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Interstitial Space Law

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INTERSTITIAL SPACE LAW

MELISSA J. DURKEE*

ABSTRACT

Conventionally, customary international law is developed through the actions and beliefs of nations. International treaties are interpreted, in part, by assessing how the parties to the treaty behave. This Article observes that these forms of uncodified international law—custom and subsequent treaty practice—are also developed through a nation’s reactions, or failures to react, to acts and beliefs that can be attributed to it. I call this “attributed lawmaking.”

Consider the new commercial space race. Innovators like SpaceX and Blue Origin seek a permissive legal environment. A Cold-War-era treaty does not seem adequately to address contemporary plans for space. The treaty does, however, attribute private sector activity to nations. The theory of attributed lawmaking suggests that the attribution renders the activity of private actors in space relevant to the development of binding international legal rules. As a doctrinal matter, private activity that is attributed to the state becomes “state practice” for the purpose of treaty interpretation or customary international law formation. Moreover, as a matter of realpolitik, private actors standing in the shoes of the state can force states into a reactive posture, easing the commercially preferred rules into law through the power of inertia and changes to the status quo. Attributed lawmaking is not a new phenomenon but it may have increasing significance at a time when multilateral lawmaking is at an ebb, lines between public and private entities are blurring, and the question of attribution becomes both more complex and more urgent.

* J. Alton Hosch Associate Professor of Law, University of Georgia. This Article advances a larger project that explores how business entities shape the content and effect of international laws. For very helpful feedback I thank Erez Aloni, Sadie Blanchard, Harlan Grant Cohen, Margaret DeGuzman, James Thuo Gathii, Catherine Hardee, Duncan Hollis, Mary Beth O’Connell, Galit Safarty, Peter Spiro, James Stewart, David Zaring, and participants at workshops at Loyola University Chicago School of Law, Notre Dame Law School, Temple Law School, the University of British Columbia Allard School of Law, Vanderbilt Law School, the American Society of International Law Midyear Forum at UCLA Law, the Annual Meeting of the Law & Society Association in Toronto, and the International Business Law Roundtable at Brooklyn Law School. Special thanks to Savannah Harrison, Jack Richards, and the UGA Law Library for research assistance.

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INTRODUCTION

When Jeff Bezos, Elon Musk, and Google get behind a new idea, the world takes notice. All three are now entrants in the new commercial space race.¹ The result is Blue Origin, SpaceX, and the Lunar X Prize, and, according to Morgan Stanley, space may soon be a \$1.1 trillion industry.² Yet much of the planned commercial activity may be technically illegal. The legal question is whether companies may make commercial use of outer space resources. The answer depends on the proper interpretation of a Cold-War-era international treaty called the Outer Space Treaty, whose meaning is contested at crucial junctures.³ The debate about how to interpret this treaty is unfolding around the world at international institutions, think tanks, legislatures, and in the popular press.⁴ Industry presses for a resolution in favor of commercial use, claiming that uncertainty leeches investment dollars,⁵ strangles weaker entrants,⁶ and stymies innovations that could

1. See, e.g., Erin Winick, *Get Ready for These Rocket Milestones in 2019*, MIT TECH. REV. (Jan. 3, 2019), <https://www.technologyreview.com/s/612691/get-ready-for-these-rocket-milestones-in-2019/> [<https://perma.cc/YFD2-WEP3>] (reporting on planned launches in 2019 for SpaceX, Blue Origin, Boeing, Virgin Galactic, and others, including from China, India, and Israel; noting legacy of Google's Lunar X Prize).

2. *Space: Investing in the Final Frontier*, MORGAN STANLEY (Nov. 7, 2018), <https://www.morganstanley.com/ideas/investing-in-space> [<https://perma.cc/FJB8-88KN>] (estimating that “the global space industry could generate revenue of \$1.1 trillion or more in 2040, up from \$350 billion” in 2018; predicting that “initiatives by large public and private firms suggest that space is an area where we will see significant development”).

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

4. See, e.g., *Private Sector Lunar Exploration: Hearing Before the Subcomm. on Space of the H. Comm. on Sci., Space, and Tech.*, 115th Cong. (2017) (exploring, inter alia, debate about international law that applies to private sector lunar exploration); *Reopening the American Frontier: Reducing Regulatory Barriers and Expanding American Free Enterprise in Space: Hearing Before the Subcomm. on Space, Sci., and Competitiveness of the S. Comm. on Commerce, Sci., and Transp.*, 115th Cong. (2017) (same, with an expanded focus on various outer space activities); DIRECTORATE OF STUDIES, INT'L INST. OF SPACE LAW, DOES INTERNATIONAL SPACE LAW EITHER PERMIT OR PROHIBIT THE TAKING OF RESOURCES IN OUTER SPACE AND ON CELESTIAL BODIES, AND HOW IS THIS RELEVANT FOR NATIONAL ACTORS? WHAT IS THE CONTEXT, AND WHAT ARE THE CONTOURS AND LIMITS OF THIS PERMISSION OR PROHIBITION? (2016), https://iislweb.org/docs/IISL_Space_Mining_Study.pdf [<https://perma.cc/HD36-YXP2>] (industry group white paper on debate); Comm. on the Peaceful Uses of Outer Space, Rep. on Its Sixtieth Session ¶¶ 227–37, U.N. Doc. A/72/20 (June 27, 2017), <https://undocs.org/A/72/20> [<https://perma.cc/LQ2L-XDAZ>] (recording debate between nations in an international forum).

5. See AM. ASTRONAUTICAL SOC'Y, FINAL REPORT, AMERICAN ASTRONAUTICAL SOCIETY INTERNATIONAL PROGRAMS COMMITTEE WORKSHOP ON INTERNATIONAL LEGAL REGIMES GOVERNING SPACE ACTIVITIES 1 (2001) (recognizing as early as 2001 that space companies need “predictable, transparent and flexible international and domestic legal frameworks” in order to secure and protect investments in the new space race).

6. See, e.g., Jeff Foust, *Planetary Resources Revising Plans After Funding Setback*, SPACE NEWS (Mar. 12, 2018), <https://spacenews.com/planetary-resources-revising-plans-after-funding-setback/> [<https://perma.cc/9ZVF-L8LT>] (reporting that asteroid mining company Planetary Resources

solve critical problems on Earth.⁷ Yet others argue that international space law unequivocally prohibits extending capitalist resource appropriation to outer space.⁸ The debate is entrenched and, for the burgeoning space industry, existential.

The Article uses the space law debate as a test case for a theory of international lawmaking I call “attributed lawmaking.” The theory asserts that private conduct can contribute to the formation of uncodified international law—customary international law and treaty practice—when that private conduct is attributed or imputed to the state.⁹ The theory exposes the relevance of new facts that could (for better or for worse) resolve the space law debate.¹⁰ Yet its implications reach far beyond this debate. It uncovers the potentially disquieting consequence that private business entities can have a legally sanctioned role to play in creating law in a variety of areas when the state fails so to do.

Conventionally, customary international law is the product of acts and assertions of nations that aggregate over time like precedents in a common law system.¹¹ When a sufficient number of nations have converged upon a

faced resource shortages and had to start shrinking its business due to the instability of property rights in outer space, which limited the types of investment vehicles available to the company).

7. See Richard B. Bilder, *A Legal Regime for the Mining of Helium-3 on the Moon: U.S. Policy Options*, 33 *FORDHAM INT'L L.J.* 243, 243, 246 (2010) (noting that the major spacefaring nations are exploring whether they can mine and bring to Earth Helium-3, thought to be present in large amounts in lunar soil; He-3, light enough to carry in a space shuttle, “is theoretically an ideal fuel for thermonuclear fusion power reactors, which could serve as a virtually limitless source of safe and non-polluting energy” and eliminate Earth’s dependence on fossil fuels for centuries).

8. See, e.g., Zachos A. Paliouras, *The Non-Appropriation Principle: The Grundnorm of International Space Law*, 27 *LEIDEN J. INT'L L.* 37, 50 (2014) (“[A]s a matter of international law, the appropriation of any part of outer space . . . by private individuals is precluded by Article II of the Outer Space Treaty. Hence, any state that confers proprietary rights in outer space would commit an internationally wrongful act”); *Space Law*, 54 *INT'L L. ASS'N REP. CONF.* 405, 429 (1970) (“the draftsmen of the principle of non-appropriation never intended this principle to be circumvented by allowing private entities to appropriate areas of the Moon and other celestial bodies”); see generally Abigail D. Pershing, Note, *Interpreting the Outer Space Treaty’s Non-Appropriation Principle: Customary International Law from 1967 to Today*, 44 *YALE J. INT'L L.* 149, 154–57 (2019) (gathering sources to argue that the non-appropriation principle was originally intended to be construed broadly and to unambiguously prohibit any appropriation of outer space resources).

