing.'[380]

[378] Shiffrin, p 142.
[379] Grotius, p 24.
[380] Ibid., 25.

Notice that Grotius' theory roots common ownership on the impossibility of satisfying the occupation criterion, and on the alleged limitless abundance of certain resources. The latter condition does not hold anymore, as attested by the number of marine species in danger of extinction, and the dwindling fisheries stock. Thus, even if abundance did ground common ownership in yesteryears, that is no longer the case. The former is quite mystifying, considering that it implies that the impossibility of satisfying the criterion does not fail to create private ownership rights, but creates a different kind: common ownership rights.

Grotius and Risse's stances are puzzling because it contradicts intuitions about ownership, and about the effects of agency on the normative landscape, both of which are captured by the doctrine of maker's right. Consider the following: if two hikers walking towards each other, roaming an unowned terrain, happen to find themselves equidistantly from an apple tree, should we conclude that they are both owners of the tree and its fruits? Grotius and Risse must answer affirmatively. However, I would argue that both have merely an equal claim to satisfy their basic needs –and wants if resources are sufficiently abundant. However, neither should be considered its owner. Further, if both were carrying enough food and provisions, then we could even question whether they have a sufficientarian claim to begin with. This is so because, as illustrated by the Patagonian custom, claims grounded in needs are the result of special circumstances, and the moral importance of satisfying basic needs. If the lost hiker was a seasoned one, and thus was carrying extra rations for emergencies, then he would not be entitled to kill someone else's livestock, because we would have no needs to satisfy, and thus (b) would not be triggered. Symmetrical standing is a description of a normative situation, not a reason for acting, and certainly is not a moral argument capable of justifying sufficientarian claims or ownership rights.

It could be objected that Risse, like Cohen before him, aims to highlight the fact that no one can claim prior ownership rights over these resources, and that there are limits to what can

be done with them, and how, because the interests of third parties –all humans– must be considered. Notably, Risse clearly explains that the main role of what I label the non-creator claim is to limit appropriation. [381] However, he is equally clear in asserting that all three claims substantiate common ownership, that all three ground ownership rights. This is not a knock down argument, since a plausible version of the theory will discard it as a ground of ownership rights, and will retain it as an appropriation proviso. But this has a price, since now the theory can appeal only to shared habitation and to the anthropocentric claims to ground ownership rights.

6.4.2 The Anthropocentric Claim

Risse argues that the satisfaction of basic human needs, from a moral standpoint, matters more than any environmental value, such as protecting the biosphere. While the moral relevance of satisfying basic humans needs should be deemed axiomatic, the claim that it matters more than any environmental values contradicts the former. The question is not whether humans have moral priority over other lifeforms, or the biosphere as a whole, but simply that we depend on the latter for our survival. As was hinted in 2.1, our nature evolved in, and coevolved with Earth, and thus it is adapted to its conditions. Consider the differences with Mars, the celestial body that most closely resembles Earth.[382] The atmosphere of the Red Planet is basically poison, as it contains more than 95% carbon dioxide, and less than 1% of oxygen; impossible to breathe, and too low to generate a greenhouse effect –which makes life possible. The surface pressure on Mars is six-thousandths of Earth's atmospheric pressure. Without a suit to provide supplemental pressure, body fluids will change from a liquid to a gaseous state, and any earthling body will simply explode. And if this wasn't enough, Mars'

[381] Similarly, Waldron argues that any acceptable theory should include a 'background general right to subsistence.' in *RPP*, p 4; while Munzer contends that recognizing a right to the necessities of life 'amounts only to a general claim on the world's resources.', in p74.
[382] Schulze-Makuch et al., "A two-tiered approach to assessing the habitability of exoplanets" *Astrobiology* 11, no. 10 (2011).

reduced gravity, one third of that of Earth, pose enormous risks for human health.[383] The point is that our existence presupposes the biosphere, not the other way around.[384] Hence, it is illogical to argue that satisfying the needs of X –humanity– could be pursued at the expense of the conditions that make possible the satisfaction of X's needs –the biosphere. In defence of Risse's theory, it could be said that the main concern behind the anthropocentric claim is the needs of the worst-off of the world, or future generations. However, the crux of my critique is that preserving the biosphere is a necessary condition for discharging the normative demands imposed by Risse's anthropocentric claim, regardless of whose interests are being protected, or when they will be protected. Consequently, at least as currently formulated, the anthropocentric claims fail to ground the kind of ownership rights it is supposed to ascertain.

Again, the above is not a knock down argument, but it has two significant corollaries. First, it imposes more stringent limits on the exploitation of terrestrial resources since this is permissible only up until the point in which we endanger the biosphere's capacity to satisfy humanity's basic needs. According to the latest reports from the IPCC and COP 26, some of the human-induced changes to the biosphere are already irreversible. Furthermore, a recent study suggests that to allow for a 50% probability of limiting global warming to 1.5 °C – generally considered the 'safe' upper limit for humanity, nearly 60% of oil and fossil methane gas, and 90% of coal must remain unextracted.[385] In other words, for the biosphere to remain a viable habitat for humankind, we should not exploit a significant number of the natural resources that remain unexploited. Therefore, if the anthropocentric claim is capable of grounding ownership rights at all, these would already be weaker, constricted, and more restricted than what Risse portrays, as the range of permissible uses is considerably narrower.

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[383] Wanjek, Spacefarers: How Humans Will Settle the Moon, Mars, and Beyond 2020.
[384] See Miller's illuminating discussion of grounding relationships in Justice for Earthlings: Essays in Political Philosophy 2013, pp 21-25.
[385] Welsby et al., "Unextractable fossil fuels in a 1.5 °C world" *Nature* 597, no. 7875 (2021).

Second, since the anthropocentric claim explicitly limits its scope to human basic needs –'an opportunity to make ends meet'[386], this implies that ownership rights derived from needs extend so far, but no further than the satisfaction of said needs. If needs have a delimited domain where they reign, as I argued before, it follows that his theory can, at best, ground sufficientarian claims over resources, not full-blown 'traditional' ownership rights.

6.4.3 The Shared Habitation Claim

Finally, the author's non-normative grounds of ownership rights. The most unusual feature of Risse's theory is that ownership rights are not rooted in a moral principle or political ideal, nor in a relevant action or relationship. Rather, the normative heavy lifting is done by the biological fact that we are creatures of this planet, and consequently our nature requires terrestrial resources to subsist: 'earth is humanity's natural habitat, a closed system of resources everybody needs for survival.'[387] On this view, the normative relevant difference between 'merely having' and 'having a right to' rests on facts about the human condition. Risse explicitly cites Hannah Arendt's *The Human Condition*, where she asserts 'The earth is the very quintessence of the human condition, and earthly nature, for all we know, may be unique in the universe in providing human beings with a habitat in which they can move and breathe without effort and without artifice.'[388] In developing his argument, Risse implicitly refers to one of the elements of what Arendt calls vita activa. And analytical category comprising three 'fundamental' human activities: labor (sic), work, and action. Labor 'corresponds to the biological process of the human body, whose spontaneous growth, metabolism, and eventual decay are bound to the vital necessities produced and fed into the life process by labor. The human condition of labor is life itself.'[389]

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[386] Risse, *OGJ*, p 117.
[387] Ibid., 113.
[388] Arendt, The Human Condition 1998, p 2. (Risse quotes this exact passage on page 117; previously he cites her on page 90.)
[389] Ibid., 7.

This biological grounding is relevant for two reasons. First, notice how shared habitation is compatible with the definition of agents that this project builds on, as finite rational beings (**Error! Reference source not found.**). Second, and relatedly, because despite its appearances, Risse's non-parochial human rights theory does not appeal to a distinctive human feature, say the capacity to reason or our moral powers. Quite the opposite, it appeals to a feature shared by all living forms for whom Earth's closed system is their natural habitat: sentient and non-sentient life. One does not need to subscribe to ecocentrism to recognize that, if the 'natural habitat' element has any traction in the argument, then it must have the same effect in all beings for whom it holds true. In fact, Risse specifies that the argument of humanity's common ownership serves as a ground for principles of justice –those considerations or conditions based on which individuals are within the scope of these principles. He reasons that grounds can be features of the population that make it the case that the principle of justice holds. Grounds can support more than one principle, but these will have the same population, because grounds are features of populations.[390] If grounds are features of populations, as he claims, it follows that shared habitation should ground similar if not equal rights to all other terrestrial lifeforms. To block this conclusion, Risse needs the anthropocentric claim, as it limits the scope of the theory to humanity to prevent an encroachment of humans' ownership rights. For, if other lifeforms were to be included, their basic needs would necessarily restrict the kind of actions we can perform on Earth, such as clearing native forests for agricultural purposes, to give but one example. However, as shown earlier, the anthropocentric claim is far more demanding than the theory suggests, as it implies stringent limits on what humans can do with the terrestrial resources. Therefore, when considering the effects of the anthropocentric and shared habitation claims together, the two

[390] Risse, *OGJ*, pp 1-6.

remaining grounds in Risse's theory, these are unable to deliver ownership rights, common or otherwise.

From a different standpoint, it could be argued that grounding ownership rights exclusively on status fails to take the separateness of persons seriously. Putting aside the much discussed problems of expensive and distasteful needs, one of the main difficulties of status is that, by itself, it is unable to weigh individual needs, nor to resolve disputes among legitimate, but competing claims. For instance, endurance athletes –eg an Olympic swimmer or an ironman triathlete– has a calorific intake of up to three to four times that of a normal person.[391] From the fact that an athlete and a normal person are both co-owners of all natural resources, it is not possible to determine whether the former has 'a right' to consume three or four times as many as the latter. Likewise, it is not possible to determine whether the normal person has a veto power to prevent endurance athletes from (over) consuming resources. If the former holds, it implies that some co-owners have more rights than others; if the latter, that the normal person has a say on what kind of professional paths can be open to those inclined towards endurance activities. Cohen rejects this because it prevents individuals from having substantial control over their own lives, given that 'anything that they might want to do would be subject to the veto of others.'[392] Both alternatives are morally problematic.

The upshot is that none of Risse's claims, either individually or taken together, can ground the liberties, claims, powers, and immunities constitutive of ownership rights. And the main reason why theories such as Risse will fail, is because status is not capable of grounding ownership rights. What Risse's tenets provide, and thus what status-based theories can justify, is strong, though limited moral grounds to satisfy basic needs. In other words, the three claims

[391] Studies show that professional chess player can burn as much calories as endurance athletes when competing on tournaments.
[392] Cohen, *SOFE,* p 14 (see also 93)

support a sufficientarian proviso to make ends meet, but not the privileges and protections distinctive of ownership.

6.4.4 On No Ownership and Natural Rights

In a very quick section, lasting one short paragraph, while critiquing Otsuka's (equally quick) argument in favour of no-ownership –because no being transferred its creator rights to humanity, Risse claims 'if we accept any natural rights at all', and assuming that 'there are no circumstances where no rights hold, No Ownership loses its default status.'[393] I will press two objections to this line of reasoning. First, in this passage Risse equates natural rights with common property rights, something which needs to be argued for, not merely presumed. As I have tried to show, basic needs substantiate claims towards natural resources, not ownership rights. Consequently, one can hold that there are natural rights, such as the right to live, and at the same time hold that natural resources are unowned, because sufficientarian claims are not the same as rights, and the sufficientarian claims towards natural resources kick in if and when the satisfaction of basic needs requires so as a demand of justice.

Second, Risse's argument draws on Leif Wenar's discussion of original acquisition and private property rights.[394] Wenar contends that no-ownership implies a significant justificatory challenge because, in such a state of nature, every agent has the right to create property rights over external objects. This natural power necessarily implies creating on non-acquirer's burdensome duties that they would not have otherwise. And justifying these duties, so the argument goes, is a major challenge for any rights-based theory. Be that as it may, only right-based theories are subject to this objection. Goal-based or duty-based theories can avoid the objection by appealing to other normative considerations.

[393] Risse, *OGJ*, p 116.
[394] Wenar, "Original acquisition of private property" *Mind* 107, no. 428 (1998).

Although the question of appropriation of unowned resources is tackled in the next chapter, at this point I want to stress that no unjustifiable burden could be supported by the forbearance obligation. If it can be proved, beyond reasonable doubt, that appropriation imposes burdensome obligations on others, then it could be said that (a) no ownership rights have been created, or alternatively that (b) the right created is less robust than other similar successful acts of appropriation –which do not impose the same burdensome duties.

Before moving on, I would like to address one disconcerting implication of Risse's theory. In his quest for a non-parochial source for human rights, it ends up grounding the most elemental of rights –human rights, on (a type of) ownership right. The theory either treats common property rights over Earth as the superset of human rights, or it gives the former lexicographical priority over the latter. This is normatively troublesome. Human rights, such as the right to life, to physical security, or the right to freedom of expression, are rights tout court, in that in normal circumstances they cannot be denied nor curtailed. Even those who violate human rights are holders of, and thus protected by human rights. As such, these can be viewed as first-order protections, since they establish the necessary normative conditions for agents to live, flourish, develop their moral powers, and so on. In contrast, most concede that ownership rights, in normal circumstances, are curtailed or limited by other normative considerations, ranging from the Lockean proviso to legitimate expropriation –subject to compensation, for the common good eg building a public road. Honoré is quite explicit on this matter. When discussing the right to security, he states 'a general right to security, availing against others, is consistent with the existence of a power to expropriate or divest in the state or public authorities.'[395]

[395] Honoré, "Ownership", p 235.

It is counterintuitive, and analytically problematic, for a rights-based theory to consider human rights ancillary to ownership rights, instead of treating the former as the basis of all other rights. Counterintuitive, because human rights are usually considered to be first order rights, not ancillary to other rights. One of the criticisms against libertarianism is that it promotes a proprietary view of justice, in which everything is reduced to property rights. Deriving human rights from common property rights is subject to the same objection. Further, if my arguments against Risse's theory hold, then human rights are ancillary to a sufficientarian proviso on appropriation, which is analytically odd, to say least.

Finally, given that needs ground common ownership, and considering that common ownership is the non-parochial perspective that grounds human rights, why is the intermediate step necessary? Is it not simpler, and compelling to ground basic human rights on basic needs?

6.5 On the Scope of Sufficientarian Claims and Original Acquisition

So far, I have cast doubts on normative theories and doctrines that hold that natural resources –the global commons– are commonly owned by humankind. These fail because they aim to support the multifaceted cluster of deontic relations entailed by ownership rights with status-based arguments. Two relevant conclusions follow from this: there are no natural or pre-political ownership rights over natural resources; and if resources are unowned, then they could be appropriated. This final section briefly explores the implications of the shared habitation claim regarding our status towards ultra-terrestrial natural resources, and the question of first acquisition.

As I have argued, given the fact that our biological constitutions demand resources to survive, we have a sufficientarian claim to satisfy our basic biological needs, whose moral grounds are aptly captured by Risse's shared habitation claim. If one takes the shared habitation claim to the letter, it necessarily limits the scope of sufficientarian claims to our planet, since this is the only place in the universe where this holds. The earlier comparison with Mars'

conditions illustrates this clearly. Nevertheless, Risse does argues that shared habitation 'remains true as long as human life is earth-bound', specifying that 'If space travel expands humanity's habitat, we may have to reformulate this first claim.'[396] Later on the book he develops the thought: 'One way of comprehending the idea that outer space is a natural heritage of humanity is in terms of its potential for being subject to natural ownership rights should space travel expand humanity's habitat', arguing '*In principle*, the distinctively human life is not earth-bound, although it is for the foreseeable future. We should distinguish between theorizing about the distinctively human life and theorizing about what contingently but enduringly is our natural habitat now.'[397] On this view, since human nature is contingently earthbound, it follows that as we transcend our planet's border, the scope of normative principles expands together with our activities.

An argument could be made along these lines: (1) inasmuch as an atom of carbon or oxygen is exactly the same everywhere in the universe, then outer space resources are as equally capable of satisfying human needs as terrestrial resources; (2) considering that, as human population grows, so too will grow our species need for resources; and given that Earth is a 'closed system', it necessarily has a limited carrying capacity –the maximum population that can be sustained by an environment. Further, a significant subset of resources is non-renewable, and necessarily we will exhaust them. Thus, it is plausible to conjecture that at some point terrestrial resources will be insufficient to satisfy our species basic needs. Therefore, (3) the needs of a growing human population provide us with a moral justification for expanding the area where basic needs reign, grounding sufficientarian claims towards outer space. This could be formalized as follows:

S1: the satisfaction of human needs is morally relevant,

S2: human population is expanding,

[396] Risse, *OGJ*, p 113.
[397] Ibid., 118.

S3: Earth has a limited carrying capacity,

then

C: The satisfaction of human needs gives us moral reasons to exploit ultra-terrestrial resources

Recall that, on Risse's theory, the moral heavy-lifting is done by the shared habitation claim. Since this claim is contingently Earth-bound, it follows that as contingent facts change, the scope of the principle changes too. Hence, regardless of where (in the cosmos) natural resources are located, they fall under the scope of (distributive) justice insofar as they are capable of satisfying human needs (and wants). Taken to its extreme, this line of reasoning grounds sufficientarian claims towards the whole universe. However, it has already been suggested that needs must have limit where they reign. Surely there is something wrong somewhere in the argument to explain this inconsistency.

To identify what is counterintuitive in the argument, it might help to answer the question of what brings natural resources within the scope of justice. First, the extent and/or kind of resources within the scope of justice is instrumental and historically contingent (1.4.1), for it is a function of technological advancement. For example, for millennia hydrocarbons were irrelevant for justice, until we reached and had uses for them. In little over a century we exploited them to the point that we sooner rather than later we will a moral duty to de-fossilize our economy and way of life. Second, inasmuch as are a means with which agents purse their own self-determined ends,[398] they are of interest to justice.

6.6 Conclusion

The relevant takeaway from the previous discussion is not that the most developed common ownership theory fails to ground common ownership rights. Rather, Risse's theory is

[398] Notably, to date three countries –United States, Luxembourg, and United Arab Emirates– have passed legislation recognizing private property rights to those who venture off-Earth under their flags. So, an argument could be made that there are already competing claims over ultra-terrestrial resources, which brings them within the scope of justice.

relevant because it illustrates how the concept of common ownership is used in normative debates: to prescribe a certain course of action regarding the worst-off of the world. As we saw in the previous chapter, both the Outer Space Treaty and the Moon Agreement, while prohibiting all forms of appropriation, included clauses establishing that these resources should benefit everyone –all nations, regardless of their level of development. Such clauses did not have as their target the US or the Soviet Union, but all non-spacefaring nations, all those incapables of accessing, and thus directly benefiting from those resources. The underlying aim of these clauses, a charitable reading might assert, is not to transform all humans into co-owners of the universe, but to include, somehow, the interests of every human, prioritizing those with urgent needs. In his defence of the priority view, Parfit commented that political egalitarians were not necessarily concerned with strict equality, but with the plight of the worse off. Their motivation, he believed, was to prioritise them considering the overall availability of resources and their deprived situation.[399] One can see a similar motivation behind the doctrine of common ownership over natural resources. Its main purpose is to address a minimal demand of justice: that all human beings should be capable of living a life worth living. If one reads common ownership in general, and Risse's theory in particular, through the lens of the priority view, it becomes an attractive moral ideal, and most certainly an operationalizable appropriation proviso. But it should be clear that common ownership is a proxy for other normative considerations.

Accepting that natural resources are res nullius imposes the same challenge to all traditions of though: to morally justifying property rights . However, the burden is particularly heavy on egalitarians, and left-libertarians, who consider the natural world common to all. Without the assumption of common world ownership, those within these traditions have one less argument to justify their redistributive schemes. It does not follow from this that the whole

[399] Parfit.

natural world is simply up for grabs. Other normative considerations, like the importance of the (effective) exercise of autonomy, or instrumental considerations, should count as reasons to, at least, question the extent of ownership rights.