9. Existing literatures have observed that non-state actors such as international organizations, NGOs, and others participate in custom formation by collecting evidence of state practice and opinio juris, and by crystallizing, formalizing, or urging adoption of various rules. See sources cited *infra* Part I.B.2. Others have argued that the conventional account of custom formation should be expanded to include the practice of non-state actors. See *infra* Part I.B.2. Unlike those accounts, the Article observes that non-state actors contribute directly to custom formation when their conduct is attributed to the state, and that the practice of non-state actors is relevant to custom formation under existing doctrines, not prospective ones.

10. See discussion *infra* Part II.C.

11. See, e.g., *RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES* § 102(2) (AM. LAW INST. 1987) (“Customary international law results from a general and consistent practice of states followed by them from a sense of legal obligation.”); *North Sea Continental Shelf*

legal rule through their actions or reactions, the rule becomes binding law,¹² and can be invoked in national and international courts, as well as in diplomatic contexts.¹³ Customary international law was once the predominant form of international law, and its importance persists. Indeed, in an era of nationalist retraction, where major multilateral treaty regimes are facing existential threats,¹⁴ international custom may be experiencing a resurgence.¹⁵

The conventional account of how customary international law is created is, however, incomplete.¹⁶ It does not account for the *acts and assertions of private business entities*, which take on lawmaking significance in certain circumstances.¹⁷ In particular, the theory of attributed lawmaking asserts

(Ger./Den.; Ger./Neth.), Judgment, 1969 I.C.J. Rep. 4, ¶ 77 (Feb. 20) (“Not only must the acts concerned amount to a settled practice, but they must also be such, or be carried out in such a way, as to be evidence of a belief that this practice is rendered obligatory by the existence of a rule of law requiring it.”).

12. See COMM. ON FORMATION OF CUSTOMARY (GENERAL) INT’L LAW, INT’L LAW ASS’N, STATEMENT OF PRINCIPLES APPLICABLE TO THE FORMATION OF GENERAL CUSTOMARY INTERNATIONAL LAW 8–10 (2000) (“If a sufficiently extensive and representative number of States participate in such a practice in a consistent manner, the resulting rule is one of ‘general customary international law’ . . . binding on all States.”); see also Statute of the International Court of Justice art. 38(1)(b), June 26, 1945, 59 Stat. 1055 [hereinafter ICJ Statute] (requiring that in disputes before it the Court shall apply “international custom, as evidence of a general practice accepted as law”); ROSALYN HIGGINS, THE DEVELOPMENT OF INTERNATIONAL LAW THROUGH THE POLITICAL ORGANS OF THE UNITED NATIONS 1–2 (1963) (“The emergence of a customary rule of law occurs where there has grown up a clear and continuous habit of performing certain actions in the conviction that they are obligatory under international law.”).

13. JAMES CRAWFORD, BROWNIE’S PRINCIPLES OF PUBLIC INTERNATIONAL LAW 23 (8th ed. 2012) (noting that the existence of a customary rule is determined by “a legal adviser, a court, a government, a commentator”).

14. Harlan Grant Cohen, Editorial Comment, *Multilateralism’s Life Cycle*, 112 AM. J. INT’L L. 47, 48 (2018) (describing current “anti-globalist turns” and suggesting that “multilateralism and multilateral institutions have a life cycle”).

15. E.g., BRIAN D. LEPARD, CUSTOMARY INTERNATIONAL LAW: A NEW THEORY WITH PRACTICAL APPLICATIONS 3–6 (2010) (collecting evidence in defense of the assertion that custom is “playing an increasingly prominent role in the international legal system”); see discussion *infra* Part I.B.1.

16. There is an ample literature critiquing the conventional account of customary international law. Critics have noted, for example, that there is no agreement about how many precedents are necessary to determine that a customary rule has formed; that custom privileges powerful states with well-staffed foreign ministries at the expense of newer, weaker, or poorer states; that the two element approach does not describe how custom actually forms, because governments and courts tend to focus only on one or the other; or that the approach is problematic as a normative matter. For a brief review of these and other critiques see Curtis A. Bradley, *Introduction: Custom’s Future*, in CUSTOM’S FUTURE: INTERNATIONAL LAW IN A CHANGING WORLD 1, 1–3 (Curtis A. Bradley ed., 2016) [hereinafter CUSTOM’S FUTURE]. This project sets aside these complaints and also assumes for the sake of argument that customary law forms and binds states in roughly the way the conventional account dictates. Taking this positivist, formalist starting point, the theory of attributed lawmaking proposes that the traditional account is nevertheless incomplete in an important way.

17. This is not to say that the doctrine of attributed lawmaking has always been overlooked. As several readers have suggested, the European colonial trading companies established in the 16th and 17th centuries often held sovereign immunities and exercised power of the state, such as the “national foreign policy” of the state, and would have likely have had their conduct attributed to the state for

that when the conduct of a private actor becomes attributed or imputed to the state under existing international legal doctrines, this conduct counts among the behavioral building blocks that contribute to the formation of customary international law. That is, because the private conduct is attributed to the state, it contributes to the formation of a customary legal rule. The challenge is to determine when private conduct becomes attributed to the state. For example, a private business entity can be an “organ” or “agent” of the state,¹⁸ or nations can take responsibility for certain business activity through treaties.¹⁹ These principles are not new. What the attributed lawmaking theory contributes is the observation that attribution for the purposes of state responsibility also has significant and underappreciated lawmaking implications.

Space law offers a case study. In the space law arena, it is possible to argue that private companies are themselves developing the international law of outer space. They can do this by advancing the legal principles of their choice—to legislators, investors, and the popular press, and with their actual rocket launches.²⁰ Under this argument, the behavior of these companies *is itself* the “subsequent practice” that determines how the Outer Space Treaty should be interpreted.²¹ Because private missions are defined by the Outer Space treaty as “national” missions, which are attributed to the home nation and for which home nations are responsible,²² these private acts can also be attributed to those nations for the purposes of customary law formation and treaty interpretation. This is because when a corporation whose activity is attributed to the state publicly asserts a legal rule and acts on it, and a nation does nothing, that nation implicitly accepts the corporate rule.²³ In the absence of direct evidence of a nation’s acts and assertions in support of a customary rule, the actions of private space companies—which

lawmaking purposes. See Ann M. Carlos & Stephen Nicholas, “Giants of an Earlier Capitalism”: *The Chartered Trading Companies as Modern Multinationals*, 62 BUS. HIST. REV. 398, 402 (1988).

18. See Draft Articles on Responsibility of States for Internationally Wrongful Acts, Report of the International Law Commission on the Work of Its Fifty-Third Session, U.N. GAOR, 56th Sess., Supp. No. 10, at 43, U.N. Doc. A/56/10 (2001) arts. 4(1), 5 cmt. 2, 8 [hereinafter Articles on State Responsibility] (determining that conduct of a private actor is attributed to a nation for the purposes of state responsibility when the private actor is an “organ” of the state, empowered “to exercise elements of governmental authority,” or “acting on the instructions of, or under the direction or control of” the state).

19. Daniel Bodansky & John R. Crook, *Symposium: The ILC’s State Responsibility Articles: Introduction and Overview*, 96 AM. J. INT’L L. 773, 783 (2002).

20. See discussion *infra* Part II.C.2.

21. Vienna Convention on the Law of Treaties art. 31 ¶ 3(b), May 23, 1969, 1155 U.N.T.S. 331 (entered into force Jan. 27, 1980).

22. Outer Space Treaty, *supra* note 3, at art. VI; see also discussion *infra* Part II.C.1.

23. See discussion *infra* Part I.C.1.

are attributed to the nation—become the best evidence of a nation’s embrace of a particular interpretation of the Outer Space Treaty.

The result, the Article shows, is that private companies may be forcing development of an international legal rule that is permissive to appropriation of space resources. The Article stops short of concluding that attributed lawmaking offers a final resolution to the debate.²⁴ Rather, it identifies a potential legal argument that attributed treaty practice on this topic exists and bolsters arguments that the Outer Space Treaty does not prohibit commercial appropriation.

The theory’s implications might be unsettling. Attributed lawmaking raises legitimate concerns about market actors shaping international law, and doing so without a deliberative process. It may also exacerbate existing concerns about customary international law and treaty practice that stem from their characteristics as uncodified, behaviorally-based law, such as the possibility of structural inequities, indeterminacy, lack of sovereign equality, procedural deficits, or legitimacy problems. Moreover, the theory of attributed lawmaking extends beyond space law to other arenas where corporate acts can become attributed to the state, such as, potentially, human rights, cyberspace, and the laws of war, where corporate lawmaking could conceivably threaten the public interest.²⁵ Yet nations are not helpless in the face of these potential implications. Governments can trump attributed state practice or treaty practice by asserting their lawmaking authority. They can generate *opinio juris*, clarify their treaty practice, or form new international agreements. In sum, nations retain choices about how international law develops.

The space law case study suggests that when nations do not exploit the choice to proactively develop international law, private actors can shape it instead. The attributed lawmaking theory shows that private actors can contribute to formal lawmaking by standing in the shoes of the state—they are lawmakers by attribution. Yet even when private entities do not stand in the shoes of the state, their assertions and behavior can come to have legal relevance. When space companies launch, extract, and sell outer space resources, they force their home states and others into a reactive posture, increasing the likelihood that their chosen legal principles will prevail and harden into law. In other words, when private actors assert a legal rule and

24. Indeed, it is not the primary purpose of this Article to resolve that debate. If the principal goal were to suggest possible resolutions, or perhaps resolutions to which the private sector could contribute, a simpler method would be to propose a set of principles or other normative guidance. For example, private parties could formulate a code of conduct, subscribe to it, and urge national adoption. This Article engages, instead, in doctrinal and descriptive analysis, proposing that the building blocks for customary international law are already forming in this area, and doing so in an underappreciated manner.

25. See discussion *infra* Part III.B.

act on it, they change the status quo against which states regulate, and thereby nudge the law in their chosen directions. The story is thus not only about formal legal doctrine, but also about relative power, and the ability of private actors to shift international legal rules in their favor.

The analysis builds on and contributes to standard accounts of custom formation. Those accounts have considered whether non-state actors like international organizations or non-governmental organizations *can* affect the formation of international law,²⁶ and whether armed groups, indigenous groups, and others *should* be permitted to do so.²⁷ The Article identifies the significance of a different set of actors (business entities) and a different mechanism of custom formation (through attribution). The analysis thereby also enriches literatures that examine how business actors participate in international lawmaking. Existing work in this area examines how business entities lobby at the national or international levels;²⁸ observe or participate in multi-stakeholder institutions;²⁹ set standards;³⁰ contribute to treaty law;³¹ engage in regulatory arbitrage; and govern their own supply chains throughout the world.³² An analysis of business contributions to uncodified formal international law—customary international law and treaty practice—extends this literature in an important and underappreciated direction.³³

26. See generally CUSTOM'S FUTURE, *supra* note 16 (collecting literature); PATRICK DUMBERRY, THE FORMATION AND IDENTIFICATION OF RULES OF CUSTOMARY INTERNATIONAL LAW IN INTERNATIONAL INVESTMENT LAW 119 n.12 (2016) (same); LEPARD, *supra* note 15, at 3–6 (same); S. James Anaya, *Customary International Law*, 92 AM. SOC'Y INT'L L. PROC. 41, 43 (1998) (same).

27. See, e.g., Anthea Roberts & Sandesh Sivakumaran, *Lawmaking by Nonstate Actors: Engaging Armed Groups in the Creation of International Humanitarian Law*, 37 YALE J. INT'L L. 107 (2012) (freedom fighters and armed groups are capable of creating a quasi-custom that should have some status in international law); Anaya, *supra* note 26, at 43 (indigenous groups).

28. See, e.g., Eyal Benvenisti, *Exit and Voice in the Age of Globalization*, 98 MICH. L. REV. 167, 170 (1999) (conceiving of the sovereign state as an agent of small interest groups); Melissa J. Durkee, *International Lobbying Law*, 127 YALE L.J. 1742 (2018) (describing international lobbying).

29. See, e.g., Kenneth W. Abbott & David Gartner, *Reimagining Participation in International Institutions*, 8 J. INT'L L. & INT'L REL. 1 (2012) (multistakeholder structures); Kenneth W. Abbott & Duncan Snidal, *Strengthening International Regulation Through Transnational New Governance: Overcoming the Orchestration Deficit*, 42 VAND. J. TRANSNAT'L L. 501 (2009) (cooperative public-private mechanisms and projects).

30. See, e.g., TIM BÜTHE & WALTER MATTLI, THE NEW GLOBAL RULERS: THE PRIVATIZATION OF REGULATION IN THE WORLD ECONOMY (2011) (reviewing delegation of regulatory power to international private-sector standard-setting organizations).

31. See, e.g., Melissa J. Durkee, *The Business of Treaties*, 63 UCLA L. REV. 264 (2016) (reviewing business contributions to treaty drafting).

32. See, e.g., JOHN BRAITHWAITE & PETER DRAHOS, GLOBAL BUSINESS REGULATION (2000) (sociological account of regulatory arbitrage); Walter Mattli & Ngaire Woods, *Introduction to THE POLITICS OF GLOBAL REGULATION*, at ix (Walter Mattli & Ngaire Woods eds., 2009) (political science account).

33. See Jeffrey L. Dunoff & Mark A. Pollack, *Reviewing Two Decades of IL/IR Scholarship: What We've Learned, What's Next*, in INTERDISCIPLINARY PERSPECTIVES ON INTERNATIONAL LAW AND INTERNATIONAL RELATIONS: THE STATE OF THE ART 626, 631 (Jeffrey L. Dunoff & Mark A. Pollack eds., 2013) (asserting that a review of two decades of international law and international relations scholarship reveals the "persistent neglect" of custom as a "manifest weakness" of the field).

A discerning reader may have puzzled over a double meaning embedded within the Article's title. The title could suggest an analysis of space law, which is in some sense interstitial. Alternatively, it could concern a law of the interstitial spaces. In fact, the duality frames the dual ambitions of the project. On one level, the Article addresses a doctrinal puzzle about international space law, and specifically about what it regulates. The question itself has great practical implications for a burgeoning multi-billion dollar commercial space industry and for whether that industry will have internationally recognized rights to exploit a common good for commercial gain. On another level, the Article views international space law as a useful case study for a larger phenomenon: it uncovers an overlooked method by which the private sector may be contributing to the development of binding international law. It is that latter frame which makes the lawmaking puzzle that space law offers particularly interesting and worthy of consideration by a larger audience. If binding international law is being developed and forced by private commercial entities, then lawyers, scholars, and policymakers concerned with diverse global problems should turn their attention to the potential and peril of this private lawmaking activity.

The Article proceeds as follows: Part I develops the theory of attributed lawmaking, situating it within conventional accounts of customary international law formation and treaty practice, and theories of attribution in international law. Part II embeds this theory in a case study: May private commercial entities appropriate resources from asteroids, the moon, and other celestial bodies? The Part considers existing treaty law, new national laws in the United States and Luxembourg, and the entrenched scholarly debate. The Part argues that the theory of attributed lawmaking disrupts the debate by uncovering the significance of a new set of facts—the behavior of private companies. Part III addresses potential critiques and limitations of the theory, as well as panning out to consider private lawmaking in a broader context, as a theory of relative power. In this broader context, the space law case study shows how private entities make law by thrusting states into a reactive position and changing the status quo against which international law develops.

I. ATTRIBUTED LAWMAKING

This Part introduces the theory of attributed lawmaking and places it in its doctrinal and scholarly context. As a precursor to the case study in Part II, the Part begins by situating the theory in the context of the new space race.

A. *Who Makes International Law?*

In early 2019, a small Israeli company called SpaceIL launched a moon lander called “Beresheet.”³⁴ SpaceIL began working on this mission eight years earlier in a bid to compete for Google’s Lunar X Prize—a \$30 million inducement for private companies to try to land a robotic spacecraft on the moon.³⁵ SpaceIL did not win the competition, but it raised money, perfected its product, and went ahead anyway, launching its lander atop the Falcon 9 rocket made by Elon Musk’s flamboyant and ambitious new company, SpaceX.³⁶

In Hebrew, “Beresheet” means “in the beginning,” and, indeed, the mission was a beginning.³⁷ Beresheet “couldn’t quite stick the landing,” as controllers lost contact with the spacecraft just before it crash-landed on the moon’s surface.³⁸ But Beresheet nevertheless represents the first ever privately-funded mission to the moon,³⁹ and its maker immediately formed plans to try again.⁴⁰ The story made global headlines, yet also represents just the tip of the iceberg when it comes to private plans for outer space. With SpaceX drastically reducing the price of rocket launches, Blue Origin, Moon Express, Virgin Galactic, and over seventy other commercial space startups each have their own ambitious projects in the wings.⁴¹

These private sector activities bump up against fundamental questions about whether outer space will be subject to the rule of law, or whether it

34. Hanneke Weitering, *SpaceX Rocket Launches 1st Private Moon Lander for Israel*, SPACE.COM (Feb. 22, 2019), <https://www.space.com/spacex-israeli-moon-lander-satellites-launch-success.html> [<https://perma.cc/KAU4-XVX4>].