7 Off-Earth First Appropriation

> If a private astronaut clears a place on Mars, has he mixed his labor with (so that he comes to own) the whole planet, the whole uninhabited universe, or just a particular plot? Which plot does an act bring under ownership?
>
> **Robert Nozick, Anarchy, State, and Utopia**

Half a century ago, when Nozick pondered about Lockean astronauts, outer space and its resources entered philosophical debates, if at all, as part of creative thought experiments. Moreover, at the time, there were authors who believed that in modern societies original acquisition was a moot question, as there were no territories left unclaimed.[400] *Fast-forward to the present day, as private and state-funded efforts to exploit ultra-terrestrial resources and industrialize outer space make Nozick's hypothetical queries not just pressing practical concerns, but unavoidable normative challenges. This chapter addresses them head on.*

After outlining the general argument (7.1), the analysis identifies two type of arguments justifying appropriation, optimality, and permissibility arguments (7.2). Then, building on the discussion of the concept of self-ownership presented in chapter 4, it first argues that the right to use oneself, a Hohfeldian privilege, is the fundamental incident as it grants its holder with the authority over her life(7.3), and then explores the nature of the moral authority it entails (7.4). Finally, I vindicate the claim that SO necessarily entails the right to the fruits of one's labour (7.5). The analysis concludes with closing remarks (7.6).

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[400] For example, Mautner claimed 'any theory of original appropriation applies only to *res nullius*, to things that are nobody's private property. It is therefore of minor importance within modern societies, where the scope for original appropriation is insignicant. This is also Locke's opinion.' In "Locke on original appropriation" *American Philosophical Quarterly* 19, no. 3 (1982), pp 267-68. Brief overviews of this debate are found in Simmons, "Original-acquisition justifications of private property" *Social Philosophy and Policy* 11, no. 2 (1994); Sage, "Is original acquisition problematic?," in *Property Theory, Legal and Political Perspectives*, ed. James E Penner and Michael Otsuka, 2018.

7.1 Introduction (Conclusion)

A theory of original appropriation implies a series of successive challenges that are both analytical and normative in nature. Given that the argument is a little long, it might help if I summarise it at the start.

The inquiry commences by identifying two main justifications for appropriation: optimality and permissibility arguments. It defends the view that appropriation is morally permissible –not better, merely permissible (7.2). Justifying this stance unfolds in three stages, each of which explores a different dimension of the libertarian concept of self-ownership. The opening move utilizes O'Neill's taxonomy of obligations, arguing that at this general analytical level it is the counterpart of the forbearance obligation (7.3). Then, the analysis focuses exclusively on the right of self-ownership unpacking it in its constituents incidents. I argue that the right of use is the fundamental incident because it provides its holder with control over their property (herself). In the context SO, more than a right to self-use, it should be understood as a self-owner's control over her life.

The second move explores the nature of self-ownership: it construes it as an assertion of jurisdiction over the agent's life; an agent's self-generated authority to set the agenda for her life (7.4). Against this backdrop, appropriation is understood as an agent's exercise of choice over external objects, a choice others must respect. Two prominent objections to first appropriation focus on the unilateral duties it imposes on third parties. One questions whether physical acts can create rights, and their correlative duties, which presumes that acts of acquisition are distinct from extant property rights. I label this the disjunctive approach to the act/rights problem. I reject this view claiming that the act and the right are unified insofar as it is an exercise of choice; I label this the conjunctive approach. The second objection argues that appropriation transforms appropriators into *moral legislators*, because of the duties it imposes on third parties. Drawing on van der Vossen, I argue that appropriation does not imposes, but alters pre-existing duties, thus sidestepping the objection.

Finally, the analysis justifies the right to income, or the right to the fruits of one's labour, considering it ancillary to a self-owner agenda-setting authority (7.5). This tackles recent contributions which contend that SO does not entail the right to the fruits of one's labour.

7.2 On Justifying Acquisition

7.2.1 A Permissibility Approach

The first task is to elucidate what we should expect from a justification of first appropriation, also referred to as the problem of first appropriation, initial acquisition, or any combination of similar nouns and adjectives. Simmons suggests that justifying first appropriation, and by extension the institution of (private) ownership, consists mainly of rebutting moral objections to it. He identifies two types of objections: comparative objections, which hold that alternative arrangements are morally better or preferable, and non-comparative objections, which claim that acquisition and private property either involve sanctions or wrongdoings. Likewise, there are two main argumentative strategies to justify acquisition and private ownership: optimality and permissibility arguments. Both objections and justifications can be deployed at various analytical levels.[401]

An optimality justification underscores the comparative virtues or advantages of private ownership, over common or collective models (and to property-less arrangements). Private ownership might be optimal either because it promotes moral goals, or because it satisfies the demands of moral rules. These justifications can be utilised at two main analytical levels. General-type justifications aim to support broad institutional arrangements, say the free-market economy, whereas particular-kind justifications aim to demonstrate 'that some particular kind of private property system is the best possible property arrangement'.[402] Eg a particular-kind argument could be used to decide between competing 'varieties of capitalism'.[403]

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[401] Simmons, "Original-acquisition ".
[402] Ibid., 67.
[403] This is an enormous debate. Among others see Hancké, ed. *An introduction to varieties of capitalism*, 2009; Coates, ed. *Varieties of capitalism, varieties of approaches*, 2005.

Permissibility justifications, in contrast, do not appeal to the comparative advantages, or to the overall benefits of private ownership. As its name suggests, they simply assert that the action or institution in question is morally permissible. If it constitutes no wrong, or does not violate moral rules, and thus there are no substantive moral objections to it, then there are no reasons to prohibit it: 'To show this is to offer a "permissibility justification," an argument that private property does not violate basic moral rules and is not subject to other kinds of basic (noncomparative) moral objections.'[404] Permissibility arguments do not question the permissibility of alternative arrangements, do not entail that private ownership is the best possible alternative. However, they do entail that optimality is not a necessary condition for permissibility.

Simmons vindicates the optimality/permissibility distinction stressing that there is a tendency to confuse optimality with the only possible type of justification. He points out that the existence of alternatives to private ownership, in themselves, do not make private ownership immoral. Any system of rules located within the realm of the permissible, whether optimal or suboptimal, are equally legitimate. He concedes that optimality arguments might be of a 'stronger sort', but they are not the only justification possible: 'To suppose otherwise is to accept (mistakenly, in my opinion) the view that at least significant parts of morality must be maximizing, that for all possible institutional arrangements there must be top-to-bottom moral rankings within which only the top scores pass.'[405]

Permissibility arguments can be deployed at different levels. A particular-kind argument that supports a specific act of first appropriation could be generalized to consider morally permissible a system of rules –private ownership– that protect and promotes acts of appropriation. If legitimate acts of appropriation are performed within a morally permissible

[404] Simmons, "Original-acquisition ", p 68.
[405] Ibid.

institutional structure, then resulting pattern of the distribution are morally permissible too. If any and all resulting distribution from such a process are morally permissible, then they are necessarily just. To put it bluntly, even extremely unequal distributions are just if these are the result of permissible acts of appropriation. Is this libertarian conclusion warranted?

7.2.2 On Legitimacy and Justice in Distributions

In his discussion of Nozick's *how liberty upsets patterns* argument, Cohen argued that distributions are not simply just or unjust, as they could additionally be deemed fair, unanimous, and/or legitimate. In this context, he defines legitimacy as the property that something has when no one has the right to complain about its character, or when no-one has a just grievance against it.[406] Cohen stresses that it is logically possible for a distribution to be legitimate, because it is the result of individual choices, yet unjust, because it is unequal. If this holds, it puts into question the Nozickian claim that 'whatever arises from a just situation by just steps is itself just.'[407] Further, it questions the institution of private ownership, for it might as well be legitimate, yet unjust.

Erick Mack has defended Nozick's argument from Cohen's critique focusing on some questionable exegetical decisions that the latter made in analysing the former. Mack offers a reconstruction of Nozick's argument that is both more charitable and analytically plausible than Cohen's account, and consequently upholds the so-called anti-egalitarian conclusion derived from the self-ownership thesis.[408] I aim for the same end through different means, approaching the problem from a different angle.

Nozick's claim that just steps lead to just distributions of holdings poses a challenge to what he labels 'pattern theorists': they are obligated to provide an account of how just steps

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[406] Cohen, "Fairness and legitimacy in justice, and: does option luck ever preserve justice," in *Hillel Steiner and the Anatomy of Justice: Themes and Challenges*, ed. Stephen de Wijze, et al., 2009, p 4.
[407] Nozick, p 151.
[408] Mack, "Self-ownership, Marxism, and egalitarianism: Part I: Challenges to historical entitlement" *Politics, Philosophy & Economics* 1, no. 1 (2002).

can *infect* the final distribution with injustice. Cohen's distinction is a direct response to this, arguing that the criteria with which we judge an initial distribution is different from the criteria with which we evaluate the justness of the steps that leads to it. Specifically, Cohen argues that final distributions are to be judged by the just content of the initial distribution, and by the just character of the actions that transform the initial distribution into the final distribution.[409] However, recall that in his argument individual choices are legitimate acts. Consequently, to vindicate that T2 is a legitimate yet unjust distribution it must be demonstrated the *character* of the actions that transform T1 into T2 are unjust. Cohen only suggests its logical possibility, but fails to show how a legitimate act could lead to an unjust result –distribution.

Further, it could be argued that the onus of justification falls on third parties: others have to demonstrate how or why the character of a legitimate act of appropriation is unjust. what makes something unjust is an unequal distribution. Why the burden of proof falls on third parties? Because there is a presumption that an unequal distribution resulting from legitimate acts is a priori just. This presumption can be supported appealing to what Gaus defines as one of the core elements of liberal theories: that they treat the principle of liberty as normatively basic, and consequently what must be justified is not liberty but restrictions on liberty.[410] If liberty is normatively basic, then so must be legitimate exercises of liberty. Now, recall that when discussing the moral grounds of common ownership of the world, Cohen's objected to common ownership on the grounds that it implied a veto power on the will of others, a stance that egalitarians concerned with real freedom and autonomy, like him, could not support.[411] Given Cohen's criteria, this veto power most certainly constitutes a just grievance against such a system of rules. If common ownership is impermissible because it limits the autonomy of

[409] Cohen, "Fairness ", pp 6-8.
[410] Gaus, Justificatory Liberalism: An Essay on Epistemology and Political Theory 1996, p Chapter 10., see also Gaus et al., Liberalism, in Stanford Encyclopedia of Philosophy ed^eds Edward N. Zalta.Metaphysics Research Lab, Standford University. Fall.
[411] Cohen, "Self-ownership, world-ownership, and equality", pp 14-15, and chapter 4.

agents, by parity of reason the actions and institutions that protect and promote the autonomy of agents should be considered both legitimate and permissible (and desirable I would add). Hence, legitimate exercises of liberty are a priori just, and so are the resulting distributions, even if they are unequal.

To sum up, appropriation of unowned resources, and by extension private ownership, should be consider prima facie morally permissible, even if it leads to suboptimal results, because it is respectful of the autonomy of agents. Permissibility does not imply the stronger claim that appropriation and private ownership are optimal or better than alternatives, but the modest claim that there are no prima facie reasons to prohibit it. Assuming that off-Earth resources can be appropriated, the subsequent task is to specify the conditions and circumstances that make acts of appropriation legitimate and permissible, which is tackled in the next section.

Before expounding the theory, I cannot but highlight a passing comment made by Simmons that is quite relevant in the context of this project. He explains that the 'original acquisition' in need of being justified may be either 'the first instances of legitimate private property in human history', or the first legitimate acquisition that might 'occur in the future on Mars'.[412] Although this thesis' main concern is future appropriation of unowned ultra-terrestrial resources, there are no a priori reasons why the proposed principles could not be applied retrospectively to terrestrial resources. Evidently, doing so will require auxiliary principles to properly address the multifaceted historical injustices that have been committed. But ascertaining the extensional fit of the theory should wait for ulterior enquiries.

[412] Simmons, "Original-acquisition ", p 63.

7.3 On the Structure of Self-Ownership

As argued in chapter 2, O'Neill's a taxonomy and Hohfeld scheme are compatible analytical tools. The former classifies obligations, whilst the latter decomposes rights assertions into its conforming atoms. One of the four classes of obligations identified by O'Neill are universal, perfect obligations, which she defines as those that (i) we all held, (ii) are owed to everyone, and therefore (iii) have correlative universal, perfect rights –those held by all. I argue that Hohfeld scheme can be used to better understand the universal, perfect right correlative to a universal, perfect obligation. Consequently, I will utilize Hohfeld scheme to ascertain the structure of the incidents comprising SO.

The argument rests on two intertwined tenets: on the analytical premiss that SO can be unpacked in Hohfeld-Honoré incidents of ownership; and on the normative contention that one of the incidents is fundamental. To be clear, I am not arguing that SO is merely a Hohfeldian claim, and FO is its correlative duty. I am arguing that SO is a complex right, comprising various incidents of ownership. Thus, two levels of analysis can be identified: first, a course approach, or general level analysis, centred on the relation between FO qua ethical principle, and SO qua liberty right (broadly understood); and second, a fine-grained analysis focusing on the incidents comprising SO, and their internal structure.

The latter approach is consistent with constructivism, the methodological stance that the elements conforming ethical principles must be put together coherently. Given that SO is usually understood as the right to act in accordance with one's own choices, it follows that the fundamental incident of SO must take the form of a privilege eg 'agents have a *self-ownership* right to *act in accordance with their choices*. However, recent articulations have treated claims as the fundamental element of SO.[413] As will become clear, this construal is riddled with

[413] On this view, it could plausibly take the form '*Agent A* has a *self-ownership* right that *other respect her choices* (which implies that '*other agents* have a *non-interference* duty to *Agent A*').

analytical flaws, failing to describe facts about agents, and failing to capture regular intuitions about agents and their relationship with their bodies.

7.3.1 Self-Ownership, a Hohfeldian Blueprint

Among analyses of SO utilizing Hohfeldian incidents, one of the most influential is Control Self-Ownership (CSO),[414] forwarded by John Christman.[415] CSO groups ownership incidents in two sets: (a) a cluster of privileges and powers comprising the rights to possess, use, manage, alienate, transfer, and gain income from property; and (b) a cluster of claims and immunities consisting of the rights to security, transmissibility (including after death), and absence of term. On this view, (b) are ancillary to (a). When applying this scheme to self-ownership, Christman subdivides (a) in two subsets. Firstly, 'control rights' that recognize its holder as the 'final arbiter' in matters pertaining to the self-owner in question. These are portrayed as innate or status-based rights, in that they are not conditional on the performance of actions, nor are they subject to veto power of third parties. Secondly, the right to the income from assets, also known as the right to the fruits of one's labour.[416] While Christman utilizes the term rights to refer to ownership incidents; for clarity's sake from now on I will refer to them as incidents.

Christman scheme sufficiently captures the gist of SO, though two observations must be made. First, the author transposes Honoré's ownership incidents to self–ownership, presuming that the sets of incidents that make up legal rights and moral rights are coextensive. As argued before, considering that the nature of the property in question determines the

[414] Taylor observes that, explicitly or implicitly, CSO has been endorsed by authors of various traditions of thought, from libertarians to egalitarians, including Dworkin and Rawls –although the latter's is the most 'oblique' one.Taylor, "Self-ownership and the limits of libertarianism" *Social Theory and Practice* 31, no. 4 (2005), p 474 n22.

[415] Christman, "Self-ownership, equality, and the structure of property rights" *Political Theory* 19, no. 1 (1991). Definitions built on these same lines can be found, among others, in Brenkert, "Self-ownership, freedom, and autonomy" *The Journal of Ethics* 2, no. 1 (1998); Narveson, "Property rights: Original acquisition and Lockean provisos" *Public Affairs Quarterly* 13, no. 3 (1999); Otsuka, *Libertarianism without Inequality*; Taylor, "A Kantian defense of self-ownership"; Vallentyne et al.

[416] Christman, "Self-ownership", p 29.

incidents comprising the set (4.4). Accordingly, the physical nature of human beings prevents two incidents of Christman's group (a) from being part of the catalogue of SO: the incidents of right to possess and right of transfer. In self-ownership possession is rendered moot because persons admit only one possible candidate 'to have exclusive physical control', namely agents themselves.[417] I contend that in self-ownership the normatively salient incident is the right to use, which has the form of a privilege (further developed below).[418] For the same reason, the incident of transfer is equally immaterial in the context of self-ownership, because no one can transfer her body or mind to other mind or body.[419]

Second, Christman vindicates the control rights/income rights distinction arguing that these two sets demand different moral justification: control-related incidents are to be justified in relation to essential interests of individuals, such as autonomy or self-determination, whereas income-related incidents are to be justified in relation to principles governing the distribution of the goods in the economy. Taylor indirectly supports the implications derived from this distinction, concluding that CSO permits individuals to sell their entire bodies –voluntary slavery or indentured servitude, or parts of them –organs for transplants, yet they are not necessarily entitled to the proceeds.[420] Contra Christman and Taylor, in 7.5 I argue that the right to income, like all self-ownership incidents, is ancillary to an agent's agenda-setting authority over her life, and therefore its justification is not a function of the institutional setting –the economy. The logically prior undertaking, though, is to demonstrate that any plausible construal of self-ownership must be centred on control.

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[417] Perhaps the exception that questions this claim is hypnotism. On this, I must admit my lack of knowledge, and thus the ability to evaluate if and how this affects the general argument.
[418] On this, in his discussion of Kant's justification of rightful possession, Westphal explicates that given the complexity of ownership rights (ie Honoré's 11 incidents), they simple cannot be justified a priori. This is why Kant does not tries to justify property (eigentum) but possession (besitz), specifically the justification of the rights to possess and to use, which Westphal labels 'rights to usufruct' or 'usufructuary rights'.Westphal. chapter 8
[419] Recall that Hohfeld did not believed that there was an actual 'transfer' of rights' because, at an ontological level, rights are not transferred from one owner to the other, but they are simultaneously extinguished and created in the previous and new owner respectively (4.4.2).
[420] Taylor, "Self-ownership", pp 471-72.

7.3.2 Self-Ownership's core Incident: Control, not Exclusion

The reader might fairly ask, why embark on such a task? Is it not control self-ownership self-explanatory enough?

Despite its name, authors who have recently use CSO do not consider its fundamental element the right to have control over oneself, but the right to exclude others. Taylor defines CSO as 'the core of the libertarian conception of self-ownership',[421] yet contends 'the right of exclusion plays a central justificatory role with respect to the other incidents.'[422] Notice that Taylor implicitly subscribes to Honoré's thesis, that at least one incident is normatively distinct from the others, since he argues that exclusion has a 'central justificatory role'. For his part, Moller considers CSO a plausible articulation of self-ownership, yet criticises it on the grounds that it cannot justify the right to exclude others from exercising control, implicitly attributing the right to exclusion a central or fundamental role.[423] Similarly, in *Imposing Duties and Original Appropriation* libertarian author van der Vossen argues that there is a natural right to own property, which he defines as a claim-right –hence the focus on imposing duties. He contends that the justification of property rights over external objects implies, first, justifying 'the kind of exclusive rights over goods or land' characteristic of these rights, and second, justifying how such rights come into being. He argues that individuals unilaterally bring about property rights through appropriation acts, because there is a natural right to appropriate, and that this is fundamentally a claim-right. However, he maintains that it is not a *duty-creating* but a *duty-altering* claim-right, in that appropriation modifies pre-existing duties, like duties of civility (more on this later).[424]

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[421] Ibid., 471.
[422] Ibid., 467.
[423] Moller, p 198.
[424] van der Vossen, "Imposing Duties and Original Appropriation" *Journal of Political Philosophy* 23, no. 1 (2015).