35. *Id.*

36. *Id.*

37. *Id.*

38. Meghan Bartels, *Space is Hard, Beresheet Israeli Lunar Crash Proves Again*, SPACE.COM (Apr. 14, 2019), <https://www.space.com/israeli-moon-lander-crash-space-is-hard.html> [<https://perma.cc/8NMG-Y7KS>].

39. Weitering, *supra* note 34.

40. Bartels, *supra* note 38.

41. See BMI RESEARCH, MINING FINAL FRONTIERS: SPACE MINING GAINING TRACTION (2017) (stating that more than thirteen billion dollars has been invested in over eighty space start-ups since 2000). In early March 2019, SpaceX also launched the “Crew Dragon” spacecraft, intended to carry crews to the international space station, potentially even in 2019. Kenneth Chang, *SpaceX and NASA Launch Is First Step to Renewed Human Spaceflight*, N.Y. TIMES (Mar. 1, 2019), <https://www.nytimes.com/2019/03/01/science/spacex-crew-dragon-launch.html> [<https://perma.cc/7JZM-YKCD>]. According to SpaceX founder Elon Musk, the company’s next step is to “focus all of its engineering talent on building its Mars rocket.” Jackie Wattles, *SpaceX Launches Its Newest Falcon 9 Rocket*, CNN BUS. (May 11, 2018, 5:29 PM), <http://money.cnn.com/2018/05/11/technology/future/spacex-falcon-9-block-5-launch/index.html> [<https://perma.cc/2TGE-BHTR>]. Meanwhile, last May, Chinese company OneSpace, a private startup likened to SpaceX, successfully launched a private rocket into space—the first time a private company in China has managed the feat. Michelle Toh & Serenitie Wang, *OneSpace Launches China’s First Private Rocket*, CNN BUS. (May 17, 2018, 6:09 AM), <http://money.cnn.com/2018/05/16/technology/onespace-china-spacex-startup/index.html> [[https://perma .cc/S2S6-ACU6](https://perma.cc/S2S6-ACU6)].

will be a realm of self-help, piracy, and wild west-style appropriation. The Outer Space Treaty and other Cold War era agreements lay groundwork but do not unambiguously address a slew of questions settling rights, expectations, and responsibilities in outer space.⁴² The agreements do not offer high levels of certainty to investors. They leave plausible questions about who may benefit from outer space activities, and if and how those actors may lay a claim. The stage is set for a new gold-rush: a Silicon-Valley, dot-com-boom-style race to space.

Private companies are seizing the opportunity this loosely governed arena presents.⁴³ They are working on a number of levels to announce the legal principles of their choice: lobbying governmental regulators and international institutions, and, significantly, broadcasting their proposed legal rules in media interviews, press releases, investor reports, and congressional hearings.⁴⁴

When nations assert a legal rule, and then act on it, and a number of nations converge in their assertions and acts, we call this customary international law.⁴⁵ Similarly, parties to a treaty can contribute to setting the meaning of the treaty through their “subsequent practice.”⁴⁶ Private actors are not so empowered as lawmakers. But their behavior is nevertheless relevant to the creation of uncodified international law—custom and treaty interpretation—in significant and underappreciated ways.

Little has been said about the role of private business actors in forming uncodified formal international law, like custom.⁴⁷ The reason, perhaps, is

42. See discussion *infra* Part II.A.2.

43. See discussion *infra* Part II.C.2.

44. See discussion *infra* Part II.C.2.

45. See discussion *infra* Part I.B.1.

46. Vienna Convention on the Law of Treaties, *supra* note 21, at art. 31 ¶ 3(b).

47. See discussion *infra* Part I.B.2. By contrast, a voluminous literature considers business influence on informal or “bottom-up” lawmaking—that is, business roles in setting codes of conduct and private standards and contributing to “soft” or voluntary international law or international regulation. See, e.g., Janet Koven Levit, *A Bottom-Up Approach to International Lawmaking: The Tale of Three Trade Finance Instruments*, 30 YALE J. INT’L L. 125, 126, 128 (2005) (describing how informal rules “blossom into law”; these rules are the “creation of private bankers,” “public export credit insurers,” and others); Markus Wagner, *Regulatory Space in International Trade Law and International Investment Law*, 36 U. PA. J. INT’L L. 1, 56–58 (2014) (describing mechanism whereby the WTO Sanitary and Phytosanitary (SPS) Agreement incorporates privately-created international standards); BÜTHE & MATTLI, *supra* note 30 (reviewing delegation of regulatory power to international private-sector standard setting organizations). An incipient literature also studies business influence on international treaty-making and, in turn, on formal international treaty law. See, e.g., Durkee, *supra* note 31; see also Benvenisti, *supra* note 28, at 170 (conceiving of the sovereign state as an agent of small interest groups); Rachel Brewster, *The Domestic Origins of International Agreements*, 44 VA. J. INT’L L. 501, 539 (2004) (“Governments may form treaties for many of the same reasons that they enact statutes—to achieve domestic goals.”); see generally Robert D. Putnam, *Diplomacy and Domestic Politics: The Logic of Two-Level Games*, 42 INT’L ORG. 427 (1988) (theorizing that the negotiating behavior of national leaders reflects the dual and simultaneous pressures of international and domestic political games).

that in the latter half of the twentieth century and the beginning of the twenty-first, the international legal community has been focusing on the possibilities and promise of treaty law.⁴⁸ Treaties offer the benefit of explicit agreement, textual clarity, and speed in formation.⁴⁹ In the post-WWII context, and especially the post-Cold War context, treaties seemed to be the highest and best form of international lawmaking.⁵⁰ But the era of multilateral treaty-making may now be coming to a close as major geopolitical rifts divide former allies and seem to diminish the possibilities for meaningful multilateral agreements.⁵¹

The new context requires new forms of lawmaking, or old ones, reinvigorated. It has inspired a bifurcated focus: a look ahead to new forms of global governance that sideline formal international law, and a renewed focus on the fundamental building blocks of international law, including existing treaties and international custom.⁵² But any consideration of these forms of law is incomplete without a consideration of the corporate influencers whose global power often rivals that of states. What is their role in lawmaking?

The space law case study shows that the story of private sector power over the development of uncodified international law—custom and treaty

In former articles, I explored the phenomenon of international business lobbying at international institutions. See, e.g., Durkee, *supra* note 28; Melissa J. Durkee, *Astroturf Activism*, 69 STAN. L. REV. 201 (2017) (exploring the “astroturf activism” phenomenon by which private entities channel influence both overtly and covertly through NGOs active within international institutions). Corporate pressure on lawmakers has, of course, long been a topic of interest within U.S. domestic legal literatures. See, e.g., Heather K. Gerken & Alex Tausanovitch, *A Public Finance Model for Lobbying: Lobbying, Campaign Finance, and the Privatization of Democracy*, 13 ELECTION L.J. 75, 87–90 (2014) (proposing reforms that would subsidize lobbying activity by public-interest groups); Richard L. Hasen, *Lobbying, Rent-Seeking, and the Constitution*, 64 STAN. L. REV. 191, 216 (2012) (proposing a “national economic welfare” rationale for lobbying regulation); Samuel Issacharoff, *On Political Corruption*, 124 HARV. L. REV. 118, 121 (2010) (reviewing efforts to redress the “financial vulnerabilities of democracy”); Maggie McKinley, *Lobbying and the Petition Clause*, 68 STAN. L. REV. 1131, 1199 (2016) (asserting that current lobbying regulation and practice violates the First Amendment’s Petition Clause); Zephyr Teachout, *The Forgotten Law of Lobbying*, 13 ELECTION L.J. 4, 6 (2014) (noting that the scope of the constitutional lobbying right is unclear).

48. See, e.g., Andrew T. Guzman, *Saving Customary International Law*, 27 MICH. J. INT’L L. 115, 119 (2005) (“[M]odern international relations have made the treaty a more important tool, relative to [customary international law], than it has been in the past . . .”).