This brief review illustrates how exclusion-based approaches to SO are prevalent in the literature. Making exclusion the fundamental element of self-ownership is quite odd. To begin with, it transforms CSO into a misnomer, as it should be labelled exclusion self-ownership. More analytically relevant, this view presumes that a Hohfeldian claim is the fundamental incident. The implications of this are exemplified in Taylor's analysis.

Taylor argues that the incident of right of use can be thought of as 'a temporary right of exclusion contingent upon use'. Translated to Hohfeldian nomenclature, Taylor is arguing that the *privilege* of use is a temporary *claim* of exclusion contingent upon use. This implies that, somehow, when using a resource a Hohfeldian claim is transfigured into a privilege. No arguments are offered to justify the transformation. He fosters this thesis by comparing it with claiming a place in an open-seating event, or a particular spot on a park by putting a blanket: 'Understood in this way, the right of exclusion simply implies the right of use: a permanent right of exclusion by definition includes a temporary right of exclusion.'[425] Translated to Hohfeldian nomenclature, it means that the claim of exclusion implies the privilege of use: a permanent claim of exclusion includes a temporary claim of exclusion. The second clause is a truism, the former is unwarranted. On this view, the right of use is either a subset of the right to exclude, or a different incarnation of it, which manifests itself insofar as one uses a resource. In addition to being a very laboured way to justify the right of use, the example does not deliver what is expected. This construal is question begging, as it presupposes what it aims to justify: the *right to use*.

First, an open-seating event implies that individuals have the right to sit in any available seat –those not in use. The same holds for all public resources, like parks or beaches, everyone

[425] Taylor, "Self-ownership", p 467. It must be highlighted that, in a footnote to this quote, he briefly considers the right of use not as a claim, but as a liberty right, conceding that 'If so, the right of use will not necessarily follow from the right of exclusion.' However, the example he puts forth actually denies the liberty to use: 'For example, a trustee may have a right to exclude others from using a resource though he is not at liberty to use it himself.'In ibid. (n 7)

has a right to access and use. These two rights have the logical form of privileges, for they describe actions that are to be performed by the titleholder, who has the discretion to decide whether to access and use these resources, or not. The right to exclude appears upon the scene only when an individual effectively uses the resource in question, when she voluntarily exercises these privileges by performing the permitted action. For, if anyone could legitimately remove another person from a bench on a park, then it could hardly be said that she who sat first had a right to use it to begin with. Borrowing Kolers' nomenclature, use is the achievement criterion, and thus when agents use a resource said act is rights-creating (more later). Use logically and temporarily precedes exclusion because a distinctive characteristic of public resources is that everyone is entitled to use them in non-harmful ways, and while using them, they have a right to do so free from interferences –hence the right to exclude.

Use logically precedes exclusion, because when agents act in and on the world by exercising privileges, these actions need to be protected by accompanying Hohfeldian claims. If an agent never performs normatively relevant acts, if it somehow merely exists, then there is no action that third parties can interfere with. One of the reasons I offered in chapter 3 to consider privileges fundamental was that they make other incidents intelligible. This discussion can help to illustrate this idea. Say an agent holds a 'naked' Hohfeldian claim regarding a bench in a park, with no accompanying privileges. In that scenario, she will have the right to exclude third parties from it, but she could not sit on it either. That does not make much sense. Conversely, if the agent only holds a 'naked' privilege, with no accompanying claim, she will be able to use the bench, but it could be moved away from it arbitrarily. This makes more sense, for it captures the function of the right to use –titleholders can effectively use it, yet is at odds with regular intuitions of what it implies to use public resources. Privileges, on their own, correctly represent what it is to be entitled to use a resource, but they are insufficient to safeguard the agenda the agent has set for it. This could be generalized as follows: privileges

are necessary but insufficient (conditions) to justify the right of use, whereas claims are neither necessary nor sufficient to justify use. If this holds, then the former are normatively fundamental. Further, considering that claims are necessary to protect effective use –not to justify it, this vindicates the adjacent contention that complex rights consist of various Hohfeldian incidents. We analyse them separately, to better ascertain their normative implications, but they cannot be considered on their own.

Now, returning to the unlikely, though not impossible case of the merely existing agent eg a comatose person or someone suffering the locked-in syndrome.[426] If the concern is direct interferences with his body –eg battery, harmful intrusions against others are banned by the broad formula of 'general constraints on actions' that govern us all. (Such a general rule could plausibly be described as an O'Neillian universal, imperfect duty of non-interference.) Hence, the key concern here is not interferences with agents themselves, but with their actions –and by extension their ends.

Use temporarily precedes exclusion, because use signals other agents that a resource –eg a park bench– is under a temporary rule of exclusion. Consider the opposite: if exclusion preceded use, then how would third parties know that they have a duty to exclude themselves from a resource? Such a construal would entail, for example, that prior to using, others should embark on a consultation process with potential users in the near vicinity to find out if they have exercised, somehow, their right to exclude. If such a process were a demand of justice, it would render justice morally exhausting, and practically unfeasible, as it would require people to become (moral) pollsters before acting. Taken together, the foregoing objections show that

[426] Locked-in syndrome, or pseudocoma, describes patients who are awake and conscious but selectively deefferented, ie have no means of producing speech, limb or facial movements. Acute ventral pontine lesions are its most common cause. Laureys et al., "The locked-in syndrome: what is it like to be conscious but paralyzed and voiceless?" *Progress in brain research* 150 (2005).

Taylor's argument that the right of exclusion implies the right of use is question begging, for it presupposes what it aims to justify: the right to use.

Now, let us consider a different view of the problematic implications of exclusion-centred articulations of SO. Christman opens his critique of self-ownership stating, 'A powerful way of expressing the principle of individual liberty is to claim that every individual has full "property rights" over her body, skills, and labor.' Emphasizing 'those rights, liberties, and powers that are associated with the ownership of property comprise the rightful sovereignty that each person has over herself within the proscription of harm to others. In short, people own themselves.'[427] If this statement *powerfully* captures the principle of individual liberty, it is because it puts front and centre self-owners, not third parties, or so I contend. One of the criticisms levelled at libertarianism points to its distinctive nomenclature: owning oneself promotes a proprietarian conception of justice, which allegedly does not capture what justice is (nor what agents are). Even conceding that the nomenclature is not the most appropriate or appealing, I argue that when construe as a hermeneutic device, property rights convey the relation between an agent and her body. This is so, inter alia, because the focal point of ownership is the titleholder, not third parties. And this is something that Taylor aptly conveys: 'To have control rights over an object is to possess final authority regarding the disposition of that object and to be free from interference in the exercise of that authority –unless, of course, the rights of others are being threatened.'[428] This recognition of the central role that 'having final authority' has in (self) ownership makes more puzzling the claim that exclusion, and thus Hohfeldian claims, has a fundamental role in self-ownership.

It could be objected that the previous examples refer to public resources, state-owned spaces which, by definition, belong to everyone. Inasmuch as they are commonly owned,

[427] Christman, "Self-ownership", p 28.
[428] Taylor, "Self-ownership", p 467.

everyone has an equal right of use, and consequently the salient question is exclusion, not use. However, this line of reasoning further supports the claim that public places presuppose a right to use. States claim control over their territories, which in the territorial rights literature is usually justified as a political community's right to pursue their collective conception of the good free from external interferences. This involves legitimately excluding non-members from the territory. As such, public spaces entail two distinct sets of deontic relations, those linking members into a common political community (which allegedly justifies its right to use and control the territory), and those linking the community with non-members –foreigners. Notice, that a political community's right to exclude others is a necessary consequence of having a right to use and control the territory in question.

A relative objection could argue that public resources have limited uses, therefore framing the discussion in terms of ownership is misleading. Honoré's essay could help to tackle this concern. He explains that 'the right (liberty) to use at one's discretion has rightly been recognized as a cardinal feature of ownership,' noting that the fact that there are limitations on use does not diminishes its importance 'since the standard limitations are, in general, rather precisely defined, while the permissible types of use constitute an open list.[429] In other words, limitations on use do not make discretional privileges less relevant, they only establish that not all potential uses are morally permissible.

The previous discussion supports the contention that control, not exclusion, is the fundamental feature of SO.

7.3.3 Rejecting a Boundary Articulation of SO

Now, let us explore the implications of giving the right of exclusion a 'central justificatory role' in self-ownership. More concretely, the implications of considering self-ownership as 'a right of exclusion contingent upon use'. Recall that exclusion-based

[429] Honoré, "Ownership", p 233.

articulations of ownership can be characterized as a boundary approach, as the sphere of ownership is demarcated by the duty not to trespass. As such, a boundary approach relies on a process of elimination to identify the owner, as it is the last person standing after everyone else has been excluded from the object in question (3.3). When this formula is applied to self-ownership, it results in the following definition: the self-owner is the last person standing after everyone has been eliminated as a potential candidate to be the owner of *a* self. This view does not capture facts about a person's relationship with her body and herself, nor captures regular intuitions about personal autonomy and freedom.

On a boundary approach, a self-owner would be justified to perform action A, or to pursue end E, not because it is her life or because she is an autonomous being, but because she has a veto power on the opinions of others. Thus, identifying self-owners depends on a process of elimination of opinions, in which the one left standing would signal who the self-owner is. Further, a self-owner's authority to set the agenda for her life would be contingent upon using herself. Two salient problems follow from this. First, it misrepresents the logical structure to our bodies, claiming that the right to *have* our bodies is conditional upon using ourselves. As Aristotle explained millennia ago, we do not acquire organs or senses –eg eyes and sight– by seeing often or hearing often, 'we had them before we used them, and did not acquire them by using them.'[430] Likewise, we use our bodies because we have them, we did and do not acquire them by using them. Hence, it is simply not true that we have a right to exclude others because we use ourselves. The second problem of assuming that exclusion precedes control is that it demands providing an account of the class of actions that constitute 'self-use'. Arguably, voluntary, purposeful actions should count as such. But what about automatic bodily functions and processes, such as breathing or sleeping, do they count as self-use? And what about those in the frontiers of justice, like children, severely disabled people, new-borns, or those suffering

[430] Aristotle, Nicomachean Ethics 2014, p 24 (1103b).

locked-in syndrome, do they use themselves, and thus exclude others? A clear criterion is needed to answer these inevitable questions.

Furthermore, a boundary approach to self-ownership questions the idea that there are innate or status-based rights, as agents have rights to themselves iff they use themselves. If SO is contingent upon successful performance of the actions defined by the subsidiary theory of self-use, in the event of an unsuccessful performance, does the agent fails to own itself? In those failed instances, who would be the self-owner then? Would it make sense to speak of self-owners if a different party is the owner?

Taken together, the previous arguments support the conclusion that plausible articulations of self-ownership must be centred on a Hohfeldian privilege. Ownership as an agenda-setting authority puts front and centre the titleholder. When applied to self-ownership, it portrays self-owners as having a final decision-making authority over themselves effectively transforms self-owners into the authors of their lives. This is far from controversial. Any liberal theory should endorse it, be that egalitarian or libertarian. To be clear, I am not arguing that exclusion is analytically or normatively irrelevant. I only reject the contention that exclusion has a justificatory role in self-ownership. Exclusion plays a prominent, yet subordinate role in SO, as the Hohfeldian claims that creates on other duties of exclusion are ancillary to the privileges that confer agents discretion upon themselves.

With the insights of this fine-grained level of analysis of self-ownership, we are in a position to better assess the implications of SO at a broader, general level. SO is a complex molecular right comprising a constellation of Hohfeldian incidents. SO is generally understood as the right to act freely, at our own discretion. Presumably, it is the more extensive and robust right a person can have over herself, compatible with others having such right. The emphasis on discretion of this construal bridges SO with Hohfeldian privileges. As soon as this privilege

is exercised, an accompanying claim appears on the scene to provide the necessary protections. The claim is ancillary to the privilege.

The previous analysis permits to vindicate the claim that self-ownership is the universal liberty right correlative to the forbearance obligation. Recall that according to O'Neill's taxonomy of obligations, universal, perfect obligations have corresponding universal, perfect rights. On the one hand, the forbearance obligation stipulates that we owe all other agents to forbear from imposing ourselves on others. On the other, the right of self-ownership asserts that all moral agents have the authority to set the agenda for their lives. This construal satisfies the correlation axiom, for both positions are mutually inferable: the privileges of self-owners (the obligors) can be inferred by the obligations held the obligees. A natural worry might be how to justify a universal obligation. But to deny the existence of such an obligation, it necessarily implies to deny the existence of universal rights, such as SO:

> Many liberal advocates of rights (above all libertarians) insist that universal rights not only may but must be liberty rights to non-interference, and that the corresponding obligations not only may but must be universal obligations to respect others' liberties. Certainly, if a universal right is a liberty right, the corresponding obligation must be held by all others.[431]

So far I have described the logical and normative structure of SO, and argued that it is a universal, perfect right. Now the challenge is to morally justify the authority SO bestows on self-owners.

7.4 On the Nature of Self-Ownership

7.4.1 A Jurisdictional Articulation

In *The Problem of Self-Ownership* van der Vossen and Schmidtz comment that in everyday discussions people never use the expression 'It's my self', but rather the more common 'It's my life'. Among other connotations, the latter is used as a form to assert that whatever decision one is taking, however one is living its own life, it is we who decide what to

[431] O'Neill, *TJV*, p 137.

do, regardless of the opinions of others. In doing so, agents assert a claim of ownership over themselves, including bodies, mind, abilities, and so on. What is at stake, the authors emphasise, is not the possession of a thing (however decomposable the self might be), but a claim about jurisdiction. Unambiguously define self-ownership as 'the idea of settling on jurisdictions as an alternative to thinking that we need consensus on values and thus need to dominate and subjugate those whose values may lead them to choose differently if we leave them to their own devices.' Further, van der Vossen and Schmidtz explain that SO is not foundational (fundamental) in the manner that egalitarian theories treat the principle of equality as primary moral value. In contrast, 'Self-ownership is the political compromise that defuses the threat that we otherwise pose to each other. Self-ownership enables people with different values to be better off living together.'[432] On this view, self-ownership is not a moral or political premiss, but a governing principle to norm social interactions, based on a mutual recognition of authority. I label this a jurisdictional articulation of self-ownership.

Although van der Vossen and Schmidtz only sketch its contours, it seems to me that this jurisdictional construal represents an extremely promising approach to self-ownership, one worth exploring. Accordingly, I borrow it and further develop it because its core idea bridges naturally the forbearance obligation with the right of self-ownership. In the contemporary debate, a common characterization of ownership describes it as having the final say in regard to a thing. As has been stated in different chapters, Lockeans like Waldron, egalitarians like Christman and Armstrong, Kantians like Ripstein and Katz, and libertarians like Taylor, all endorse a version of this core idea. Self-ownership describes a moral agent's authority to set the agenda for her life. Under this prism, the latter could be reformulated as

> *Forbearance obligation (FO)*: in matters pertaining access to, use, and distribution of outer space natural resources, including their benefits, and provided that all relevant agents are located above the sufficientarian threshold, agents have an

[432] Van Der Vossen and Schmidtz, p 4.

> obligation to forbear from imposing their decisions on others, because others are self-legislators whose agenda-setting authority must be respected.

I argue that, as opposed to the authority of ownership, which is bestowed on agents by the institutional setting, a self-owner's authority originates in her, it is self-generated.

The etymology of *auctoritas* refers to the Latin verb *augere*, which means increase, strengthen, expand, complete, support, give fullness to something.[433] In Roman Law authority denoted the prestige possessed by leading citizens, like ex-consuls, as a result of their rank and services to the republic, and the weight their views carried in consequence of that prestige.[434] Authority connoted both something that is self-generated (auto), as well as author or master, as in she who creates. As point of fact, the lexeme of authority is *author*. Thus, it is plausible to argue that the authority of self-owners is self-generated. The idea or possibility of a self-generating power or authority is quite ubiquitous in the Western moral debate, though it is seldom expressed in these terms. For example, Kant's innate right to freedom is underpinned by the idea of a self-generated authority. He understood rights as moral capacities for putting others under obligations. However, on his view morality forbids the unilateral imposition of obligations. Thus, Kant considered all rights as acquired, or positive, in that agents must perform certain actions, like freely celebrating a contract or making a promise, for the obligation to be legitimate. These actions directly or indirectly imply the consent of those involved, thus legitimizing the newly imposed or, should we say, freely assumed obligations. The one exception to this general rule is the *innate right to freedom*, which Kant contended 'belongs to everyone by nature, independently of any act that would establish a right', and defined as 'independence from being constrained by another's choice'.[435] That is, the only

[433] Domingo, "The Binomial Auctoritas-Potestas in Roman and Modern Law" *Persona & Derecho* 37 (1997).
[434] Rich, "Making the Emergency Permanent: auctoritas, potestas and the Evolution of the Principate of Augustus" *Collection de l'Ecole française de Rome* 458 (2012).
[435] Kant, *Practical Philosophy*, p 393.

obligation that we owe others by virtue of their nature as rational beings –self-legislators– is to respect their choices, and therefore we must forbear from imposing ourselves on others.

A similar line of reasoning is found in Joseph Raz's notion of personal autonomy, which sees the autonomous person as the author of her life. In his view, significantly autonomous persons are those that, in addition to choosing between options after appraising relevant information, can adopt and pursue personal projects, develop relationships, and accept commitments: 'In a word, significantly autonomous agents are part creators of their own moral world. Persons who are part creators of their own moral world have a commitment to projects, relationships, and causes which affects the kind of life that is for them worth living.'[436]

Given all of the above, it should not be controversial to construe the right of self-ownership as a self-generated authority to set the agenda for one's own life. As van der Vossen and Schmidtz highlight, people live their lives assuming that they are the authors of it, because they are the only ones legitimately authorized to make relevant decisions, free from the burden of the other people's opinions. The maxim *forbear to impose yourself on others* is not contradictory, for if everyone were to adopt it there would be no interferences, and any reasonable agent would will that others do not meddle with her affairs.

Conceding that a self-generated authority exists, what or where is the area of its jurisdiction, where it can legitimately dictate the law? How is it determined? While I would argue that this is a practical matter, which requires specific contextual information to properly determined what is sanctioned and forbidden, in any given circumstance eg the Patagonian hiker example. Nozick offers a suitable theoretical avenue to approach the problem. When

[436] Raz, The morality of freedom 1986, p 154. Raz understands autonomy as a matter of degree, identifying two senses, as a capacity and as an achievement. The former refers to what was discussed in section 2.2, as the capacity for practical reasoning, to discern and make informed decisions. The latter refers to the exercise of this capacity. Although complete autonomy in this latter sense is an impossibility, he asserts that insofar as autonomy is a scalar capacity, then achieving autonomy is a matter of degrees too.

discussing natural rights –which comprises his idea of rights as side-constraints on action, and the justification of prohibiting certain classes of actions, he asserts:

> A line (or hyper-plane) circumscribes an area in moral space around an individual. Locke holds that this line is determined by an individual's natural rights, which limit the action of others.' Non-Lockeans view other considerations as setting the position and contour of the line.[437]

This metaphor can be stretched to drive home the internal structure of self-ownership incidents: Hohfeldian privileges –right of use– draw the hyper-plane of the authority of self-owners. Hohfeldian claims are charged with holding the line by protecting the choices of self-owners; privileges determine the sphere of authority, claims guard it.

Mutatis mutanda we can transpose this analysis to argue that the right of self-ownership correlates with the forbearance obligation. SO determines the range of available options to agents, self-owners and third parties. FO qua ethical principle provides reasons for acting towards other self-owners in a specific manner: as authors of their lives whose decisions I must respect. SO draws multiple hyperplanes in the moral space, FO determines, and justifies, what it means to respect other's hyperplanes. Framed in these terms, more than a novel ethical principle, the forbearance obligation is an effort to synthesize different expressions of a persistent, pervasive moral ideal: that we, and not others, are morally in charge of our bodies and our persons.[438] Whoever considers this moral ideal worth pursuing should be prepared to recognize that her actions cannot interfere with the life plans of others. It must be willing to recognize that she has an obligation not to impose her will on third parties, for if she wants others to respect her life plans, it is a demand of reason that she owes them not to meddle with theirs. This construal vindicates the assertion that FO is the fundamental element of this normative correlation, for it prescribes how agents must act, whilst SO delineates the limits of actions.

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[437] Nozick, p 57.
[438] Vallentyne et al., p 208.

If FO determines how ought I act towards others, does it permit independent appropriation of external resources? Put differently, is first appropriation compatible with FO?

7.4.2 First Appropriation and the Act/Right Problem

The main problem with appropriation, it is usually argued, is that it transforms appropriators into moral legislators, for they unilaterally arrogate themselves the (Hohfeldian) power to alter the normative status of third parties, creating duties ex nihilo that they would not have otherwise. What kind of act can simultaneously bring about entitlements towards an external object, and impose duties on third parties in regard to that object? A persuasive answer must provide an account of the nature of the act itself, and address the moral legislator objection.

Sage observes that in discussions about appropriation there is a tendency to separate acts of acquisition from extant property rights. That is, physical acts –possession, labouring, etc.– and property rights are considered two distinct, unrelated entities. I label this the disjunctive approach to the act/rights problem. In essence, this view questions how a physical act, such as picking an apple, creates a moral property right over it. The problem is not with the physical act per se, but the alleged disconnection between the act and right. For example, Waldron argues that the duty not to knock the food out of the hand of someone who is eating it derives from the general duty not to assault. The limit of this view is that such duty protects only de facto physical possession, but cannot ground property rights.[439] In a similar vein, Scanlon presents a hypothetical in which a group displaces a family from their plot in the wilderness, keeping their crops. Although the situation is clearly wrong, he claims that it is wrong only if we suppose that 'what is taken is of use to the person who loses it'.[440] That is, it is wrong to take away what the family needs or will be able to use, but any surplus production

[439] Quoted in Sage, "original acquisition", p 103.
[440] As quoted in ibid., 104.

is up for grabs, so to speak. Epstein epitomized the disjunctive view when he argued that there is 'an unbridgeable logical gap between the *fact* of possession and the *right* to possession.'[441]

The problem with the disjunctive thesis, Sage explains, is that 'If the act and a property right have a distinct character or significance, nothing we say about one of them –that it exists, that it is justified, etc.– itself tells us anything about the other.'[442] On this view, these positions are not mutually inferable; there is no correlativity axioma. This turns the justification of appropriation a seemingly insurmountable analytical task. For, if the act and the right are as distinct and independent from each other as portrayed, then no human action will ever be capable of carving a distinguishable hyper-plane in the moral space. To frame the problem in Kolers' terms, no physical act could possibly 'achieve' a moral right.

Moreover, if taken to the letter, the disjunctive thesis implies that human actions do not have normative significance, which has quite significant implications. Circumscribed to the property debate, it renders moot the maker's right doctrine, and self-ownership. For, if picking an apple is different from an entitlement towards it, and both are different from the ownership that I have of my body, then self-ownership cannot justify a property right over the apple, because the rights towards myself begin and end in myself (body). Subsequently, it challenges the idea that we are entitled to the fruits of our labour, thus making immaterial both libertarianism and Marxism. Similarly, the luck-egalitarianism claim that justice should be choice-sensitive but luck-insensitive loses half of its formula, as there are no analytical tools with which to 'sense' the effects of choice on justice. More generally, it puts into question the ideal of merit in morality, as our interactions with the external world do not impact the normative landscape. Although enumerating its counterintuitive implications does not conclusively refute the disjunctive thesis, it does give us reasons to explore alternatives.

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[441] As quoted in ibid., 105.
[442] Ibid., 106.

Sage offers a solution to the act/rights problem, which I label the conjunctive approach. Taking as a premiss the 'familiar' principle that each person must respect each other's choice, Sage construes acts of first appropriation eminently as exercises of choice: 'an act of original acquisition, whatever else it may also be, always has a certain character: it is a person's exercise of choice over an object.'[443] On this view, there is no act-creates-rights problem, and thus no need to bridge the gap, because

> The act and the right are normatively unified –they are the same normative phenomenon– because each exhibits a person's choice… An act of acquisition creates a property right just because, in essence, it is a property right, making its first appearance on the scene.[444]

Notice that this choice-based account of appropriation is Kantian in nature. As explained by Westphal, Kant's justification of rightful possession is built upon three facts about moral agents. Firstly, that 'we cannot produce things ex nihilo by willing them into existence',[445] and therefore we must act in the world to satisfy our basic biological needs, as well as to pursue other life plans or projects. This is captured by the formula of hypothetical imperatives, 'Whoever wills the end also wills (insofar as reason has decisive influence on his actions) the indispensably necessary means to it that are within his power.'[446] Whether you want merely to survive, or bring into fruition multifaceted ends, like obtaining a DPhil degree, it is a demand of reason that you want the necessary means to obtain your ends. Secondly, because agents have various, complex, temporally extended ends, it is impossible simultaneously to physically hold or occupy all the means we need. Even if somehow someone is able to work from home, and satisfy all her needs through delivery systems, significant medical interventions, such as appendicitis surgery, require persons to leave their home. In such a scenario, to survive and not lose your possessions, abstractions like property rights are needed to protect agents and their

[443] Ibid., 110.
[444] Ibid., 109.
[445] Westphal.
[446] Kant, *Practical Philosophy*.70 4:407

interests (while they are at the hospital). Thirdly, the facts that there is a plurality of agents, and resources are relatively scarce, and thus agents might assert competing claims. 'In view of these facts, the Principle of Hypothetical Imperatives commits each of us to willing to possess at least some things sans detention. This commitment can be formulated as a maxim, "I will to possess some things I need, even when I do not physically hold them"'.[447] This maxim, in turn, commit us to support usufruct rights –to use resources and enjoy their benefits– because using resources is a necessary condition for the exercise of autonomy. Subsequently, it commits us to respect the decisions that others make in relation to external objects, that is, the usufruct rights they create when pursuing their goals. Hence, presuming that moral agents are autonomous, and physically limited, coupled with the fact that the exercise of autonomy entails the use of resources to the exclusion of others, taken together justify usufruct rights over external resources.

Note, this does not justify the whole superstructure of ownership, but it does justify a subset of ownership incidents –usufruct– which should be upheld even in the absence of the civil condition –the state of nature.

Westphal contends that a contradiction in conception test shows that willing to rightfully use resources commits us to respecting each other's rights of usufruct. For example, if I were to adopt a maxim such as *whenever the satisfaction of my ends would require resources appropriated by others, I will consider these resources as mine*, this cannot be universalized, because if everyone acted in such a manner, then there would be no stability of possession, since the fear that others will take away what I am using would be permanent. Hence, recognizing that acts of appropriation are rights-creating is a demand of reason, and therefore appropriation is a morally permissible. A complementary justification of first appropriation zeroes in on the idea of dependence. Framed in the terminology of contemporary

[447] Westphal.

republicans, it could be said that what is wrong with appropriation is that the appropriator –the right holder– dominates the duty-bearer –third parties, insofar as it unilaterally imposes his will.

Sage stresses that property rights are not purely unilateral, as the notion of rights presuppose a web of relations: 'Specifically, a relation of independence, in which the right-holder's choice is impervious to determination or disruption by another person.' He further emphasizes the point 'this relational aspect is supplied by a principle of political morality that should by now be familiar: the principle that each person must respect each other's choice.'[448] In other words, the fact that we need resources to survive and flourish, coupled with the normative claim that we must respect each other's decisions qua authors of our lives, gives us a prima facie reason to accept the moral permissibility of independent acts of appropriation. This should not be interpreted as the strong claim that any and all independent decisions command the same level of respect, impervious to other normative considerations. For instance, in addition to the general constraints on actions, chapter 6 suggested that our physical nature imposes claims on others, which depending on circumstances might include claims on our private property eg the Patagonian custom of permitting the killing of cattle for survival. Rather, this view asserts, first, the logical possibility of appropriating resources without imposing oneself on others, and second, that that third parties have a prima facie obligation to respect our decisions. This leads to the question of the nature of the obligations hold by third parties.

Finally, this choice-based account of first appropriation coheres naturally, or so I argue, with the intuition that purposeful actions modify the moral space in a manner that directly connects, and usually favours, she who performs them. Simmons illustrates its tenets clearly: 'Human property is not so much a matter of creation as a matter of extending the person (which

[448] Sage, "original acquisition", p 119.

is indisputably ours) into the world. By our labor we alter the world and make it useful for us.'[449] Similarly, Waldron emphasizes that property has an essential role in a person's life plan. He explains that when an individual takes possession of an object, and 'works on it, alters it, uses it, makes it in effect a part of her life, a pivotal point in her thinking, planning, and action', it is no longer a mere object, but a means with which to pursue her ends. So, if someone else were to take it from her, 'then the whole structure of actions is disrupted.'[450] To assume that a complex theoretical bridge is needed to account for these intuitions, instead of presuming that physical acts have normative significance, might lead us into 'one thought too many' territory, in the sense that some situations possibly lie beyond justification.

To wrap up, this constructivist thesis builds on the fact that agents are embodied beings. From this it follows that physical acts performed by agents, or at least a subset of them –eg purposeful actions, must impact the moral space in a manner that directly connects (i) the agent with the (ii) physical act, and (iii) third parties. The conjunctive approach meets these criteria, since it recognizes the normative effects that legitimate, independent actions performed by agents have, thus dissolving the objection entailed by the acts/rights problem.

7.4.3 Appropriation as a *Duty-Altering* Exercise of Choice over Objects

The use of public resources, like putting a blanket on a park, provide a suitable approach to address the moral legislator objection, and thus to understand the normative effects on third parties of physical actions performed by self-owners.

Van der Vossen contends that the content of our moral duties, the actions they demand or proscribe, is a function of normative propositions spelling out the nature and point of our moral duties eg the claim that all agents have equal rights to access and use public resources; and non-normative propositions, including facts about the external world eg the precise

[449] Simmons, *The Lockean theory of rights*, p 260.
[450] Waldron, "Superseding historic injustice" *Ethics* 103, no. 1 (1992), p 18.

location in space of a public resource. He argues that certain actions that modify non-normative facts about the world, like 'occupying public spaces', are not *duty-creating* but *duty-altering*, in that they modify duties that third parties already had, such as duties of civility or respect.[451] He supports this view with two examples involving the interactions between a pair of individuals, one of whom gives the other a right to touch his hair, and later rescinds it. Though persuasive in their own right, these examples fail to explicate the duty-alteration thesis regarding external objects, like 'public spaces', as they focus exclusively on bodily parts. Nevertheless, two intertwined arguments can ground the thesis.

First, notice that van der Vossen describes actions that presuppose an institutional setting –the state, which norms social interactions by distributing rights and duties. In most systems of justice, relations between individuals in the public sphere are governed by the principle that persons can do anything that is not expressly prohibited. That is, individuals have discretion to perform any and all permissible actions, and correlatively they owe each other negative obligations of non-interference. Consequently, when one person uses a specific public resource in a precise moment in time, on van der Vossen's view, it transforms a general obligation of non-interference, into a specific obligation of not interfering with that particular plot at the specific time. This fact straightforwardly explains the duty-altering thesis in the case of public resources. Second, and directly related, from an analytical viewpoint it could be said that in the previous example the modification of non-normative facts, such as using a plot in a public park, specified, or determined pre-existing duties: it transform universal imperfect duties, like the duty of civility, into a universal perfect duty not to interfere with the individual using the particular plot in the park. Appealing to Sartori's ladder of abstraction, it could be posited that van der Vossen's thesis is premised on the notion that contextual, factual

[451] van der Vossen, p 71.

information determines the content of duties. For on his theory specific acts of appropriation alter –determine the content– of broader, general duties.

The duty-altering thesis can be approached from a different perspective. One of the characteristics of universal, imperfect obligations is that they lack a correlative rightholder. Then, it could be argued that if and when a self-owner occupies a public resource, this action helps to determine an imperfect obligation, which now becomes perfect for there is a specific rightholder, the occupier. In parallel, the obligation cesses to be universal, and now is special, because it is owed to the agent that occupy the resource in question. In short, a universal, imperfect obligation becomes a special, perfect obligation. This could be generalized and stipulate the following: we all have a universal, imperfect obligation to respect acts of appropriation, sanctioned by FO, performed by others. When others perform such acts, they specify this obligation, thus becoming a special, perfect obligation.

The duty-alteration thesis permits to sidestep the charge that acts of appropriation are unilateral impositions on the will of others, as posited by the moral legislator objection. If an act of appropriation does not create but only modifies obligations, then appropriators do not impose themselves on others, and thus no *new* obligations are in need of justification. This has two relevant corollaries for the task at hand: first, acts of appropriation would be warranted by the forbearance obligation, as they would not count as imposing oneself on others. And second, it gives us a prima facie reason to consider appropriation a morally legitimate act, and thus permissible.

7.5 SO and the Elusive Right to Income

Recently it has been argued that the right to income, one of the nine ownership incidents identified by Honoré, is one of the most difficult to understand and justify.[452] Lippert-Rasmussen has even claimed ‘the self-ownership thesis does not imply that one owns one’s

[452] Taylor, "Self-ownership”, p 468.

labor or the fruits of one's labour; indeed, it falls short of implying this even where one makes no use of external resources.'[453] If this were the case, it would be a severe blow to the libertarian project, as it would make permissible levels of taxation that could be qualified as 'forced labour' or 'involuntary servitude'.[454] Two different, though related arguments are generally put forth in support of this view. One presumes that the right to income has the form of a Hohfeldian claim, yet arguing that it this lacks a correlative duty-bearer, summed up in the slogan 'no one has a duty to supply me with income, nor to trade with me'.[455] The second argument appeals to a similar rationale, but frames it within the market economy and the institutional backdrop it presupposes: in developed economies the amount of income accruing to owners as a consequence transactions –broadly understood– are determined by various factors, such as trading costs, entry barriers, etc. On the one hand, these factors define the prices of goods and services –income is one such price. On the other hand, the institutional background is a condition of possibility for these interactions, and thus it is too a contributing factor in the final result. Taken together, it is not possible to determine what share of the final product –income– corresponds to an agent's exclusive contribution –labour, and what share is the contribution of the myriad of interactions and the institutional apparatus.[456] This line of reasoning leads to the same conclusion as the claim-right slogan: no agent has a right that third parties make the market transaction that determine the prices in the economy, because no one has the Hohfeldian power to impose such duties on third parties. Since both presuppose that the right to income *solely* or *eminently* a claim-right, I will offer reasons to reject this view.

7.5.1 The Structure of the Right to Income: Privileges and Claims

The right of income is best understood as a composite of a privilege and a claim, in which the latter is ancillary to the former. The rationale is the same as in the control/exclusion

[453] Lippert-Rasmussen, p 91.
[454] As might be characterized by Nozick or Rothbard respectively.
[455] Taylor, "Self-ownership", pp 468-69; Christman, "Self-ownership", p 33.
[456] —, "Self-ownership"; see also Taylor, "Self-ownership".

relation discussed in 7.3: if and when self-owners exercise their autonomy by (a) building something ex nihilo with unowned resources, or (b) entering into a contract, a claim right appears as a necessary protection. This can be brought to light when compared to a similar right: the right to marry. The assertion 'I have a right to get married' it is not a claim commanding some specified or unspecified other to marry me. Rather, it establishes that the decision about whom to marry, when, where, and how, rests exclusively with me (and my potential partner). And the discretion to decide is grounded in my authority qua self-owner to set the agenda for my life. Because the proper exercise of this liberty implies protection against paternalism, the right to marry entails a corresponding claim-right. Likewise, the assertion 'I have a right to income' affirms my freedom to decide whether to create income, or not, and the means to do so. It does not establish an entitlement to *an* income, nor create correlative duties in *unspecified* others. It only establishes that once (a) or (b) obtains, then the self-owner in question is entitled to the derived benefits.

Framed in these terms, the right of income has the form of a special, perfect right, those held by some, and that specified others must discharge, depending on the situation. For example, if an entrepreneur puts a satellite into an available orbit to offer communications services, the right to income does not establish that others are obliged to trade with her, nor that she is entitled to the orbit without fair competition. No one could reasonably expect that from this incident, and yet this is what follows from presuming that the incident of income is a claim-right. Rather, in this case the right of income asserts, first, a jurisdictional claim to decide what permissible economic activities to pursue; second, that the benefits derived from performing the chosen activities, as well as the associated responsibilities, correspond to its author inasmuch as these are exercises of choice; and third, that others should not arbitrarily interfere with these activities. If this holds, then the right of income necessarily has the form of a Hohfeldian privilege. This implies that there are no obligations connecting agents and the

institutional background –the economy– through income, as market transactions do not impose duties on others. Since the right of income and the institutional backdrop do not have the attributed deontic structure, this permits us to question the contention that the right to the fruits of one's labour must be justified in relation to the distribution of goods in the economy (more on this below). Moreover, insofar as it is an exercise of choice, the right to the fruit of our labour is directly related to questions of personal autonomy, in direct opposition to Christman's stance.

Raz explains that the right to carry out everyday activities, and not so ordinary ones, all find their origin in our interest in being authors of our lives. For example, my right to walk on my hands is not directly based on an interest served either by my doing so or by others having duties not to stop me. It is grounded in my interest in being free to do as I wish, on which my general right to personal liberty is directly based.[457] The right to walk on my hands is one instance of the general right to personal liberty. The same holds true for the right to income. It is not an entitlement to an income, but a recognition that self-owners are legitimately entitled to decide whether to generate income or not, and by what means. The right to create something ex nihilo, say a musical composition, is ancillary to my authority to decide, among permissible alternatives, how to sustain my life. And the corresponding right to enjoy the benefits derived from it, are too ancillary to my original authority to 'use' myself as I see fit. In this regard, Honoré considered the right of income as a surrogate of the right to use, further contending that, on a wide interpretation, both management and income fall within use.[458] Subsequently, the right to exploit previously inaccessible resources, and to accrue their proceeds, are not served by an interest tailored to each of these activities, but by my general interest in setting the agenda for my life. Whether my personal ends, and the actions necessary to realize them,

[457] Raz 1986:169
[458] Honoré, "Ownership".

are Earth-bound or not is irrelevant from the standpoint of personal autonomy. To deny that people have a right to the fruit of their labour undermines the moral relevance of autonomy, transforming a substantive requirement into a formal ideal.

On this point, it cannot be overlooked that the only time Nozick mentions self-ownership in *Anarchy, State, and Utopia* is while supporting the idea that we are entitled to the fruits of our labour. He argues against patterned principles of distributive justice, charging that they 'institute (partial) ownership by others of people and their actions and labor. These principles involve a shift from the classical liberals' notion of self-ownership to a notion of (partial) property rights in other people.'[459] Undoubtedly, the target of his criticism is taxes and redistributive policies in general. However, notice the dual role self-ownership plays in the argument. It reaffirms that the benefits derived from our work belong to us, as well as denouncing egalitarians for going astray from basic tenets of liberalism. His criticism of egalitarianism and redistributive justice is a direct consequence of taking as a premiss that agents have a right to the fruits of their labour. Whether or not Nozick's theory depends on the concept of self-ownership may be open to debate. What is not in doubt, however, is that self-ownership necessarily comprises the right to the fruit of one's labour. To accept the former implies endorsing the latter. Therefore, it is not possible to simultaneously endorse self-ownership, as Taylor does, and at the same time question the right to income.

To sum up, the right of income comprises various incidents. If claim-rights are considered its core incidents, it makes sense to say that the right of income is hard to justify, as no one has the corresponding duties to provide income. However, this construal assumes that income is a universal imperfect right, whereas it is properly a liberty right that when exercised takes the form of a special perfect right.

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[459] Nozick, p 172.