49. Timothy Meyer, *Codifying Custom*, 160 U. PA. L. REV. 995, 1000 (2012) (“[C]odification allows states to specify more precisely what customary international law requires, thereby facilitating deeper cooperation and avoiding costly disputes over vague legal rules.”).

50. Guzman, *supra* note 48, at 119; Daniel Bodansky, *Customary (and Not So Customary) International Environmental Law*, 3 IND. J. GLOBAL LEGAL STUD. 105, 106 (1995) (“[M]ost scholars consider treaties to be the preeminent method of international environmental lawmaking.”).

51. Cohen, *supra* note 14, at 48 (describing current “anti-globalist turns” and suggesting that “multilateralism and multilateral institutions have a life cycle”).

52. See, e.g., CUSTOM’S FUTURE, *supra* note 16 (collecting essays considering the future of international custom).

interpretation—is a story that unfolds on two levels. On one level, private entities influence the development of law by nudging states to acquiesce to their preferred rules. They change the status quo against which any new law is developed. On a second, and more fundamental, doctrinal level, private entities can stand in the shoes of the state to create formal law through the doctrine of attribution. The following sections focus on this second form of lawmaking.

B. Uncodified International Lawmaking

1. Customary International Law

While much of international law is now made through explicit agreements between nations, a second form of lawmaking is no less authoritative.⁵³ Customary international law is uncodified law, like the common law in the United States and Commonwealth nations.⁵⁴ It is not the product of explicit bargains between nations, but rather evolves as nations consistently follow a particular practice and manifest a belief that they consider that practice to be legally binding.⁵⁵ Thus, the standard view of customary international law is that it arises from a consistent practice of states, followed out of a sense of legal obligation. This account has been subject to heavy critique as descriptively inaccurate or normatively deficient,⁵⁶ but most critics nevertheless conclude that custom's importance

53. See, e.g., ICJ Statute, *supra* note 12, at art. 38(1)(b) (including “international custom” as one of three forms of international law).

54. See generally Curtis A. Bradley, *Customary International Law Adjudication as Common Law Adjudication*, in *CUSTOM'S FUTURE*, *supra* note 16, at 34 (developing the theory that “[t]he application of CIL by an international adjudicator . . . is best understood in terms similar to the judicial development of the common law”).

55. Thus, one way to describe custom is as “the generalization of the practice of States,” as Judge Read did in the ICJ’s *Fisheries* case. *Fisheries Case (U.K. v. Nor.)*, Judgment, 1951 I.C.J. Rep. 116, at 191 (Dec. 18) (Read, J., dissenting).

56. The standard account has been “plagued by evidentiary, normative, and conceptual difficulties, and it has been subjected to increasing criticism in recent years.” Bradley, *supra* note 54, at 34; see generally *id.* at 34–61 (collecting critiques, including whether custom indeed requires both elements of practice and *opinio juris*; how it is possible to discern *opinio juris*; that there is no standard as to how much state practice is necessary; how to weigh various evidences of custom formation; how much evidence is necessary to determine whether custom has formed; whether custom is undemocratic; and so forth). B.S. Chimni has recently offered an even more fundamental critique: that customary international law and its doctrines of formation and use have served to “facilitate the functioning of [the] global capitalist system by filling crucial gaps in the international legal system,” in such a way as to “secure the interests of predominantly capital importing nations”; the unavailability of state practice of third world nations compounds this problem. B. S. Chimni, *Customary International Law: A Third World Perspective*, 112 AM. J. INT’L L. 1, 4–5 (2018). Other critiques have focused on the utility of custom as compared with other forms of international law. See, e.g., J. Patrick Kelly, *The Twilight of Customary International Law*, 40 VA. J. INT’L L. 449, 452 (2000) (contending that customary international law is declining); Joel P. Trachtman, *The Growing Obsolescence of Customary*

as a source of international law persists.⁵⁷ Indeed, in the words of the International Law Commission's (ILC's) Special Rapporteur Michael Wood, "Customary international law remains the bedrock of international law."⁵⁸

Determining whether there is a customary rule in a particular area is an inductive practice that requires amassing evidence that nations actually follow the practice (the "state practice" element), and that they consider the practice to be law (the "opinio juris" element).⁵⁹ Thus, the choice of law provision of the International Court of Justice provides that the Court "shall apply . . . international custom, as evidence of a general practice accepted as law."⁶⁰

A shorthand way to think about the elements of custom is that state practice is elicited through conduct, and opinio juris through statements.⁶¹ Those statements may come from presidents, prime ministers, foreign ministers, ambassadors, or anyone else who may speak on behalf of the nation.⁶² The "practice" to be considered includes both affirmative acts and failure to act.⁶³ In particular, if one nation asserts a particular legal right or duty and no nation disagrees, many will count that absence of disagreement to be affirmative evidence of the development of the customary rule.⁶⁴ In

International Law, in CUSTOM'S FUTURE, *supra* note 16, at 172, 174 (noting that many areas once covered by custom are now codified in treaties); Guzman, *supra* note 48, at 119 ("[M]odern international relations have made the treaty a more important tool, relative to CIL, than it has been in the past, and there are myriad ways for states to cooperate through soft law instruments that fall short of treaties.").

57. See, e.g., José E. Alvarez, *A Bit on Custom*, 42 N.Y.U. J. INT'L L. & POL. 17, 20 (2009) ("[T]he rumored 'demise' of non-treaty sources of international law has been vastly exaggerated . . .").

58. Michael Wood, *Foreward to DUMBERRY*, *supra* note 26, at xv.

59. See, e.g., *Military and Paramilitary Activities in and Against Nicaragua (Nicar. v. U.S.)*, Judgment, 1986 I.C.J. Rep. 14, ¶ 207 (June 27) ("[F]or a new customary rule to be formed, not only must the acts concerned 'amount to a settled practice,' but they must be accompanied by the *opinio juris sive necessitatis*. . . . [Relevant states] must have behaved so that their conduct is 'evidence of a belief that this practice is rendered obligatory by the existence of a rule of law requiring it.'" (quoting 1969 I.C.J. Rep. 44, ¶ 77)); *North Sea Continental Shelf (Ger./Den.; Ger./Neth.)*, Judgment, 1969 I.C.J. Rep. 4, ¶ 77 (Feb. 20). Anthea Roberts has advanced a critique that while international legal scholars and practitioners regularly recite the two-element rule, they have invoked these elements differently over time. A "traditional" approach principally relied on state practice, while "modern" custom relies more heavily on expressions of opinio juris. Anthea Elizabeth Roberts, *Traditional and Modern Approaches to Customary International Law: A Reconciliation*, 95 AM. J. INT'L L. 757, 757–58 (2001).

60. ICJ Statute, *supra* note 12, at art. 38(1)(b).

61. ANTHONY A. D'AMATO, *THE CONCEPT OF CUSTOM IN INTERNATIONAL LAW* 89–90, 160 (1971) (offering this distinction).

62. See, e.g., *The Paquete Habana*, 175 U.S. 677, 697, 698 (1900) (reviewing evidences of custom).

63. See S.S. "Lotus" (Fr. v. Turk.), 1927 P.C.I.J. (ser. A) No. 10, at 29 (Sept. 7) (considering a lack of protest to count as evidence of state practice). *But cf.* CRAWFORD, *supra* note 13, at 25 ("Silence may denote either tacit agreement or a simple lack of interest in the issue.").

64. See e.g., DAVID J. BEDERMAN, *CUSTOM AS A SOURCE OF LAW* 154 (2010) ("[F]or global custom, silence means acceptance of a new rule."). *But cf.* Kevin Jon Heller, *Specially-Affected States and the Formation of Custom*, 112 AM. J. INT'L L. 191, 233 (2018) (noting that "[e]quating silence with

other words, the failure to object will often be considered tacit acquiescence. Thus, custom forms through both state actions and reactions (or the absence of reactions).

When determining whether a customary rule has developed, contrary practice does not necessarily defeat the emergence of a rule.⁶⁵ It can instead be considered conduct that violates the newly emerging rule. The analysis depends on the consistency, uniformity, and density of practice and *opinio juris* in support of the rule compared with the incidences of contrary practice.⁶⁶

Because customary international law is unwritten, and assessed through a painstaking process of amassing evidence of practice and *opinio juris*, it is more challenging to determine than treaty law.⁶⁷ Now that so many topics in international law are covered by treaties, some have claimed that customary international law is becoming obsolete.⁶⁸ However, custom still serves as an important role in filling gaps in written international law, and is a primary source of law in some areas.⁶⁹ In addition, in cases where some nations have not joined a relevant treaty regime, but the treaty rules are so widely accepted that they have entered into custom, those rules bind non-parties through customary international law. For example, the United States has acknowledged that it is bound by a number of treaty rules even though it is not a party to the relevant treaties because those rules have become binding through customary international law. Prominent examples include the United Nations Convention on the Law of the Sea and the Vienna

consent is very controversial,” but that there is greater support for the principle that silence constitutes consent in the context of specially-affected states).

65. See CRAWFORD, *supra* note 13, at 25 (“Complete consistency is not required . . .”).

66. See *id.* at 24 (“Complete uniformity of practice is not required, but substantial uniformity is . . .”).

67. For example, sources of custom may include:

diplomatic correspondence, policy statements, press releases, the opinions of government legal advisers, official manuals on legal questions (e.g. manuals of military law), executive decisions and practices, orders to military forces (e.g. rules of engagement), comments by governments on ILC drafts and accompanying commentary, legislation, international and national judicial decisions, recitals in treaties and other international instruments . . . an extensive pattern of treaties in the same terms, the practice of international organs, and resolutions relating to legal questions in UN organs, notably the General Assembly.

Id.

68. See, e.g., Kelly, *supra* note 56, at 452 (predicting the decline of custom as a source of international law); Trachtman, *supra* note 56, at 172 (arguing that custom is declining because treaties codify many rules once governed by custom).

69. See, e.g., THEODOR MERON, HUMAN RIGHTS AND HUMANITARIAN NORMS AS CUSTOMARY LAW (1989) (showing how customary international law plays a major role in human rights law); Alvarez, *supra* note 57, at 20 (“[T]he rumored ‘demise’ of non-treaty sources of international law has been vastly exaggerated . . .”).

Convention on the Law of Treaties.⁷⁰ Indeed, some commentators suggest that custom may be taking on an added significance now, in an era where treaty law is facing new challenges from nationalistic retractions.⁷¹

2. Treaty Practice

Evidence of what nations actually do after a treaty is concluded can be used to interpret treaty provisions. The Vienna Convention on the Law of Treaties—the legislative treaty that regulates making and interpreting treaties—provides that treaties should be interpreted “in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.”⁷² Because international law does not limit treaty interpretation to the four corners of the treaty, treaty interpreters can consider, together with the context, evidence of the intention of the parties that arises *after* the treaty is concluded.⁷³ In treaty interpretation, “[w]ords are given meaning by action.”⁷⁴ Specifically, Article 31 paragraph 3(b) specifies that treaties may be interpreted in light of “[a]ny subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation.”⁷⁵ According to commentators this is “a most important element”⁷⁶ or “best evidence”⁷⁷ of treaty interpretation. Subsequent practice is also “well-established in the jurisprudence of international tribunals.”⁷⁸

70. See, e.g., Curtis A. Bradley & Jack L. Goldsmith, *Treaties, Human Rights, and Conditional Consent*, 149 U. PA. L. REV. 399, 424 (2000) (noting that U.S. scholars and executive branch officials accept that many provisions of the Vienna Convention have entered into custom); Frederic L. Kirgis, Jr., *Custom on a Sliding Scale*, 81 AM. J. INT'L L. 146, 149 n.16 (1987) (observing “the readiness of international tribunals to accept, as custom, the major substantive provisions of the Vienna Convention on the Law of Treaties”).

71. See, e.g., LEPARD, *supra* note 15, at 3–6 (collecting evidence in defense of the assertion that custom is “playing an increasingly prominent role in the international legal system”); see also Omri Sender & Michael Wood, *Custom’s Bright Future: The Continuing Importance of Customary International Law*, in CUSTOM’S FUTURE, *supra* note 16, at 360, 369 (affirming that custom is “the principal construction material for general international law” and “more necessary and important than ever” (quoting V. I. KUZNETSOV & B. R. TUZMUKHAMEDOV, INTERNATIONAL LAW: A RUSSIAN INTRODUCTION 77 (W. E. Butler ed., trans., 2009))).

72. Vienna Convention on the Law of Treaties, *supra* note 21, at art. 31 ¶ 1.

73. RICHARD K. GARDINER, TREATY INTERPRETATION 253 (2d ed. 2015) (noting that the role of subsequent practice in treaty interpretation “is one of the features of the Vienna rules which marks out a difference from the approach taken in some legal systems to interpretation of legal texts of purely domestic origin”).

74. *Id.*

75. Vienna Convention on the Law of Treaties, *supra* note 21, at art. 31 ¶ 3(b).

76. ANTHONY AUST, MODERN TREATY LAW AND PRACTICE 241 (2d ed. 2007).

77. GARDINER, *supra* note 73, at 253.

78. Kasikili/Sedudu Island (Bots./Namib.), Judgment, 1999 I.C.J. Rep. 1045, ¶ 49 (Dec. 13) (quoting 1966 Y.B. Int’l L. Comm’n 221, ¶ 15, U.N. Doc. A/CN.4/SER.A/1966).

The rationale for this rule is that parties' actual application of the treaty rule in practice "is usually a good indication of what they understand it to mean, provided the practice is consistent and is common to, or accepted, expressly or tacitly, by both or all parties."⁷⁹ Anthony Aust offers examples of cases in which subsequent practice has clarified meanings that are not obvious from the text of a treaty itself, and may even conflict with the drafters' intent as discerned from legislative history (the *travaux préparatoires*).⁸⁰ Moreover, it is not necessary to show that the particular subsequent practice is common to all parties, only that the parties have at least tacitly accepted it.⁸¹

The practice of parties can also constitute a "supplementary means of interpretation" under Article 32 of the Vienna Convention, in addition to "subsequent practice" under Article 31, paragraph 3(b), and in this latter instance it is not necessary to show the agreement of all parties.⁸² In the ILC's recent work on "subsequent agreements and subsequent practice" in relation to treaty interpretation, it stated that "[t]he practice of individual States in the application of a treaty" can be used as "one of the 'further' means of interpretation" to confirm the meaning of a treaty or to resolve an ambiguity or absurdity.⁸³ Indeed, the ILC has gathered authorities to show that "any practice in the application of the treaty that may provide indications as to how the treaty is to be interpreted may be a relevant supplementary means of interpretation under article 32" of the Vienna Convention.⁸⁴ For example, for the purposes of an article 32 analysis, international courts have relied on domestic legislation, administrative practice, judicial opinions, and even reports by technical experts commissioned by the state.⁸⁵

79. AUST, *supra* note 76, at 241 (citing the US-France Air Services Arbitration 1963 (54 I.L.R. 303)).

80. *Id.* at 242–43 (noting that the definition of a "concurring vote" of the UN Security Council as enshrined in Article 27(3) of the UN Charter evolved from state practice to mean "not objecting").

81. *Id.* at 243.

82. Vienna Convention on the Law of Treaties, *supra* note 21, at art. 32; *see also Subsequent Agreements and Subsequent Practice in Relation to the Interpretation of Treaties*, Report of the International Law Commission on the Work of Its Seventieth Session, U.N. GAOR 70th Sess., Supp. No. 10, at 33, U.N. Doc. A/73/10 (2018), <http://legal.un.org/docs/?path=../ilc/reports/2018/english/chp4.pdf&lang=EFSRAC> [<https://perma.cc/9MBK-JE3S>] [hereinafter ILC Report on Subsequent Practice].

83. ILC Report on Subsequent Practice, *supra* note 82, at 33 ¶ 23.

84. *Id.* at 33 ¶ 24.

85. *See id.* at 33 ¶¶ 26–28, 30 (collecting cases).