7.5.2 The Right to Income and its Background Institutional Setting

As mentioned before, both Christman and Taylor argue that the right to income must be justified in relation to principles governing the distribution of the of goods in the economy. This claim draws on the fact that in developed economies prices are determined by the myriad of interactions performed by economic agents, and therefore it is not possible to determine which part of the price corresponds to a self-owner's effort or labour, and what to other agents. The argument stands on two pillars: on the one hand, no one has an obligation to interact so that others can benefit from (the existence of) prices of tradable goods and services. Call this the *claim-right argument*. On the other, if indeed self-owners are entitled to the fruits of their labour, then they must be entitled to that share of their contribution to the final prices of other's labour. Call this the *contribution argument*. Because the claim-right argument is premised on the same confusion about the nature and structure about the right to income previously discussed, mutatis mutanda the objections raised in subsections 7.3.2 and 7.5.1 should hold against this view. Instead of reiterating these arguments, I will point out one limitation to the appeal to the institutional background, and one shortcoming of the contribution argument.

First, the assertion that the right of income must be justified in relation to the institutional setting presupposes that there is such a setting. While there is undeniably a world economy, there is no equivalent off-Earth economy. The nonexistence of an outer space ownership regime implies either that no appropriation can take place before a system of rules is established –thus smuggling in the Kantian civil condition requirement, or that the institutional setting is contingently relevant. The arguments supporting the choice-based account of appropriation presented in 7.4 rule out the former alternative. Consequently, the assertion that the right of income must be justified in relation to the institutional backdrop is contingent upon demonstrating, first, that the institutional setting indeed contributed to the income, and second, that the contribution creates an entitlement in those who contributed over what they contributed. This leads to the shortcoming of the contribution argument.

While it is true that we have prima facie rights to the fruits of our labour, it is not true that this includes all the benefits derived from it. Positive externalities illustrate this. Positive externalities occur when the production and/or consumption of a good or service benefits a third party not directly involved in the market transaction. For instance, education certainly benefits the individual receiving it, but it also benefits society as a whole. However few would support the conclusion that all of society owes a duty to those who receive education simply because they are indirectly benefited, say that the worst-off of society owe special obligations towards highly educated individuals. Similarly, when an agent participates in the market, and in doing so helps to set market prices, which benefits all who participate in it, she has not created a derivative entitlement towards these expected, though unintended benefits. They are nothing more, but no less than a positive externality.

Sometimes our actions benefits others, like when we care for our garden and neighbours and passers-by enjoy it. These benefits directly derive from our labour, yet we are not entitled to them. If being the recipient of benefits would automatically create obligations, reciprocal or otherwise, on the person benefiting, then the risk of becoming moral hostages of potential benefiters would be inescapable.[460] Contrariwise, if neighbours and passers-by dislike my garden, I would not owe them an obligation to change it. This negative externality might be extremely annoying to them, yet I am protected by my interest in setting the agenda for my life, and my garden, to have the final say on its design.

Notice the similarities between what I label the contribution argument and the problems posed by the so-called fair play obligations. In the context of justifying political obligations, the fair-play principle is presented as an alternative to consent. Generally speaking, it asserts that members of a group –political community– who benefit from being part of the group have

[460] I borrow the 'moral hostage' cue from McDermott, "Fair-play obligations" *Political Studies* 52, no. 2 (2004), p 219.

an obligation to reciprocate by contributing to the provision of these benefits. That is, simply benefiting from something creates an obligation to reciprocate, and correlatively the benefiter gains a right against the benefited.[461] Although there is no consensus on this, the general rule is that receiving benefits does not generate prima facie correlative obligations, unless certain conditions are met. For example, it is debated whether the voluntary acceptance of benefits, rather than just receiving them, is capable of justifying these obligations. If that were the case in the case of the right to income, reciprocity would force us to participate in the market, in the best of cases. It would not entitle others to the share of their alleged contribution to the final price of other self-owner's income, as these are simply positive externalities. Holding the opposite conclusion is morally implausible.

Finally, there are a second class of actions, or instances, in which one is not entitled to the fruits of one's labour: when our actions failed to generate rights. In property law discussions a frequent example to illustrate this is the case Pierson v. Post decided by the Supreme Court of New York. This concerns the dispute between Lodowick Post, who was in a hunting party, exerting toil by chasing and tiring a fox. When Post was about to catch it, Jesse Pierson, usually referred to as the 'saucy' intruder in legal debates, killed it first, claiming the fox as his property, thus depriving Post from the fruits of his labour –Pierson argued he never saw Post and his party. The court rule that chasing the fox was insufficient to create exclusive rights, as a property right is established by means that render escaping impossible. In other words, the court favoured Pierson because he effectively achieved first possession, whereas Post did not.[462] The questions that follow are: did Pierson expropriated Post of his efforts when he took possession of the fox? Is the latter entitled to a part, at least, of the fox by virtue of his toil?

[461] Simmons, "The principle of fair play" *Philosophy & Public Affairs* (1979); McDermott.
[462] See, among many others, Sage, "Is original acquisition problematic?".

A strict Lockean should reject the court decision, considering Pierson's an act of expropriation. However, as we saw in the previous chapter, despite Locke's theory having a salient achievement component, it only suggests what one must do to create rights –to labour, but never defines how one fails to create private property rights. To properly qualify Pierson's act as expropriation, Lockeans must first determine the conditions for both success and failure. Without such a theory, no conclusive answer can be asserted. Kantians, for their part, have fewer problems accepting the court's conclusion, on the grounds that failing to achieve an end creates no rights towards it, despite your efforts it. Ripstein succinctly explains it: 'sometimes in seeking to acquire something, you simply fritter away your efforts.'[463] The key element here is that the performance of an action –ie labouring– is only a necessary, but not a sufficient condition for successfully claiming property over the object. Unsuccessful actions do not create or trigger rights. This argument does not question the tenets of the conjunctive approach to the acts/rights problem, but rather establishes (undefined) conditions for an act to effectively draw a hyper-line in the moral space.

Consider a football player who shoots a freekick, which is blocked by the goalkeeper. The latter did not expropriate the former of his effort by preventing the ball from entering the goal zone, nor did he expropriate him a goal. According to the rules of football, no player is entitled to a goal, players only have a right to shoot to the goal to strike a goal. Making the effort of trying to score is not an entitlement to scoring. Likewise, the goalkeeper is not entitled to not have goals scored, but only to try to prevent the opposing team from scoring. In regulated activities, such as professional sports, the rules of the game define the criteria by which actions are judged successful, and thus capable of affecting the game's moral space.

This sports analogy helps to bring home the relevance of the forbearance obligation in the broader context of the legitimacy of first appropriation. As opposed to sports and other

[463] Ripstein, *Force and Freedom*, p 100.

regulated activities, morality lacks fixed, universally agreed rules. Competing moral theories determine 'what it is to be a player in the moral game of life'[464], inter alia, by defining the conditions that acts must meet to be constitutive of rights, and the correlative these impose on third parties. (I assume, but not defend, the view that morality should and cannot be reduced to obligations and entitlements.) So far, in support of the obligation-based libertarian theory I have argued, first, that given the fact of our physical nature, and the normative premiss that self-owners are entitled to set the agenda-for their lives, it follows that the appropriation of external resources, terrestrial or ultra-terrestrial, must be a morally permissible action. Second, that a jurisdictional construal of the right to self-ownership accounts for this special authority, and therefore is a plausible correlative liberty right of the forbearance obligation. Third, that the right of income insofar as it is ancillary to the self-ownership, it is justified in relation to autonomy. And fourth, that a choice-based account of appropriation is consistent with the forbearance obligation since prima facie it is not an imposition on the will of others. A comprehensive theory of appropriation must address two remaining challenges: to provide a criterion for determining whether an action is constitutive of appropriation, if successfully created a right or fail to, and to specify the limits to appropriation. The following and final subsection develops the former, the next chapter the latter.

7.5.3 Appropriation criteria

I will defend effective occupation as a valid criterion to determine whether an act created property rights. As Simmons suggested, 'Sometimes the implications of a principle are best explored through a story',[465] and sometimes two stories better express a normative criterion.

[464] Waldron, *RPP*, p 110.
[465] Simmons, Boundaries of authority 2016, p 189.

On September 25, 1953, Chilean lawyer Jenaro Gajardo went before the notary of his city to claim property over the Moon. His request fulfilled the legal requirements of the time, and consequently the *Conservador de Bienes Raíces*, the institutions entrusted with the registration of real state, recognized Gajardo as the legal owner of Earth's only natural satellite.[466] Three decades after Gajardo's claim, Dennis Hope, a United States-born entrepreneur, took advantage of the Outer Space Treaty 'loophole' on private appropriation. He wrote a letter to the UN asserting that the Moon was 'unclaimed property', and thus claimed it as his private property. Hope interpreted the UN's lack of response as a decision not to dispute his claim. Ever since, he has sold millions of acres of property on the Moon, Mars, and other heavenly worlds, through his company Lunar Embassy Corp. He has set up his own Galactic Government, a democratic republic –representing lunar landowners and his interests in other properties– which has a constitution, a parliament, currency, and even a patent office.[467] Regardless of whether one considers Gajardo's and Hope's ownership declaration to be extremely 'smart' or awfully 'ludicrous', I want to focus attention on the following: is it a mere declaration of intent constitutive of (property) rights? Consider a hypothetical case in which an entrepreneur does indeed land on the moon, exploit its resources, and bring them back to earth for commercialization. Would she expropriate Guajardo or Hope? Does she owe them anything? I claim that she would not, as neither of them occupied the moon, whereas she would have had.

Overall, I have argued that harmless purposive actions performed by agents modify the normative landscape in ways that advantage she who performed them. This is the basic tenet of the choice-based account of appropriation offered. However, this is still too abstract. For the

[466] Independent, "The Moon is His: Chilean holds recorded tile deed", *The Evening Independent*, 1969; Pop, Who owns the moon?: extraterrestrial aspects of land and mineral resources ownership 2008.
[467] Pleasence, "Former car salesman who claims he owns the moon has made $11MILLION by selling pieces of lunar landscape - and buyers include Tom Cruise, Tom Hanks and George Lucas", *Daily Mail*, 2014; Koebler, "Meet the Man Who Owns the Moon", *U.S. News*, 2013.

subject matter of this project, what is needed is a more operationalizable criterion with which to judge whether or not its performance was successful. Centuries ago Grotius found in Roman Law a plausible criterion: occupation.

In Roman Law the two main modes of original acquisition were *occupatio* and *accessio*. The latter occurred when separate things belonging to different owners were inseparably joined to each other or merged in such a manner that a new entity or object was established.'[468] The former refers to the act of taking possession of a thing belonging to no one (res nullius), by physical means, such as wild animals, the spoils of war, or even 'an island arising in the sea'. Post v Pierson was settled appealing to the principle of occupation. While the crux of the question rests on how we define occupation, what qualifies as occupation is significantly more disputed on rather than off-Earth. For instance, given that humans cannot survive off-Earth without external support, any long-term settlement should be considered as a satisfying the occupation criterion. Thus, the hours that US astronauts have spent on the Moon fail to ground rights. However, if they would have established a permanently inhabited base, they would have satisfied the occupation criterion.

As I have suggested before (1.4.2), simply overcoming Earth's gravity, a necessary condition to exercise choice on ultra-terrestrial objects, in itself entails a long, strong chain of purposeful actions. Therefore, accessing and exploiting resources should count as satisfying the occupation criterion. Likewise, if and when a moral agent decides to invest its resources in developing spacefaring technologies, instead of using them in legitimate leisure activities – skydiving or eating in fancy restaurants, or other legitimate investments –stock speculation or development projects, she created special entitlements towards these resources, and the benefits derived. She will not be mixing herself with the technologies to reach outer space resources, nor with the artifacts she could manufacture with them. Labour-mixing does not do

[468] Mousourakis, *The historical and institutional context of Roman law*, pp 118-19.

any normative work. Rather, her entitlements stem from the exercise of choice over them. And insofar as these actions comply with general moral constraints, and with the side-constraints imposed by basic needs, others have a duty not to interfere with them.

Possibly moral philosophy will never find a univocal, ecumenical criterion with which to distinguish trivial activities, with no normative significance, from entitlement-creating ones. Similarly, there may never be agreement on the degree to which pre-existing resources must be modified in order for the final product to be considered a new object. This notwithstanding, I would argue that any plausible theory of appropriation must consider reaching and exploiting hard-to-access resources, such as asteroids or the moon, as an entitlement creating act. Further, I argue that there is no need for an analytical bridge, for it is plausible to consider the act and the right unified by the exercise of choice. If both Marxists and libertarians concede that labouring, a purposeful action, is entitlement creation, this might suggest that we should concentrate our efforts on understanding the nature and limits of the entitlements that purposeful actions create.

To illustrate the normative implications of this choice-based articulation, I will recur to a well-known philosophical strategy: I will consider hypotheticals consisting of very simple societies –two people, of able-bodied adults, equals in all relevant moral respects, with no worldly resources of their own, who wash ashore on an uninhabited island. The *classic* desert island hypothetical properly symbolizes the status of earthlings towards off-Earth resources: we are all symmetrically situated towards them.

> *Desert Island Shipwreck*: Laura and Vincent survive a shipwreck and wash up in a desert island plentiful in resources. While Laura decides to gather fruits and vegetables, beyond what she needs for daily survival, planning for rainy days, Vincent lives on a day-by-day basis, never preparing for contingencies. When rainy days befall, the only resources available are those collected by Laura.

I believe it is indisputable that upon arrival Laura and Vincent had symmetrical claims towards the island resources. However, when the rainy day arrived, and the only resources

available were those collected by Laura, does Vincent has an equal claim towards this specific subset of resources? I believe that Laura's claim is stronger because she could have relaxed and enjoyed the sun together with Vincent. Yet, she voluntarily chose to devote time and effort, labour, to procure herself basic resources. A recurrent analogy to explain rights is that they create a perimeter of protection around its holder. When Laura laboured to collect edibles, she created a perimeter of protection that confers her powers over them. What kind of powers, and how stringent are they?

In regular conditions, Laura should be entitled to have the final say on who gets to access them, and how should they be used –whether they should be baked or eaten raw. In more pressing circumstances, such as the rainy day, Laura should be entitled to the 'lion's share' of the resources. As a demand of justice, she is required to share with Vincent that which secures his survival. This is where the sufficientarian thresholds lies, even if there are more than enough resources to satisfy more than the basic needs of both. She might have other different reasons to share, such as compassion, or assume a duty of care. But justice only justifies a sufficientarian claim, no further, even if this entails the *expropriation* of Laura's effort. Finally, in life-threatening conditions, she should enjoy an exclusive claim to them, even if that means that Vincent would die. Why? Not because she mixed herself with fruits and vegetables, but because when confronted with the option of resting or harvesting, she chose the latter, while Vincent decided not to. The normative landscape should not be sensitive to labour *per se*, but to the actions of free and equal agents embodied in labour. Granted, this is a highly stylized example, but its aim is to elucidate if and how labouring modifies the normative landscape, whether it can modify 'symmetrical' claims towards natural resources. When all other conditions are equal –all agents are free and equal, have equal access to resources, the terms of interaction are fair, and so on, I believe labouring strengthens the claim of she who performs it. Additionally, note that there is a significant difference between *shipwreck* and an

entrepreneur who reaches the moon to exploit its resources: Laura and Vincent ended up on an island by chance, it was not a decision, but an accident. In contrast, no one ends up on the Moon by accident, you decide to go there, and must devote time and resources to do so.

Now consider the following modification of the previous example

> *Twin-islands Shipwreck*: Laura and Vincent survive a shipwreck and wash up in a desert two-island system. *Plentiful* island has material resources to permanently satisfy the needs and wants of both outcasts, but it sinks with the tides during the night. *Habitation* island has no resources, but a higher elevation, and thus is suitable for overnight rest. Both Laura and Vincent are able-bodied, but only Laura swims everyday back-and-forth to *Plentiful* to collect goods for survival.

Is Vincent *entitled* to *a* share of Laura's collected resources? If so, on what moral grounds? I argue that he has no a priori entitlement towards resources that are exclusively available through Laura's labour (for the reasons offered before). I want to emphasize that in both *Shipwreck* and *Twin-islands Shipwreck* the only significant normative difference, the variable that is isolated for the purpose of the analysis, is the different decisions that the agents took when confronted with the alternatives. Any plausible appropriation theory, and normative theory for that matter, should be sensitive to the implications of purposive actions that are the embodiment of personal autonomy. Recognizing entitlements to those who perform such actions is one mechanism through which a normative theory manifests its sensitivity to personal autonomy (iff these actions are indeed grounded in personal autonomy, and iff they do not harm third parties).

Recognizing that labour can modify the normative landscape is not the same as recognizing those who labour with a fixed and extensive series of entitlements, say Honoré's 11 ownership incidents. I am appealing to the intuition that those who choose to labour should be recognized, at the very least, some entitlement towards the benefits derived from their actions –equivalent to the resources destined to exploit them, plus a profit. Composers are not the owners of musical notes –which are nothing but standardized values on the spectrum of frequencies, nevertheless we recognize them a right to benefit from their pieces, which are

fruits of their labour. Likewise, an entrepreneur who labours to access ultra-terrestrial resources should be recognized equivalent rights.

What about those who could not labour because they did not have the capacity, like non-spacefaring nations? In such cases the *ceteris paribus* assumption is not met, as they are not equal agents in one relevant aspect: they cannot labour in the same terms. I argue that those who do not have the means to access these resources have a sufficientarian claim, insofar as these resources satisfied their basic needs. Further, I contend that the sufficientarian claim only holds if these resources are brought back to Earth, and commercialized in the world economy (regardless of the justice system or local economy through which they are introduced to the global market). If, on the contrary, they are used to create an off-Earth economy, the sufficientarian claim does not hold.

7.6 Coda

Chapter 5 showed that there are no moral arguments to prohibit a priori the appropriation of ultra-terrestrial resources. Chapter 6 segued this line of reasoning showing that there are no moral grounds to justify natural or pre-political ownership rights over natural resources, common or otherwise. It follows, then, that the natural world is res nullius, external resources are unowned. This chapter continued providing an account of how self-owners can legitimately appropriate ultra-terrestrial resources.

The main objective of the chapter was to develop a theory of appropriation. A permissible justification was offered that stands, first on the fact that agents are embodied, and thus need external resources to survive and flourish, and on the normative claim that self-owners enjoy a self-generated authority to pursue their ends. Taken together, they support the claim that appropriation should be morally permissible. If it were impermissible, or if it were subject to the consent of others, this would render self-ownership merely formal, voided of substance, as others could exert undue influence on the will of self-owners. In support of this

argument it was proposed a specific normative structure of self-ownership, and an exploration of its nature. Regarding its structure, it was argued that any plausible, and appealing, articulation of self-ownership must take the form of a Hohfeldian privilege. Additionally, it was argued that the right of income is ancillary to the right of use, and therefore it is part of the catalogue of self-ownership incidents, and justified in regards of the interest in autonomy that self-owners have. If recent defences of self-ownership have not been sufficiently persuasive, and recent critiques have missed the mark, this is largely explained by the fact that the analyses failed to understand the logical form behind assertions of self-ownership, or so I argue. Regarding its nature, it was promoted as a jurisdictional construal of self-ownership, as the authority to set the agenda for ones' life. This jurisdictional approach tallies with the forbearance obligation, as it is the correlative universal, perfect right of this universal, perfect obligation.

The next and final chapter elucidates the scope of ownership, and thus of self-ownership's authority.

8 Determining a Principle to Govern Off-Earth Natural Resources

The main objective of the present and final chapter is to outline a regime for governing outer space resources. This could be described as determining the practical implications of the forbearance obligation. Although the task is practical in nature, elaborating a coherent and persuasive regimen requires putting to work all the theoretical scaffolding built up to now, and incorporating into its structure the final piece: specifying limits on independent appropriation. After presenting and explaining the general objectives (8.1), the chapter forwards the distinction between terrestrial, and non-terrestrial outer space natural resources (8.2). Then, it assesses the current regime governing orbital slots against the forbearance obligation (8.3). With these insights, it outlines regimes governing different classes of resources (8.4), and explaining how and why non-terrestrial resources might fall within the scope of justice (8.5). it finishes with a conclusion (8.6).

8.1 Introduction: Hyper-Planes and the Demands of (Distributive) Justice

Regimes governing natural resources are one of the elements of a distributive justice theory, the one concerned with external objects. Broadly defined, natural resources regimes answering who should get how much of what, and why. These demands identifying the objects and agents under the purview of the regime, determining its distribuenda –whether the resources themselves or their benefits, and stipulating an allocation principle.[469] A just regime

[469] See the similarities with Caney's stipulation of the desiderata that distributive justice theories must met, in , pp 102-04.

must harmonize the demands of efficiency and fairness, since it should create the conditions for resources to be effectively used,[470] while preventing overuse or misuse. So far, I have offered a libertarian theory justifying the moral permissibility of appropriation, which implicitly promotes the use of outer space resources. However, I have yet to address the question of the limits of appropriation, what I have broadly referred to as the problem of the scope of ownership. This chapter undertakes this by outlining regimes to govern terrestrial and non-terrestrial outer space resources.

Both terms, limits, and scope, connote the idea that the moral space is segmented in two or more areas, as illustrated by *Nozickian* hyperplanes. This presupposes that justice imposes different demands on each segment, and that there are criteria for distinguishing these areas, and ascertaining what justice demands in each. Because a regime for outer space must govern resources of different kind, from which distinct normative demands follow, rather than than offering one overarching regime to govern all outer space resources, I will outline different regimes for distinctive classes of resources. Relatedly, the regimes advanced can be labelled sufficientarian, a distributive principle that is premised on the idea that there is a threshold beyond which (re)distributive justice cease to impose demands.

This chapter argues that the moral space is partitioned by several variables that interact in a non-linear manner. In the case of off-Earth resource regimes, three relevant variables can be identified. First, the physical characteristics of a resource: its relative availability, and whether it is exhaustible or renewable. Second, the nature of its associated benefits and costs, whether they are trivial or non-trivial –eg lifesaving. And third, the range of potential beneficiaries –whom and how many are benefited– given their alternative uses. Each of these

[470] As I understand it, a regime presumes that it is permissible to use and/or exploit the resource in question, henceforth the need to govern its use. By way of contrast, corpus juris spatialis prohibition does not amount to a regime, in that a command –not to exploit– is different from adjudicating among competing claims.

justify imposing distinct limits on appropriation. Taken together, they define the boundaries of legitimate appropriation.

This chapter offers criteria with which to delimit the sphere of authority of self-owners, the area where they can permissible appropriate, and exercise their agenda-setting authority, while fulfilling the mandates of the forbearance obligation. I will now offer a moral justification for limiting ownership which does not appeals to common rights. This is a small contribution to expand the frontiers of left-libertarianism, and political theory.

8.2 The Normative Implications of Physical Proximity

This section utilizes orbital slots to zero in on how the physical proximity, or the location of a resource, affects the scope of justice. The analysis commences focusing on a single variable –physical proximity, and a single resource –orbital slots. As it progresses, it will incorporate other variables. However, these variables are closely connected, and thus analysing them separately is somewhat artificial. Hence, each specific discussion should be understood as one element of a compound argument.

8.2.1 Shared Habitation, and the Ascribed Normativity of Gravity

Because there are different domains of activities, the scope of ethical principles differs from one another. This translates into a structural requirement: ethical principles must have criteria for defining their scope. I propose Earth's gravity as a physical criterion to determine the geographic scope of the present theory. Gravity is not a moral criterion, obviously. However, I argue that the interests that qua Earthlings we have on lunar resources or Earth's orbits is different, or distinct, to the interests that we might have, if at all, in the resources of Proxima Centaury, the closes star system to the Solar System. Therefore, gravity is a plausible physical proxy with which to identify the different classes of outer space resources –terrestrial and non-terrestrial, and the agents whose interests must be considered. Doing so partitions the moral space in at least two segments. A brief example might help to fix ideas.

Although there is no consensus in the scientific community, or in international law, on where space begins, the Kármán Line is generally accepted as the threshold. The Kármán Line is an imaginary boundary 100 kilometres (62 miles) above mean sea level, 'located' at the lower part of the thermosphere, one of the outermost layers of the atmosphere.[471] The International Space Station (ISS) and most earth-observing satellites orbit Earth above the Kármán Line. Notice, though, that our planet is not the only body in the solar system with artificial orbiting objects: there are eight humanmade satellites orbiting Mars. Because terrestrial and Martian orbits are located beyond the Kármán Line, both could be considered outer space resources. Yet, Earth's orbits are undeniable terrestrial, in a manner that Mars' are obviously not. Likewise the Moon is Earth's natural satellite, and therefore terrestrial, while Phobos and Deimos are Mars' moons, and therefore non-terrestrial (Martian). I argue that this physical fact embodies a normative conclusion: that our status towards terrestrial resources, whether on or off-Earth, is different from that of non-terrestrial.

Gravity is defined as the force of attraction that a body of mass exerts over other bodies of reduced mass, which pulls the latter towards the centre of the former. For example, the solar system comprises all celestial bodies under the gravitational force of the sun –including Earth. Under this prism, terrestrial outer space resources refer to the subset of celestial bodies under the influence of Earth's gravity. This set includes tangible/physical resources –the Moon, and intangible resources like orbitals slots, radio frequencies, the atmosphere, and Lagrange points (more on this later). By way of contrast, Near Earth Asteroids orbit the sun, not Earth –their orbits are close to Earth's orbit around the sun,. Consequently, they are not terrestrial resources, they are no part of Earth's system.

[471] In theory, once this 100 km line is crossed, the atmosphere becomes too thin to provide enough lift for conventional aircraft to maintain flight. At this altitude, a conventional plane would need to reach orbital velocity or risk falling back to Earth. In NOAA, "Where is space?".

The fact that terrestrial orbital slots are the only outer space resource that has a regime governing them, despite the prohibition imposed by corpus juris spatialis, further supports the plausibility of the distinction between terrestrial and non-terrestrial outer space resources. Notice, additionally, that this distinction both supports and illustrates the contention that the moral space is effectively segmented.

The advantages of this distinction become apparent when applied to terrestrial resources.

8.2.2 Terrestrial Claims, non-Terrestrial Interests

I argue that Earth's gravity is a plausible proxy with which to track the intuition that our planet's natural satellite is of more importance to us than, say, Mars or Jupiter's moons. What lies behind the intuition is, partly, the effect of physical distance: because it is close to us we have a relationship with Earth's Moon –eg the unquantifiable references in the literature and art of all cultures, which create a common interest on the Moon. In opposition, we only became aware of giant planets, like Jupiter, and their moons, thanks to mathematics, physics, and technological advancements eg telescopes. I am not arguing that we, as a species or individually, do not have any interest whatsoever in other celestial bodies. I am merely contending that our interest in terrestrial resources differs from the putative interests we might have towards non-terrestrial. If this holds, then depending on the location of a resource, different normative considerations should be considered when determining its permissible uses, and what constitutes a fair allocation.

Gravity is a suitable physical proxy with which to capture the scope, and normative implications of what I labelled the shared habitation premiss (chapter 6). Recall that Risse grounds common ownership rights on the biological fact that we are earthlings.[472] From this non-normative fact the author draws the normative conclusion that we own our planet of origin.

[472] Risse, *OGJ*, p 113.

In contrast, I claimed that qua earthlings we have a sufficientarian claim to satisfy our basic biological needs. Accepting shared habitation entails accepting that terrestrial resources are governed by principles that differ from those that govern non-terrestrial resources. Subsequently, shared habitation can only justify limits on appropriation on terrestrial resources; no such limits hold for non-terrestrial resources.

To illustrate the implications of the distinction, rather crudely, say in the not so distant future there were mining projects to exploit Earth's moon and both Martian moons, whose inevitable results were that half of each of these moons would disappear. That is, when looking at the terrestrial sky on a full moon night, we would literally see either the top or bottom half. Further, let us assume that both projects would only benefit those pursuing them –the owners, no one else. Ceteris paribus, I argue that the terrestrial moon project can be prohibited appealing to shared habitation, on the grounds that there are alternative non-trivial uses of lunar resources which might hinder the sufficientarian needs of relevant others eg nuclear fusion or He3 medical research, as well as trivial interest like the aesthetic value of the moon (presuming that this is a trivial interest). By contrast, the Martian moons projects could not be prohibited on these grounds, because we do not have the same kind of interests in non-terrestrial resources. For one, there is no general aesthetic interest. Perhaps, one can make the case that, for some reason, we have an interest based in the alternative uses that the minerals from Mars' moons might provide. However, in that case the burden of proof falls on whoever wants to block these projects, who should demonstrate that the interest outweighs that of the Martian moons project, or to demonstrate how non-terrestrial resources fall within the area of influence of shared habitation. This cannot be ruled out a priori, but it does not seem like a promising avenue.

Instead, other considerations could be appealed to, such as planetary justice or interplanetary sustainability.[473]

The relevant corollary is that normative considerations, such as shared habitation, must have physical boundaries. If shared habitation holds, it must have a limit, which implies that it has no jurisdiction over non-terrestrial resources. This does not imply that the borders of the shared habitation are rigid. On the contrary, one of the advantages of using gravity as a proxy is precisely that it provides certain latitude. Acknowledging that the example borders on the unlikely, its purpose is not to predict the future, but to identify a physical criterion –gravity– that tally with a moral consideration –the special interest earthlings have towards Earth.

At this point it could be objected that, as discussed in 6.5, shared habitation is contingently earthbound, and therefore if and when we settle in other celestial bodies, the scope of this sufficientarian claim will expand accordingly. To this I respond, first, if in the future there is permanent human settlement on Mars, that would not make Martian moons terrestrial, it would only make them within the scope of human justice. And second, in such a scenario, shared habitation would ground an equivalent sufficientarian claim among those sharing Mars. Building on this, framed differently, if gravity is a proper proxy, then it would justify Martian shared habitation, and thus would recognize entitlements on human settlers on Mars. They could appeal to shared Martian habitation to prohibit the exploitation of Martian moons. Subsequently, that in the event that terrestrial and Martian humans assert competing claims towards the resources of the Red planet, the latter should be prioritized over the former. What about the opposite? Should earthling humans have priority over Martian humans regarding competing claims towards terrestrial resources? In this scenario shared habitation should

[473] Cockell and Horneck, "Planetary parks—formulating a wilderness policy for planetary bodies" *Space Policy* 22, no. 4 (2006); Persson, The axiological basis of planetary protection 2017; Schwartz, "Where no planetary protection policy has gone before"; Beisbart, "Is transplanetary sustainability a good idea? An answer from the perspective of conceptual engineering" ibid. (2019); Losch.

endorse the somewhat controversial conclusion that earthlings are to be prioritized over Martian humans. Even if the life of Martian humans is at stake? If shared habitation and gravity indeed draw hyperplanes in the moral space, then, as counterintuitive as it might sound, yes; shared habitation prioritizes those who share the resource. It must be emphasized, just as rights are not by themselves reasons for action, having a claim towards a resource is not a reason to exercise it, nor to deny others access to it. Self-owners have discretion to assess other considerations. Compassion, shared humanity, or some other non-justice derived reason could potentially override shared habitation. However, the task at hand is not a theory of compassion or shared humanity, it is a theory natural resources justice. Therefore, in extreme circumstances, as the one described before, shared habitation prioritizes those sharing the resource in (relative) close proximity over other potential claimants, and this is a demand of justice, or so I argue.

The normatively relevant upshots are, first, that shared habitation does create hyperplanes in the moral space, and second, that gravity is a plausible physical proxy to draw the boundaries. Shared habitation is one of the normative considerations that define the practical implications of the forbearance obligation. The next task is to elucidate how this affects a terrestrial outer space resource regime, what demands it imposes, and what limits on ownership it justifies.

8.3 Regimes for Terrestrial Resources

As previously mentioned, orbital slots are the only outer space resource with a governing regime. Evaluating it helps to frame the discussion, identifying the relevant normative and non-normative variables at play, and how they interact with other. With this in mind, notice that there could not be a more fitting regime for a libertarian thesis, for it is hard to find a real-life regime more consistent with (right) libertarian tenets: it permits firstcomers

to appropriate, in all but name, limitless amounts of a scarce resource, with no (substantive) regard to its distributional consequences.

8.3.1 Libertarianism off-Earth

Orbital slots are allotted by the International Telecommunications Union (ITU), an UN-related organization tasked with overseeing and coordinating the use of frequency bands, and orbital position.[474] It assigns orbits on a 'first come, first served' basis, for an indefinite period. Notably, the ITU does not operates by consensus, and does not have enforcement powers to sanction violations.[475] Up until 2009, orbital slots were assigned with no associated fees or costs, and the ITU services were offered for free to member states. Since that year it charges a fee, which range from hundreds to tens of thousands of euros.[476] Given that the ITU lacks enforcement powers, and considering the fact that charges for its services are recent, the evolution of the current regime could be characterized as a transition from the ultraminimal state to the minimal state –borrowing Nozick's nomenclature.

As stated earlier, regimes should create the conditions for resources to be used, preventing misuse and overuse, as well as securing that everyone with an interest can either access the resources or its benefits. The ITU (weakly) aims at these goals. Article 12 of its constitution defines its function. After declaring that 'the particular concerns of developing countries' should be considered, it establishes that is must ensure 'the rational, equitable, efficient and economical use' of the radio-frequency spectrum and all satellites' orbits, 'subject to the provisions of Article 44.' Paragraph 1 of article 44 stipulates: 'Member States shall endeavour to limit the number of frequencies and the spectrum used to the minimum essential', while Paragraph 2 declares:

> Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbits, are limited natural resources and that

[474] ITU, See also subsection 3.2
[475] Jakhu; Weeden and Chow. Cahill.
[476] Galeriu, "Paper Satellites" and the Free Use of Outer Space"" *New York: New York University School of Law, January/February* (2015).

> they must be used rationally, efficiently and economically…so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries.[477]

Through the prism of political theory, the label libertarian fits like a glove. The ITU regime permits appropriation, with practically no limits, and almost no regards to its distributive consequences, bar the reminder to members that because orbits are limited access should be equitable. Viewed from the perspective of self-ownership, the regime gives due respect to the authority of owners, as holders of a slot have absolute discretion to decide what to use it for –to set its agenda. Viewed from the forbearance obligation, the analysis below shows that it creates the conditions for relations of dependency, which gives reasons to reject it. Relatedly, judged through the prism of its self-imposed goals, the regime has been successful in promoting the use of the resource, but it has failed in achieving equitable access, and a rational and efficient use of it.

8.3.2 Paper Satellites, Kessler Syndromes, and Orbital Fairness

The ITU regime has failed to promote equitable access. The allocation mechanism favours firstcomers, namely wealthy nations: of the 4,550 satellites in orbit, 2,804 are registered to United States-related agencies or businesses, 467 to China, 349 to the United Kingdom, 168 to Russia, and 93 to Japan. That is, three of the oldest space actors, the US, Russia, and the UK, control 75% of operative satellites.[478] Further, according to their height, or distance from Earth, three types of orbits can be identified: high, medium, and low Earth orbit.[479] They are all in high demand.[480] Consider two examples. Weather satellites, like the one that helped in the Pakistan floods, operate in high orbits, known as geostationary orbits, because objects located there appear fixed from Earth, providing permanent view of a specific

[477] ITU, Constitution of the International Telecommunication Union.
[478] Dewesoft,
[479] Riebeek, "Catalog of Earth Satellite Orbits", NASA.
[480] Billing.

part of the Earth's surface. There are only 1,800 geostationary orbital slots, of which 541 are now occupied, and most of the unoccupied slots have already been claimed. (Not all geostationary orbits are equally valuable, for those that cover populated areas are more needed, and profitable, than those located over the ocean, for example.) Low Earth orbit (LEO) is as congested as geostationary orbits. Currently there are a number of internet services whose satellites operate in LEO. The most successful to date, SpaceX's Starlink, owns and operates more than a third of the total satellites in orbit.

While a right libertarian could justify the resulting unequal distribution as the unavoidable consequence the exercise of freedom, the same cannot be said of the inefficient use of orbits, illustrated by the so-called 'paper satellites' or slot 'warehousing' problem.[481] Because the ITU allocates slots in perpetuity, and because priority is given to those who claim first, there is a rush to claim the remaining slots with the sole purpose of holding it for a given country or company: 'the single most important issue [for the ITU] is the reservation of capacity without actual use…Eliminating or minimizing the opportunity to acquire uncommitted resources could help alleviate the current orbital congestion.'[482] Most of the time, satellites never materialize, remaining only a request on paper. This 'orbital speculation spree' makes the market seem saturated, even though there are no satellites in orbit.[483]

This orbital speculation spree is partly driven by non-spacefaring nations who, in order to prevent being left behind, have submitted claims to orbital slots they cannot utilize, or not traditionally. A paradigmatic case is Tongasat, the Tongan space program. Although it lacked spacefaring capabilities, in the late 1980s Tonga gained the right to six orbits. In two it actually positioned satellites, two were rented out, and the remaining two were auctioned. At the time,

[481] Cahill; Adilov et al., "Left For Dead: Anti-Competitive Behavior In Orbital Space" *Economic Inquiry* 57, no. 3 (2019); Allison, "The Advent of Paper Satellites," in *The ITU and Managing Satellite Orbital and Spectrum Resources in the 21st Century*, 2014.
[482] Jones as quoted in de Man, p 215.
[483] Galeriu.

Tonga was criticized for not having the real intention of using the orbits, but to seek rent from them. Tonga's riposte emphasized that this actually help to supplement its GNP.[484] Framed through the forbearance obligation, Tonga's actions are warranted. If it holds that owners have discretion to decide the use of a resource, then they can decide whether to use directly or indirectly. Leasing ensures that the resource is effectively used, thus avoiding objections on the basis that non-use constitutes an imposition on others (more below). Moreover, if developing nations were prioritized when distributing orbits, even if they lacked spacefaring capabilities, then such a rule could be interpreted as complying with Rawls' difference principle. (Related distributive issues are further explored later).

The ITU tackled this problem by introducing in 2009 the aforementioned charge for its services, and modifying its rules: orbits must be used within seven years, otherwise they become available again. However, because it did not define a clear criterion for use, now the controversy revolves around what constitutes effective use.[485] (Additionally, this highlights the relevance of defining a proper achievement criterion when allocating entitlements).

Paper satellites bring to the fore two salient issues discussed in this project. They illustrate the problematic implications of centring ownership on exclusion rather than use. Exclusion without use promotes a state of affairs in which resources are underused or misused, and thus wasted. Lockeans should condemn this appealing to the non-wastage proviso: if spoilage is generally wrong, then spoilage of a resource integral to almost everyone is immoral. Kantians and neo-republicans could stress that claims towards orbital slots transforms exclusion without use into an imposition on others. Relatedly, exclusion without use does not

[484] Cahill, p 244; Van Fossen, "Globalization, stateless capitalism, and the international political economy of Tonga's satellite venture" *Pacific Studies* 22 (1999).
[485] De Man, "Rights over Areas vs Resources in outer Space: What's the Use of Orbital Slots" *J. Space L.* 38 (2012); Van Fossen.

meets FO's achievement criterion: there is no occupation. If there is no occupation, no rights were created, and thus there is no appropriation; the resources remain unowned.