3. *Non-State Entities*

“State practice” for the purposes of custom and “subsequent practice” in the context of treaty interpretation are doctrines that look to the state. Under the conventional view, *only* the practice and beliefs of nation states have legally constitutive effects.⁸⁶ Most scholars agree with this basic proposition,⁸⁷ although outliers exist,⁸⁸ and there are many nuanced positions about how non-state actors can *contribute* to uncodified law development.⁸⁹

A first literature has focused on custom’s *opinio juris* element, and considers how non-state actors write down, crystalize, and publicize

86. See, e.g., *Continental Shelf (Libya/Malta)*, Judgment, 1985 I.C.J. Rep. 13, ¶ 27 (June 3) (“It is . . . axiomatic that the material of customary international law is to be looked for primarily in the actual practice and *opinio juris* of States”); *Draft Conclusions on Identification of Customary International Law, With Commentaries*, Report of the International Law Commission on the Work of Its Seventieth Session, U.N. GAOR 70th Sess., Supp. No. 10, at 122, 130, U.N. Doc. A/73/10 (2018) [hereinafter *Draft Conclusions*] (“The requirement of a general practice . . . refers primarily to the practice of States”); STEPHEN TULLY, *CORPORATIONS AND INTERNATIONAL LAWMAKING* 92 (2007) (“Non-state actor contributions are legally irrelevant when discerning customary legal rules.”); Jean d’Aspremont, *Non-State Actors and the Formation of International Customary Law: Unlearning Some Common Tropes*, in *NON-STATE ACTORS AND THE FORMATION OF CUSTOMARY INTERNATIONAL LAW* 1, 4 (Iain Scobbie & Sufyan Droubi eds., forthcoming 2019) (noting that the role of non-state actors in making customary norms “has never been captured by the modern categories of the doctrine of the sources of international law”).

Some, including the ILC, propose that the practice of international organizations can also be relevant to custom formation, when they hold lawmaking authority delegated by states. See *Draft Conclusions*, *supra* note 86, at 131 (noting that the practice of international organizations may be relevant to custom formation when the international organization “exercises some of the public powers of its member States and hence the practice of the organization may be equated with the practice of those States”). This position is contested. See, e.g., Jed Odermatt, *The Development of Customary International Law by International Organizations*, 66 INT’L & COMP. L.Q., 491, 491 (2017) (reviewing debate about whether international organizations can contribute to custom formation “as autonomous actors in their own right”).

87. See, e.g., *Draft Conclusions*, *supra* note 86, at 130 (stating that conduct of actors other than states and international organizations “is not practice that contributes to the formation, or expression, of rules of customary international law”); LEPARD, *supra* note 15, at 186 (defining as one of the “fundamental characteristics” of *opinio juris* that it is “an attitude among *states* regarding the desirability of instituting particular norms as legal norms”); ANTHONY CLARK AREND, *LEGAL RULES AND INTERNATIONAL SOCIETY* 176 (1999) (affirming that “the interactions of nonstate actors with each other and with states do not produce customary international law” because “[o]nly state interactions can produce custom”); MICHAEL BYERS, *CUSTOM, POWER AND THE POWER OF RULES* 78 (1999) (arguing that the concept of international legal personality “impos[es] limits on who can participate in the customary process,” and dictates that “[s]tates are the principal, if not the exclusive, *direct* participants in the process of customary international law”).

88. See, e.g., JORDAN J. PAUST, *INTERNATIONAL LAW AS LAW OF THE UNITED STATES* 4 (2d ed. 2003) (asserting that *opinio juris* “is to be gathered from patterns of generally shared legal expectation among humankind, not merely among official State elites”); Isabelle R. Gunning, *Modernizing Customary International Law: The Challenge of Human Rights*, 31 VA. J. INT’L L. 211, 227–34 (1991) (suggesting that the activity of NGOs can be relevant both to the practice and *opinio juris* elements of customary international law creation); Chimni, *supra* note 56, at 42–43 (proposing a “postmodern

particular norms.⁹⁰ For instance, NGOs may provide evidence of a rule through “factual investigations into state practice and beliefs.”⁹¹ By collecting evidence and articulating the parameters of a supposed norm, non-state actors contribute to the belief by other states that something is legally required. That crystallization and publication of a norm can also provoke reactions by states, which also count as *opinio juris*.⁹² As Brian LePard has noted, non-state actors engage in “a dynamic dialogue with states” about what currently counts as custom, and “the desirability of recognizing new norms.”⁹³ Thus, non-state actors like the ILC and the International Committee of the Red Cross (ICRC) are said to have significantly contributed to the formation of customary international law in areas like state responsibility and humanitarian law, respectively, through their codifications of customary norms.⁹⁴

Second, in addition to articulating what they believe to be *current* norms of customary international law, non-state actors may develop sets of principles they believe states *ought* to accept as legally binding.⁹⁵ For example, James Anaya points out that because “individuals, independent experts, and nongovernmental organizations” have obtained “various avenues of access to international decision making” through international institutions,⁹⁶ they can come to participate in developing a “normative consensus” that leads to a quicker development of a norm into international custom.⁹⁷ International organizations participate in this process by making statements and resolutions that can “prompt behavior consistent with that

doctrine” of customary international law that would include the practice of social movements, civil society actors, and international organizations which “further[] the cause of global justice”).

89. See, e.g., d’Aspremont, *supra* note 86, at 1 (noting, with perhaps some degree of hyperbole, that “the contribution of non-state actors to international customary law . . . has already been the object of innumerable discussions and scholarly exchanges over the last decade”). The debate has, however, tended to be narrowly focused, leaving important gaps such as the one this Article addresses. See Roberts, *supra* note 59, at 775 (suggesting that the impact of non-state actors on customary international law remains “undertheorized”); d’Aspremont, *supra* note 86, at 2 (claiming that the relevant debates “have remained chained by certain modes of reasoning and categor[ies] of thoughts which have been precluding any renewal of scholarly reflection on the matter”).

90. See, e.g., Roberts, *supra* note 59, at 775 (“Nongovernmental organizations help to articulate emerging customs and monitor state compliance with international law by investigating and publicizing breaches of the law in areas such as human rights and environmental protection.”).

91. LEPARD, *supra* note 15, at 187.

92. *Id.*

93. *Id.*

94. See, e.g., d’Aspremont, *supra* note 86, at 19–23 (citing these instances as kindling scholarly interest in the question of non-state contributions to international law).

95. In this way these actors seek to contribute to the “progressive development” of international law, or, in the latin, *lex ferenda* (what the law should be) rather than merely *lex lata* (law as it is). Roberts, *supra* note 59, at 763.

96. Anaya, *supra* note 26, at 43.

97. *Id.*

resolution which in turn may result in new customary international law.”⁹⁸ As José Alvarez has observed, international organizations codify, promote, and urge compliance with various norms they hold out as customary law, as well as offering a forum for states to communicate their *opinio juris*.⁹⁹

A third observation is that non-state actors also lobby at the domestic level to persuade states to produce new state practice or manifestations of *opinio juris*. As Hilary Charlesworth and Christine Chinkin have noted, non-state actors, particularly NGOs, “can assist in generating state practice by campaigning in domestic arenas for appropriate statements in parliaments and other official bodies.”¹⁰⁰ Corporations can exert similar persuasive influence by influencing national regulation through lobbying or “offering investment and threatening industrial migration.”¹⁰¹

A separate set of literatures argues that non-state actors should be permitted to participate in customary international law formation. Anthea Roberts has proposed that freedom fighters and armed groups are capable of creating a quasi-custom that should have some status in international law.¹⁰² Others have proposed that the practice and beliefs of indigenous communities should be relevant to custom formation.¹⁰³ Still others have proposed that a much broader range of non-state actors such as people groups and non-governmental organizations should be “accommodate[d] within the formal structures of international law creation.”¹⁰⁴

An important gap remains. Specifically, what role do business entities have in forming custom? Individual business entities, as well as industry or trade groups, can presumably contribute in many of the ways other non-state actors do, such as by codifying, promoting, and urging compliance

98. *Id.*

99. JOSÉ E. ALVAREZ, INTERNATIONAL ORGANIZATIONS AS LAW-MAKERS 12 (2005).

100. HILARY CHARLESWORTH & CHRISTINE CHINKIN, THE BOUNDARIES OF INTERNATIONAL LAW: A FEMINIST ANALYSIS 77 (2000); *see also* Roberts, *supra* note 59, at 775 (“[NGOs] have an indirect effect by influencing state behavior and statements through actions such as lobbying and calling boycotts. They have assisted in setting the agenda for international conferences and participated in the negotiation and drafting of treaties and resolutions.”).

101. TULLY, *supra* note 86, at 94; Karsten Nowrot, *Transnational Corporations as Steering Subjects in International Economic Law: Two Competing Visions of the Future?*, 18 IND. J. GLOBAL LEGAL STUD. 803, 803 (2011) (transnational corporations are involved in the progressive development and enforcement of economic law).