In addition to concentration, the current regime fosters the conditions so that, today, there is an orbital congestion problem, which reveals its irrational nature. Consider the case of LEO. Currently there are more than 20,000 objects orbiting Earth, including operational satellites.[486] The more objects, the greater the risk of collision. It has already put people's lives at risk: as the result of a Russian anti-satellite missile test,[487] on November 15, 2021, the astronauts at the ISS had to take shelter in their emergency return vehicles when faced with the risk of a collision with space debris.[488]

It is feared that congestion my eventually render all orbits in this spectrum useless, since space debris might turn this inexhaustible resource unusable: the Kessler Syndrome. In 1978 NASA scientist Donald Kessler warned of a potential scenario in which the density of objects in orbit, both operational and non-operational, will be so high that collisions between objects could cause a cascade effect, each collision generating more debris, which in turn increases the likelihood of further collisions, and so on. According to the European Space Agency (ESA), over the last two decades 12 accidental 'fragmentations' occurred every year. The concern is that, sooner rather than later, the point will be reached where space debris will prevent the use of orbits. It has even been warned that an 'economic Kessler Syndrome' may precede a physical Kessler Syndrome: the risk of collision can become so high that 'firms find it economically unprofitable to launch new satellites even when there are no functioning satellites in orbit.'[489]

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[486] Béal et al.
[487] Nazarenko, "The forecast of near-Earth space contamination for 200 years and the Kessler Syndrome" *Site "http:\\www. satmotion. ru*.
[488] Kizer Whit, "Kessler syndrome in real life? ISS astronauts shelter from debris", *EarthSky*, 2021.
[489] Adilov et al., "An economic "Kessler Syndrome": A dynamic model of earth orbit debris" *Economics Letters* 166 (2018), pp 79-80.

Paper satellites and Kessler Syndrome illustrate the shortcomings of the current regime. The Kessler Syndrome reveals its irrationality: it cannot prevent a potentially perennial resource from becoming unusable. Paper satellites illustrate the flaws of a boundary approach to ownership: it permits non-use or underuse of a resource, which are arbitrary interferences on others. This is consequence of considering exclusion the fundamental element of ownership when exclusion analytically precedes use. By contrast, structuring ownership upon the right to use prevents non-use or sub-optimal use from occurring, for exclusion is justified iff a resource is effectively used –occupied. Further, effective use provides other self-owners with a reason for respecting an agents autonomous decision: because we all want to pursue our ends, then we shall want that others do not prevent me from pursuing my ends.

8.3.3 A Left-Libertarian Alternative

Given all of the above, the main problem of the current regime is not so much that it generates and promotes inequality, but that it fosters an irrational and inefficient use of orbital slots. Through the prism of FO, the key concern is the state of affairs it promotes. As highlighted in the introductory chapter, satellite images were pivotal in focalizing aid, and in raising awareness during the floods that affected Pakistan in 2022.[490] However, countries with no spacefaring capabilities depend on the good will of those who own satellites to get the images they need, when they need them. Herein shines a glimpse of how a libertarian can, justify limits on appropriation, and do so without appealing to pre-political or status-based common ownership rights, but on its impacts on personal autonomy.

The concentration of a certain resource in a few hands creates a situation in which some self-owners remain at the mercy of others. Countries that lack spacefaring capabilities, or latecomers in this domain, end up in a dependency relationship. FO prohibits such a state of

[490] https://www.theguardian.com/global-development/2022/sep/01/pakistan-floods-satellite-images-underwater-urgent-aid-appeal

affairs since dependency hinders autonomy (see the discussion of Nozick's water hole in a desert in 8.4.3). Conceding this point, it is possible to identify at least two possible interpretations of its commands. A lenient reading would deem permissible the concentration of the resource, probably arguing that it is a natural monopoly and therefore everyone benefits from concentration. At the same time, it would establish a proviso prioritizing the satisfaction of basic needs –eg disaster management– above any trivial use.

A stronger interpretation of FO would demand that a certain number of orbits be allocated to every country, prioritizing developing countries and those who do not have orbits, or have few. This permits the incorporation of non-spacefaring nations and latecomers into the orbit market, thus ensuring that the benefits reach everyone. Spacefaring agents would be able to directly use and benefit from orbits. Non-spacefaring agents would do so indirectly, by leasing them –Tongasat. This would allow them to negotiate favourable conditions, such as that in natural catastrophes the services that the country needs must be provided. Furthermore, the regime could adopt a geographical rationale –for lack of a better term, and in the specific case of geostationary orbits, allocate them prioritizing the countries over which these are located. This could be interpreted as a local level application of the shared habitation principle, which in the previous discussion was framed exclusively as a global or planetary principle. There are no reasons why not to apply such a logic within Earth's confines, since shared habitation is a proxy to identify the agents whose interests must be considered. The point is that Tonga or Pakistan have an interest in the geostationary orbit above them that differs from that of Brazil or the Netherlands, if they have any at all. It could be said that the former's interest is not only greater, but different in kind too, since monitoring local natural disasters, for example, is not an entitlement, but an obligation governments owe their constituents. Insofar as it is an obligation they must discharge, this justifies granting them a stronger claim, or a claim whose special nature supersedes other considerations.

8.3.4 The Anti-Commons Tragedy

In 1976 seven equatorial states, Ecuador, Colombia, Congo, Democratic Republic of the Congo, Uganda, and Kenya, signed the Bogotá declaration. In it they asserted a sovereignty claim over those portions of the geostationary orbit that continuously lie over their territories, arguing that they were not in outer space, and therefore these resources were under their jurisdiction . This implied the possibility of charging a fee to any user of the orbit.

I am not interested in evaluating the merits of the claim, but in the logic behind it: that their sovereign territorial rights can segment orbits –they project a local level shared habitation, which in turn would give them the right to rent from these segments. In the literature this is known as the anti-commons problem, or gridlock economy, a situation in which the abundance of private rights –as opposed to the lack of them in the tragedy of the commons– promotes suboptimal uses of resources, or to not use them at all. This is so because, in practice, individual property rights become a veto power. For example, despite the growth of the airline industry, since 1975 only one airport has been built in the US. The reason is that constructing airports requires buying and/or expropriating large extensions of land, dealing with multiple owners and local communities. Since the agreement of all is required, it is enough for one of the parties to refuse to prevent the construction. This, in practice, gives the owner of each segment a veto power, as anyone can block a project.[491] Whereas the tragedy of the commons is a problem of overexploitation due to a lack of private ownership rights, the tragedy of the anti-commons is a problem of under exploitation due to an excess of private ownership rights. The former centres on use/control rights, the latter on exclusion rights.

FO in conjunction with shared habitation recognize limited merit in the Bogotá declaration. First, consider that the difference between a geostationary orbit from an orbit in

[491] Heller, The gridlock economy: How too much ownership wrecks markets stops innovation, and costs lives 2010, pp 8-9; see also Landry, "Tragedy of the Anticommons: The Economic Inefficiencies of Space Law, A" *Brook. J. Int'l L.* 38 (2012).

LEO is that in the former the object appears immobile, while in the latter objects makes various revolutions around Earth –the ISS make 19 revolutions a day, while a geostationary object moves together with Earth. Now, let us say that each country under an orbit can levy a tax on each object that passes through it. This would imply that a Mongolian satellite in a LEO orbit over latitude 50 North would have to pay taxes to Germany, Luxembourg, and France, among many others. There are obvious redistribution issues here, yet I would like to centre on the consequences of fragmenting the entitlements over a natural resource. It is not difficult to imagine how segmenting orbits with a territorial logic could lead to a gridlock, which prevents the efficient use of the resource. This, under the terms of the forbearance obligation, is impermissible, because it would constitute an arbitrary imposition on the will of others. There are resources that, due to their characteristics, the right to use them cannot be segmented. That being said, shared habitation would grant countries special claims over their geostationary orbits, for the reasons offered earlier. To avoid reiterating the argument, I just want to point out that the normative heavy lifting is done by the combination between the special interest countries putatively have, and that a geostationary orbit allows an exclusive use, whereas others kind of orbits do not.

To sum up, ITU's regime can plausibly be defined as right-libertarian. It allows (in all but name) the appropriation of a resource, favouring firstcomers, demanding minimum conditions for allocating orbits. It is difficult to conceive of a regime with fewer restrictions on appropriation. Likewise, it is just as difficult to conceive of a less desirable regime, particularly considering its consequences: in addition to generating serious inequalities, it is not capable of preventing either the under exploitation of the resource or that it becomes unusable. As such, it is a self-defeating regime, it cannot be universalized. However, it does recognize a key feature of ownership, as it grants self-owners the authority to decide how to use a resource.

8.4 On the Nature of a Resource, and Uncommon Tragedies

So far I have focused almost exclusively on normative reasons for rejecting the current regime: ITU's distributive principle and its implications. This and the following sections explore the non-normative relevant variables that any resource regime must consider, the physical properties and relative availability of the resource in question.

8.4.1 The Tragedy of an Uncommon Resource

The physical characteristics of orbital slots makes them analytically interesting, and normatively unique: they are limited, yet inexhaustible. Limited, because Earth, like all celestial bodies, is a finite body, and thus there are a finite number of orbits to allocate. Further, to operate safely and avoid interferences, orbits must be distanced from each other, and there can only be one object per orbit –they are an excludable good. Consequently, the bigger the satellite or station, the greater the distance needed between objects to operate in safely. That is, the availability of orbital slots is limited but not fixed, as it might decrease as the size of objects increases, and vice versa. Despite being limited, orbital slots are inexhaustible, inasmuch as they are intangible they cannot be used up, nor do they 'wear and tear' detrimentally affecting their properties. When an object leaves, the orbit it is immediately available, and the next user receives the exact same resource as the previous user, with the same quality. In economic parlance, orbital slots are an excludable good capable of providing an endless stream of varied benefits, provided they are properly managed. This relates them with the class of resources that is subject to the so-called *Tragedy of the Commons*.

As was discussed in 3.2.3, what makes a resource subject to the tragedy of the commons is whether it is renewable and or not, and whether the regimen governing it permits its overexploitation. Orbital slots meet these conditions, although differently. Orbits are not renewable, like coal is, but they are inexhaustible in that their capacity to provide benefits is endless. Likewise, orbits cannot be overexploited, yet both Kessler Syndromes demonstrate that intangible resources are subject to an equivalent problem: they might become unusable.

These disastrous outcomes are the result of individuals performing rational actions –to maximize their own benefit, and a regime that does not allocate the benefits and costs of using a resource appropriately; costs are shared by all, the benefits accrue exclusively to each user.

Regimes governing this class of resources must prioritize coordinating the actions of different actors to prevent the tragic result that is detrimental for everyone. That is, coordination takes logical and normative precedence to distributive issues because failure to coordinate risks rendering the resource unusable; if there is no usable resource, there is nothing to be distributed. Considering the limited number of orbits and their inexhaustible nature, and shared habitation, taken together they justify establishing limits on how orbits should be distributed, prioritizing certain uses, and conditions on use. Two examples illustrate, and thus help to make the case for these implications. (The examples below lie in the area where the variables of the nature of the resource and the nature of its derived benefits intersect.)

8.4.2 A regime for Limited, Inexhaustible Resources

Considering the nature of orbital slots, I argue that we have reasons to prioritize non-trivial uses over trivial ones. Say there is one orbit left, and a choice must be made between allocating it to a laboratory to 3D print organs or to a space hotel. Unquestionably, the former should be preferred over the latter. The rationale is the same as in the *Last Bottle of Milk* series of examples discussed in 2.2: if a resource is relatively scarce, priority must be given to the non-trivial uses, for they usually entail the satisfaction of basic needs, a necessary condition for setting and pursuing ends. This can be grounded appealing to the finitude of agents, and to the fact that we are earthlings –shared habitation. Limits on appropriation are justified not because the resource is owned in common, but because sufficientarian claims trump trivial uses.

The implications can be generalized as follows: given (i) that there is a limited number of orbits, (ii) that not all are equally valuable, and (iii) that there are trivial and non-trivial uses;

these considerations justify prioritizing non-trivial uses. Specifically, it justifies giving lexical priority to those whose benefits are significant and irreplaceable, and those uses that benefit a greater number of people, over trivial uses that benefits few agents. In Patagonia shared habitation permits killing animals for survival; in terrestrial outer space, it permits prioritizing non-trivial uses, for survival in some cases, and because it benefits a greater number of self-owners, thus permitting them to pursue their ends, in others.

This problem can also be addressed from a Kantian viewpoint. Adopting FO in cases concerning trivial vs non-trivial uses, imply the more restricted maxim *when considering whether to appropriate an orbital slot, if others need it for non-trivial uses, then I would not appropriate if my intended use is trivial*. It is possible for everyone to simultaneously act according to it, for everyone would have their basic needs satisfied, and a rational agent would will that others prioritize her non-trivial uses above their trivial ones. The argument could be adjusted depending on the considerations taken into account.

It must be clarified that this does not implies that trivial uses are immoral or impermissible, it just puts them at the bottom of the priority list. Recreational uses, like space hotels, should be permissible once and if the needs of the most, or the vital needs of a few, are satisfied. In the extreme case that a choice must be made between organs or telecommunications, by itself the forbearance obligation cannot provide an answer. Depending on the circumstances, it must include some subsidiary principle, as well as other considerations. Likewise, it must be stressed that shared habitation does not ground positive entitlements, such as a right towards an organ, and therefore no agent has a correlative obligation to print organs. Nor does it imply that those who invested resources in developing the laboratory for printing the organs cannot profit from them; prioritizing communication satellites because they benefit us all does not create entitlements over the services they provide.

If the concern is that the lack of positive entitlements towards benefits might in practice prevent those who need them the most from benefiting, such cases should never happen in the first place. Recall that the distribution of orbits, argued for in the previous section, either secures access to certain services, or to a minimum number of orbits. The latter aims to give non-spacefaring agents better bargaining power to establish favourable terms, such as a provision that requires the delivery of specific services under certain conditions. Compounded with the above, inexhaustible resources require, as a demand of justice, that their governing regime fosters conditions so that they never become unusable, or overexploited. In the specific case of orbital slots, it justifies imposing conditions on use concerning the lifespan of objects put into orbit, and what happens once they are obsolete or no longer in use. Something like this is already in place.

Objects in orbit do not last forever, as they have limited fuel capacity, and the extreme conditions of outer space can put a lot of wear and tear on them. Objects in LEO are subject to what is known as the '25-year Rule': if there is less than 1 in 10,000 probabilities of injury or property damage, operators lower the orbit of a decommissioned satellite so that it naturally re-enters the atmosphere within 25 years, hence its name. The heat from air friction disintegrates the object before reaches Earth's surface. If the odds are greater than 1 in 10,000, a 'controlled deorbit' is required, in which objects fall into an ocean area dubbed the 'Spacecraft Cemetery.' Satellites in geostationary orbits have a different afterlife, as the costs of a controlled deorbit rule out this alternative. Once the useful life of an object expires, these are located in what is known as graveyard orbits, which are located 300 km higher than geostationary orbits, where 'they are left to orbit in peace.'[492]

Notice, however, that graveyard orbits do not solve the problem of space debris, they only manage it, and one may say unsatisfactorily. Given the risks posed by the Kessler

[492] NOAA, "Graveyard Orbits and the Satellite Afterlife".

Syndrome, it can be argued that shared habitation imposes, first, a negative obligation not to contribute to generating more space debris. Here I acknowledge the limits of my scientific knowledge, but a plausible guideline could be that any measure that maintains or increases the risk of Kessler Syndrome simply does not meet a minimum standard. Second, a positive obligation to eliminate all possible space debris. The distribution of responsibility for discharging this obligation may follow a combination of the polluter-pays-principle and the ability-to-pay-principle, as discussed in the debate on climate change.[493] Since one of the five treaties comprising corpus juris spatialis is the *Registration Agreement*, all objects ever launched into space have been rigorously catalogued, including who launched them. This allows responsibilities to be distributed almost without error. This could follow a proportional criterion, by which states are responsible for cleaning up space debris in proportion to their registered objects. Faced with the so-called objection of ignorance, since Kessler published his article in 1978, this date establishes a clear limit on which this argument holds. Consequently, the responsibility for objects launched before this threshold could be distributed proportionally among all those who can bear this cost, according to the ability-to-pay-principle.

8.4.3 Governing the Scarcest Resource There Is

Orbital slots are not the only intangible, limited, inexhaustible terrestrial outer space resource. There is another resource with these same characteristics, plus one that makes it uniquely rare: it is the scarcest imaginable. This permit introducing a new variable in the analysis: the material availability of a resource.

Lagrange Points (LP) are positions in space where the gravitational forces of two large body masses, like the Sun-Earth system (Figure 1), produce regions where a small mass can orbit in a constant pattern with these two larger masses and move with them. Lagrange Points

[493] Among many others see Page, "Distributing the burdens of climate change" *Environmental Politics* 17, no. 4 (2008); Caney, "Climate change and the duties of the advantaged" *Critical review of international social and political philosophy* 13, no. 1 (2010).

are known as ‘parking places in space’ because ‘The interaction of the forces creates a point of equilibrium where a spacecraft may be “parked” to make observations’, which reduces the fuel consumption necessary to remain in position.[494] There are five LP on any three body systems, the third body in question is the object placed at LP. For example, the majority of the asteroids in the solar system are located in the Sun-Jupiter LPs. Sun-Earth LP are known as Sun LP, and Earth-Moon system as Lunar LP.

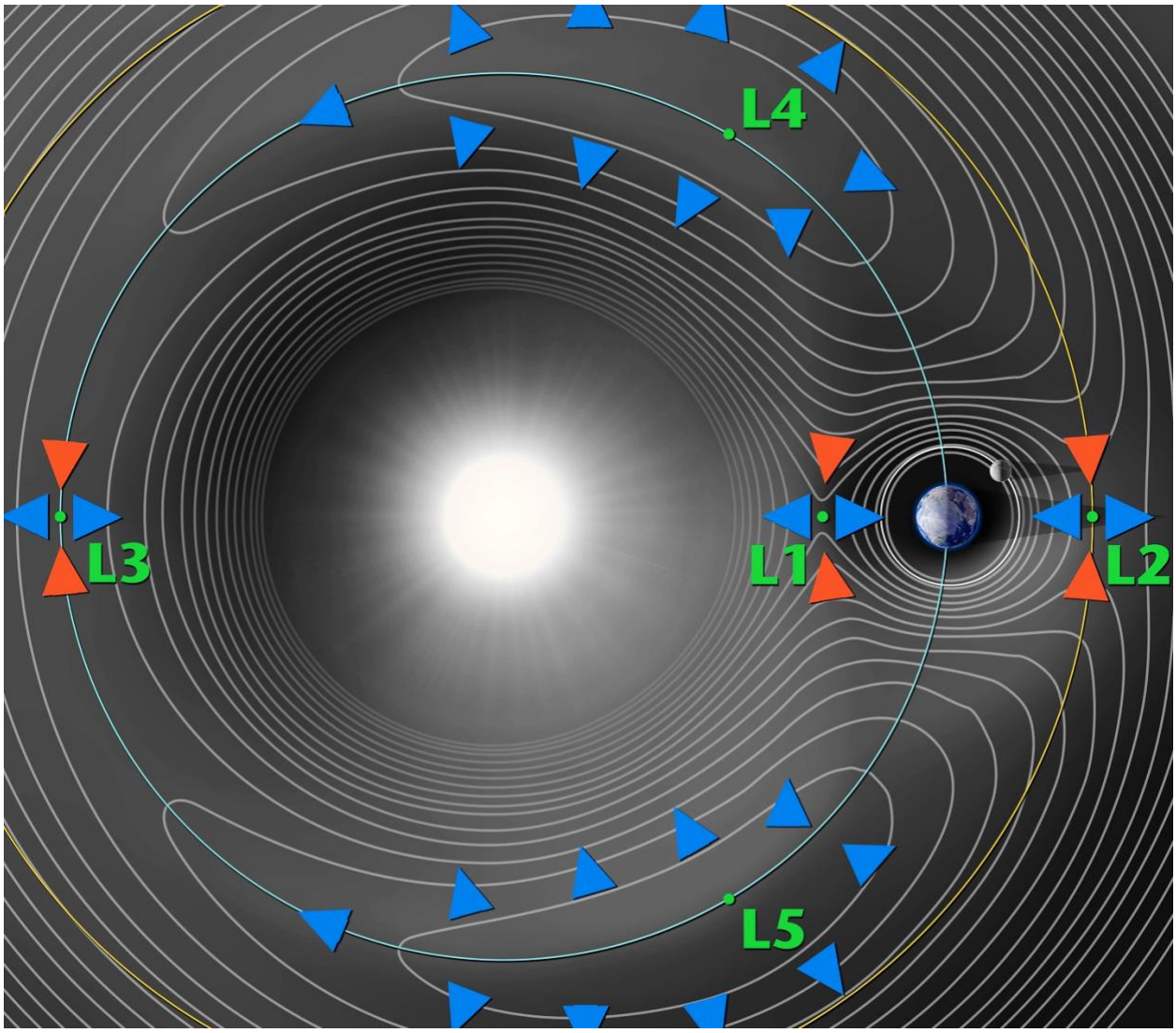
Sun L1, L2, and L3 lie along the line connecting Earth and the sun. These are unstable, in that a spacecraft must use frequent rocket firings to stay in ‘halo orbits’ around these points.[495] In turn, L4 precedes Earth, whereas L5 follows it. These are the most sought after, for they are home to stable orbits, which means that they will be dragged by the compound effect of the gravity of both objects, with almost no corrections needed to stay in orbit. The five Lunar LP are usable, whereas only four Sun LP are usable. Sun L3 lies at the other side of the sun, and thus from Earth’s perspective remains hidden behind it at all times. This makes reaching it extremely difficult, and communications with an object located there are almost impossible.

Why are Lagrange points relevant? Because they provide vantage points for all kind of space activities. Sun L1 affords an uninterrupted view of the sun and is currently home to NASA’s Solar and Heliospheric Observatory Satellite (SOHO), while Sun L2 was the home to the WMAP spacecraft, Planck telescope, and now homes the James Webb Space Telescope. Moreover, all four usable Sun LP are ideal locations for asteroid-hunting spacecrafts, since these areas are more sensitive to the tiny infrared signals from asteroids (used to detect them), and thus it would be better able to locate and classify them.[496] Whoever accesses these points

[494] Howell and Sharp, "Lagrange Points: Parking Places in Space”. See also Cornish, "What is a Lagrange Point?”, NASA Science.
[495] In general, L point operations costs are low: only four to six manoeuvrers per year are required Ross and Lo, "The Lunar L1 gateway - Portal to the stars and beyond" in *AIAA Space 2001 Conference and Exposition*..
[496] Howell and Sharp,

and produces this information will have a substantial competitive advantage in the ultra-terrestrial market of NEAs and their mineral resources.

Figure 1 Lagrange Points



Source: NASA 2018

For their part, Lunar LPs are for the moon what geostationary orbits are for Earth: they allow permanent observation over a point on the lunar surface. A Deep Space Habitat –outer space station– located at Lunar L1 or L2 would facilitate both NEAs and lunar exploration, as

well as scientific research, lowering the cost of operations.[497] It is argued that Lunar L1 is 'an ideal next step' for extended human presence in space, because it requires less fuel to reach it, and allows permanent communication with Earth.[498] In 1986 the US National Commission on Space recommended a base at either one of the two stable Lunar L4 and L5 because they 'would make an excellent "interplanetary gas station", providing fuel and spacecraft service. It would also be an ideal site for processing raw ore from the Moon.'[499] As a means to illustrate the range of potential uses, a group of scientists suggested Lunar LP as locations for large, permanent outer space settlements.

There are few resources where their relative scarcity is so salient. To the best of my knowledge, and imagination,[500] there is no other natural resource of which there are only five or nine units, depending on whether Sun LPs are consider terrestrial or not (more on this later). It is not necessary to be egalitarian to deduce that this allows justifying limits regarding the use and appropriation of such a scarce resource, and whose benefits are so peculiar. Regardless, what is indeed necessary is to justify these limits.

When discussing his version of the Lockean Proviso,[501] Nozick argued 'Each owner's title to his holding includes the historical shadow of the Lockean proviso on appropriation'. On his view, this shadow impedes self-owners from using their holdings in a manner that 'violate the proviso by making the situation of others worse than their baseline situation.' Nozick contends that when the conditions established by the proviso are not met 'there are stringent limits on what he may do with (what it is difficult any longer unreservedly to call) "his property."' He illustrates the implications with the example of a water hole in a desert, arguing

[497] Roberts, "The Law of the Commons: A Framework for the Efficient and Equitable Use of the Lagrange Points" *Conn. J. Int'l L.* 6 (1990); Bobskill and Lupisella, "Earth-Moon L1 / L2 Infrastructure – What Role Does It Play?" in *Human Exploration Community Workshop on the Global Exploration Roadmap*.
[498] Ross and Lo.
[499] Cited in Roberts, p 157.
[500] At least I have been looking for one that is just as scarce with no success.
[501] Nozick, pp 178-82.

that no individual may appropriate it and charge what he will. Further, in the event that the hole has been previously appropriated, for reasons unrelated to the owner, and all other desert water holes are dried up, he asserts 'This unfortunate circumstance, admittedly no fault of his, brings into operation the Lockean proviso and limits his property rights.'[502]

It is plausible to draw a parallel between Nozick's water holes and LPs, and argue that it is simply impermissible for a single agent to control a resource with these characteristics. Without a doubt, the scarcity of the resource does much of the work. However, the forbearance obligation does have something to say too. As argued earlier when evaluating the ITU regime, the FO prohibits a state of affairs that foster relations of dependency. Whoever controls an LP, because of their physical characteristics, will simply dominate all other agents, which any theory of justice should deem immoral.

Regarding the question of what kinds of restrictions on appropriation justify this extreme scarcity, Nozick's conclusions provide a good starting point. In the case of the water hole in the desert, it justifies preventing its appropriation, and prioritizing uses. Given the emphasis on uses, it is worth including the variable of the nature of the benefits in the analysis of LPs, as well as how many could potentially benefit. Consider the following: terrestrial uses have a wide variety of uses, ranging from commercial and entertainment, to scientific research and developing public policies. That is, we all directly and indirectly benefit from them. Unlike terrestrial orbits, the direct benefits of LPs are scientific, and research related, whereas only indirectly benefit the rest of us. The distinction between direct and indirect benefits may be misleading. Perhaps a better alternative may be to assess how pervasive they are. Nomenclature issue notwithstanding, the point is to ascertain the difference between the nature of the benefits of orbits and those of LPs. The former are used by a large number of people, and for a significant number they represent an indispensable means to their ends, there are more

[502] Ibid., 179.

claimants whose direct interests must be considered. By contrast, LPs offer a narrower range of potential uses, and only a handful of agents can effectively use an LP. However, their benefits might indirectly reach us all. Taken all into account, I claim that LPs should be used exclusively for scientific research. Earlier I claimed that trivial uses, such as space hotels, simply fell to the bottom of the priority list. In this case, I argue, such trivial are simply impermissible. This is explained, because of the fact that there are only nine LPs, and because scientific uses could potentially benefit a greater number of self-owners, albeit indirectly, than a space hotel. Allowing a hotel to be located there can be seen as a few imposing their will on almost all of humanity.

Before moving on, notice that Sun LPs evince one of the shortcomings of gravity as a proxy with which to define the scope of the forbearance obligation. Lunar LPs perfectly satisfy the condition for terrestrial resources, for it is Earth's gravity, together with that of its natural satellite, which creates the three-body system. That is not case with Sun LPs, as it is the sun's gravity which those the heavy-pulling, and Earth gravity's contribution is subsidiary. I note this not because it is a problem that needs to be solved –probably a convoluted subsidiary principle might bridge the gap, but to highlight the fact that gravity is a proxy, and therefore, imperfect. It is a heuristic device, a plausible and useful one, but is not more than that.

Finally, there is another terrestrial resource that is almost equally scarce, but unlike orbits and LPs, it is non-renewable, and for this reason what is limited is not the resource, but the benefits derived from it. This permits the exploration of another dimension of what justice demands in circumstances of relative scarceness.

8.4.4 Governing Limited, Exhaustible Terrestrial Resources

Up to this point, the discussion has centred on intangible, inexhaustible resources. Now it is time to study resources that are almost the opposite, so to speak: tangible, exhaustible resources. This is reduced basically to the Moon and her minerals.

Tangible, exhaustible resources are defined as excludable and rival, in that it is relatively costless to exclude other potential users, and their consumption limits that of a second party –if there is any left. Because this class of resources are not subject *The Tragedy of the Commons*, to determine what justice demands one needs to weight different considerations than those discussed so far, or assess them in a different manner. Distributive concerns take normative precedence over coordination problems. In addition, we must consider a particular characteristic that distinguishes Lunar mineral resources from their equivalent terrestrial minerals: at least with the technology available today, they are both abundant and limited.

They are abundant because, as noted in the introduction, there is enough lunar water deposits to launch one space shuttle per day for 2,200 years.'[503] Likewise, the moon is plentiful in other minerals like helium-3 (He-3), a rare isotope of helium which is scarce on Earth. He-3 can be used in nuclear fusion which, which does not creates radioactive by-products –for which is has been hailed as the solution to humanity's energy demand, and in medical research, among other scientific uses.[504] However, as was also highlighted, this apparent abundance is misleading, because to exploit these minerals two conditions are needed: there needs to be water in the immediate vicinity, to decompose into hydrogen for fuel, and oxygen for human consumptions; and sun light for solar power. So far only ten sites like this have been identified, each spanning a few kilometres across. This explains which they are dubbed 'lunar jackpots'.[505] When applied under these conditions, FO would yield a maxim 'when allocating lunar

[503] Spudis as quoted in Rincon, "Ice Depostis found at Moon's Pole", *BBC News*, 2010.
[504] O'Reilly and von Frese.
[505] Elvis et al.

jackpots, priority should be given to non-trivial uses that benefit the largest possible set of agents.'

As with Lagrange Points, extreme scarcity does most of the normative work. However, notice that LPs are scarce due to their nature, there are only nine, whereas lunar minerals scarcity is contingent upon technological developments. The potential uses of both are strongly research-related because scientist are almost the only ones who can effectively use the resource, and therefore directly benefit from it. Taken together, this should give us reason to preserve these 10 lunar jackpots exclusively for scientific uses. Shared habitation further requires in this case that the benefits obtained be distributed in 'some egalitarian manner', to borrow the left-libertarian mantra.

This conclusion needs to be caveated: if technological developments allow more areas of the moon to be exploited, more efficiently, and so on, then it should be reassessed whether there are permissible trivial uses, given this new relative availability. For example, to transform mines into space hotels, once they exhaust minerals are exhausted.[506].

8.5 A Regime for Non-Terrestrial Resources

Since, to date, projects to exploit non-terrestrial resources are nothing more than that, to be carried out sometime in the future, it is impossible to address this subject without speculating, resorting to hypotheticals. There are two reasons why this is obstacle is not fatal.

While most asteroids are located between the orbits of Mars and Jupiter, in the so-called Asteroid Belt, there are over 16,000 NEAs whose orbit around the sun are in close proximity to our planet's orbit. About ten percent of NEAs are easier to get to than the Moon.[507] NEAs are rich in water and minerals, including nickel-iron, silicate, and semiconductor and platinum group metals. The latter can be exploited for commercial gains, both on and off-Earth: 'These

[506] Wittenberg et al.
[507] PR, "Redefining Natural Resources"; Sonter, "Asteroid Mining: Key to the Space Economy", www.space.com.

metals are used in automobiles, jewelry, medicines, and electronics. In space, they can be used to 3D print spacecraft components, enabling building and maintenance to occur in orbit.'[508] Water, in turn, can be decomposed in hydrogen and oxygen: the latter is vital to sustain life, the former can be used as propellent for spacecrafts.[509] There are existing commercial ventures whose aim is to transform NEAs into 'refuelling stations for NASA and commercial spacecrafts'.[510] In a 2017 report, investment bank Goldman Sachs declared that asteroid mining 'could be more realistic than perceived', explaining that a single asteroid containing US$ 25 billions to US$ 50 billions of platinum could be exploited by a spacecraft costing only US$ 2.6 billion –less than a third of what has been invested in Uber.[511]

NEAs share some of the characteristics of previously studied resources, but they have key features set them apart. They share with lunar regolith and orbits that they are economically and strategically valuable, and have varied potential uses and benefits. Contrary to all resources studied so far, they are relatively abundant. Moreover, because of their location, they are suitable for what is known as in situ resource utilization, to the generation of products for human activities from ultra-terrestrial raw materials.[512] This is what makes them unique, and illustrative of everything discussed up to this point. On the one hand, they are more suitable for generating what is called an off-Earth economy. On the other, because NEAs orbit the sun, not Earth, they are properly non-terrestrial. Therefore, they are beyond the scope of shared habitation, beyond terrestrial justice. This leads to the second reason why it is not a fatal problem to have to speculate and draw on hypotheticals.

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[508] Anderson et al., "The development of natural resources in outer space" *Journal of Energy & Natural Resources Law* 37, no. 2 (2019), p 3.
[509] PR, ; SR, "Resources in Space"..
[510] TA, "Opening the solar system to humanity"..
[511] cited in Mann, "Who's in charge of outer space?", *Wall Street Journal*, 2017..
[512] Abreu, ed. *Primitive Meteorites and Asteroids*, 2018; Starr and Muscatello, "Mars in situ resource utilization: a review" *Planetary and Space Science* 182 (2020).

The main contention of this chapter is that shared habitation justifies limiting the appropriation of the terrestrial resources, but that non-terrestrial resources are outside of its purview. If this holds, then there is no regime governing these resources. They are outside the scope of justice. They will be within human justice once self-owner reaches them and establishes effective occupation. Then, they will be under the purview of the forbearance obligation.

This ethical principle whose aim is to ensure that each individual can independently set and pursue their own ends, regardless of whether these are on or off-Earth. It is an action guiding principle, because it provides agents in the domain of outer space a means with which to determine if their actions constitute and undue imposition on the will of others. FO offers a criterion to identify the relevant normative considerations, given the circumstances in which an action will be performed, and act accordingly. As such, it permits putting different pieces into place, coherently, with the necessary flexibility to adapt to changing environments.

If self-owners exploiting the class of resources represented by NEAs decide to build an off-Earth economy, they can do so free of any constraints. Shared terrestrial habitation makes no claims on those resources, imposes no demands on those agents. In the Kantian tradition, the need for justice is a consequence of the interaction between people, and the reciprocal obligation to avoid imposing their wills on others. Those who interact in the domain of the NEAs will have this obligation, and will have a symmetrical sufficientarian claim that could be labelled shared NEA, for lack of a better term.

On the contrary, if self-owners decide to bring them to Earth and incorporate them into the world economy, then they will be under the purview of terrestrial justice. In such a case, the normative pull would not be done by shared habitation, nor by our condition of earthlings, but by the fact that these resources will be one more element in the web of interactions connecting us. This brings them within the sphere of earthly justice.

8.6 Conclusion

The argument defended in this chapter built on the premise that the moral space is divided into different segments, and that specific principles and considerations governed each of them. I argued that shared habitation describes a hyperplane, distinguishing two types of natural resource, terrestrial, which are under its purview, and non-terrestrial. Then, I used these categories and the forbearance obligation to, first, evaluate the only active regime governing a terrestrial outer space resource, orbital slots, and then establish guidelines and basic conditions that must be fulfilled by regimes governing different classes of resources. All this allowed establishing justified limits to the appropriation of natural resources, and therefore to the sphere in which the self-owners can act independently. Finally, I outlined what would bring non-terrestrial resources within justice, arguing that they would fall under the purview of the forbearance obligation.

This completes and concludes the obligation-based libertarian theory to govern outer space natural resources.

9 Conclusion

The frontiers of ethics expand together with those of human progress and technological developments. These widen the sphere of existing domains of activities, as well as creating new domains previously not possible. These new scenarios confront us with normative obstacles that we never had to overcome before. This thesis sought to answered questions that, when Nozick pondered about Lockean astronauts, were merely ingenious or expressive. Almost half a century later, after 14 missions to Mars, placing satellites in its orbits, making a helicopter fly in its thin air, and having rovers roaming its surfaces –which recently allowed us to hear a meteoroid cross the sky of the Red Planet, enquiring about non-terrestrial appropriation is inevitable, is mandatory.

The debate on ownership is anything but novel. For centuries, if not millennia, political theory has examined appropriation, privatization, and what pattern, if any, a distribution of holdings must take to be fair. Natural resources have been part and parcel of the discussion. Space exploration changed neither the problems nor the questions. However, it changed the background conditions framing the discussion. In doing so, it presents us with an opportunity, a vantage point from which to evaluate our earthbound moral reasoning. The historical debate on ownership bestowed us with robust theoretical foundations on which to construct normative assessment on its merits and limitations. Inevitably, we also inherit a series of background assumptions, platitudes that limit the discussion, restricting the range of alternatives considered. The most relevant for this project are the twin ideas of humanity's common ownership of Earth, and that outer space is the common heritage of humankind. One of the main contributions of this thesis to political thought is to demonstrate that there are no moral grounds to substantiate common ownership of Earth, and therefore that the natural world is unowned, subject to be appropriated. A derivative contribution is that it justifies a sufficientarian limit on appropriation on the non-normative fact of our earthling nature. These

conclusions, however, rather than closing the discussion, open up an extensive set of questions, ranging from the moral status of the natural world, to what moral agents can legitimately do with external resources. This thesis answered them by putting individuals front and centre.

In the Kantian tradition, from which this thesis is tributary, the need for justice arises from the assumption that individuals are ends in themselves, and from the non-normative fact that the resources with which we purse them are relatively scarce, and therefore we will inevitably assert competing claims about the natural world. Kantians resolve this dilemma arguing that we have an obligation to enter into the civil condition, since only in this situation will the acts of appropriation be fair. The problem with this solution is that it works well at the state level, but its viability at the interstate or global level, as well as its suitability, are doubtful. Implementing it on an even larger scale, outer space, appears to be nothing more than a well-intentioned aspiration. For its part, the libertarian tradition while recognizing the need to create a common authority, its jurisdiction is so narrow that makes permissible distributive inequalities that many condemn as immoral. The forbearance obligation attempts to integrate the most compelling elements of each of these traditions.

From libertarianism it takes the centrality of individual freedom, and how this imposes clear, stringent limits on what others can do. This is embodied in the right of self-ownership. However, it draws on the Kantian tradition, and on a though-provoking analytical suggestion by two libertarian authors, to reformulate self-ownership in two significant ways. First, the jurisdictional approach advanced construe it as a self-owner's authority to set the agenda for her life. Authority connotes a special standing vis-à-vis others, not an expansive power to change the normative situation of others. Second, it does not treat self-ownership as the fundamental premise of the theory, but as a derivative consideration. This is the second relevant contribution to the literature, an obligation-based articulation of libertarianism that considers the right of self-ownership ancillary to the forbearance obligation. In contrast to rights-based

libertarian theories that aim to answer the question of what others cannot do to self-owners, the forbearance obligation aims to answer the question of what self-owners should do to respect the authority of others, and thus honour them as ends in themselves.

A final contribution relates to the location of this obligation-based theory within the broader distributive justice debate. Left-libertarianism is often characterized as an intermediate path between egalitarianism and right-libertarianism. The libertarian component is supplied by the right of self-ownership, the egalitarian by the claim that natural resources are owned in an egalitarian manner. Since the latter does not hold, it would seem that left-libertarianism has lost half of its theoretical foundations. But appearances can be misleading. The present theory bridges this apparent gap grounding so-called egalitarian concerns on non-normative natural facts. To forbear to impose ourselves on others is to treat self-owners not as mere means, but as ends in themselves too.

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