102. Roberts & Sivakumaran, *supra* note 27, at 149.

103. Anaya, *supra* note 26, at 43.

104. *See, e.g.*, John Tasioulas, *Customary International Law and the Quest for Global Justice, in THE NATURE OF CUSTOMARY LAW: LEGAL, HISTORICAL AND PHILOSOPHICAL PERSPECTIVES* 307, 328 (Amanda Perreau-Saussine & James Bernard Murphy eds., 2007) (proposing “a role for various non-state actors, such as international organizations . . . peoples . . . non-governmental organizations . . . and so on,” which would “strengthen the legitimacy of international law”); *see also* Chimni, *supra* note 56, at 43 (citing Tasioulas with approval and proposing that “there is no reason why ‘state practice’ cannot include the practice of social movements”).

with norms they hold out as existing customary law, or rules they think states ought to accept as legally binding.¹⁰⁵ Are there any other ways they can contribute? The area is substantially undertheorized.¹⁰⁶ The attributed lawmaking theory offers one answer. In the attributed lawmaking account, it is the behavior of business actors themselves that becomes state practice, as the next Subpart explains.

C. The Theory of Attributed Lawmaking

The theory of attributed lawmaking is as follows: When the behavior of private actors becomes attributed or imputed to the state, that behavior itself has law-forming implications. The theory asserts that lawyers, judges, and officials can look to that private activity as among the relevant behavioral building blocks of an emerging rule of customary international law, or the “subsequent practice” that helps to determine the meaning of treaty terms. That is, the private activity can count as relevant state practice. Thus, when a private actor standing in the shoes of a state asserts a legal rule in national and international fora, or behaves as though their asserted rule were correct and openly acts accordingly, that is relevant to custom formation. The theory has potentially controversial implications, which are addressed in Part III. This Part is devoted to unearthing its roots in customary international law doctrines of attribution and the imputation of private sector behavior to the state.

1. Attribution

“Attribution is the legal fiction which assimilates the actions or omissions of state officials to the state itself and which renders the state liable for damage”¹⁰⁷ Under the doctrine of attribution, the conduct of any state organ or official “including police, military, immigration and similar officials” comes to be considered an act of the state under

105. DUMBERRY, *supra* note 26, at 121–22 (noting that while NGOs and corporations do not directly contribute to custom formation, they can have an impact by influencing states).

106. Some authors have noted the possibility of attributed lawmaking, but without substantial analysis. *See, e.g.*, DUMBERRY, *supra* note 26, at 119 (noting that “[s]tate practice also includes the conduct of entities . . . who act as *de facto* organs of the State”); TULLY, *supra* note 86, at 92 (including a passing reference to the fact that “[c]orporate activity ‘counts’ towards the formation of custom only where private activity is imputable to states” and considering the significance of this in the context of investment contracts).

107. MALCOLM N. SHAW, *INTERNATIONAL LAW* 572 (7th ed. 2014).

international law.¹⁰⁸ States can be responsible for the conduct of their officials even when those officials act outside of their actual or apparent authority or contrary to law, and even when the state has no direct control over those acts.¹⁰⁹ While the activity of private persons, groups, or corporations are generally not attributed to the state, they can become attributable in some circumstances.¹¹⁰

Principles of attribution are principally relevant to the doctrine of state responsibility. When a state breaches its obligation under a primary rule of international law—that is, a behavioral commitment under a treaty or customary rule—it commits an “internationally wrongful act,”¹¹¹ which, in turn, triggers the rules of state responsibility.¹¹² Under the rules of state responsibility, the nation in breach bears the obligation to cease the act that violates international law, “offer appropriate assurances and guarantees of non-repetition, if circumstances so require,”¹¹³ and to “make full reparation for the injury caused,”¹¹⁴ including offering restitution, compensation, or satisfaction.¹¹⁵ In other words, a nation must stop the offending conduct and offer some sort of remedy for the wrong.

It is not only the acts of state officials that can be attributed or “assimilated” to the state. The International Court of Justice has concluded that a private actor can be an organ or agent of the state when it exercises elements of public authority or acts under the government’s instructions and subject to its effective control.¹¹⁶ According to the ILC’s formulation, the conduct of a private actor is attributed to a nation for the purposes of state

108. Robert McCorquodale, *Spreading Weeds Beyond Their Garden: Extraterritorial Responsibility of States for Violations of Human Rights by Corporate Nationals*, 100 AM. SOC’Y INT’L L. PROC. 95, 96 (2006).

109. *See id.* at 96–97 (collecting sources).

110. *See id.* at 99.

111. *See* Articles on State Responsibility, *supra* note 18, at art. 1, 12 (defining a breach of an obligation by acts not in conformity with what is required); *see also* Gabčíkovo-Nagymaros Project (Hung./Slovk.), Judgment, 1997 I.C.J. Rep. 7, ¶ 57 (Sept. 25) (including “failure to comply with its treaty obligations” a basis for state responsibility).

112. Articles on State Responsibility, *supra* note 18, at art. 1 (“Every internationally wrongful act of a State entails the international responsibility of that State.”).

113. *Id.* at art. 30(b).

114. *Id.* at art. 31.

115. *Id.* at art. 34. Satisfaction may include, *inter alia*, “acknowledgment of the breach, an expression of regret, [or] a formal apology.” *Id.* at art. 37(2).

116. *See* Application of Convention on Prevention and Punishment of the Crime of Genocide (Bosn. & Herz. v. Serb. & Montenegro), Judgment, 2007 I.C.J. Rep. 43, ¶ 400 (Feb. 26) (concluding that the state can be responsible for non-state actors to the extent that “they acted in accordance with that [s]tate’s instructions or under its ‘effective control’”); *see also* Military and Paramilitary Activities in and Against Nicaragua (Nicar. v. U.S.), Judgment, 1986 I.C.J. Rep. 14, ¶ 115 (June 27) (developing the “effective control” test).

responsibility when the private actor is an “organ”¹¹⁷ of the state, empowered “to exercise elements of the governmental authority,”¹¹⁸ or “acting on the instructions of, or under the direction or control of” the state.¹¹⁹ A private actor’s conduct is also attributed to the state when the state later “acknowledges and adopts the conduct . . . as its own.”¹²⁰ The ILC’s rules include, for example, “privatised corporations which retain certain public or regulatory functions.”¹²¹ The ILC commentaries offer as examples private security firms functioning as prison guards, or airlines exercising immigration controls.¹²² Finally, private conduct can be attributed to the state through treaty, as in the landmark Trail Smelter case, where the governments of Canada and the United States attributed responsibility for the Canadian smelting plant to the government of Canada itself.¹²³

While the ILC’s formation of the rules offer some clarity, their scope of application is somewhat contested, as is whether this formulation accurately characterizes the underlying rules of general international law.¹²⁴ The United States Restatement (Third) of Foreign Relations Law offers a broader rule, noting in commentary that “[a] state is responsible . . . for both its own activities and those of individuals or private or public corporations under its jurisdiction.”¹²⁵ Moreover, it is a fairly standard feature of international agreements to require parties to address the behavior of the private entities under its jurisdiction and control.¹²⁶ This kind of obligation

117. Articles on State Responsibility, *supra* note 18, at art. 4(1). Note that whether an actor is an “organ of the state” is determined under domestic law. *Id.* at art. 4(2).

118. *Id.* at art. 5.

119. *Id.* at art. 8.

120. *Id.* at art. 11.

121. SHAW, *supra* note 107, at 572–73.

122. *Id.* at 573 (citing Articles on State Responsibility, *supra* note 18, at art. 5 cmt. 2).

123. See Lakshman Guruswamy, *State Responsibility in Promoting Environmental Corporate Accountability*, 21 FORDHAM ENVTL. L. REV. 209, 218 (2010) (noting that “[w]hat is most important in this context is that the arbitral tribunal did not attribute the conduct of the Trail Smelter to Canada. The Convention did so” (citing Trail Smelter Case (U.S./Can.), 3 R.I.A.A. 1938, 1965–66 (1941))).

124. See, e.g., Bodansky & Crook, *supra* note 19, at 783 (reporting that “[t]he Commission was well aware that the articles on attribution sometimes suggest more precision or concreteness than is found in the world”).

125. RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW § 601 cmt. d (AM. LAW INST. 1987). *But cf.* Articles on State Responsibility, *supra* note 18, at ch. II cmt. 2 (“In theory, the conduct of all human beings, corporations or collectivities linked to the State by nationality, habitual residence or incorporation might be attributed to the State, whether or not they have any connection to the Government. In international law, such an approach is avoided . . .”). Under a separate duty of due diligence, a nation bears international responsibility for transboundary environmental harms caused by activities by private parties under a state’s jurisdiction and control. See Trail Smelter Case (U.S./Can.), 3 R.I.A.A. 1905, 1905 (1941), *reprinted in* 35 AM. J. INT’L L. 684 (1941).

126. See, e.g., Gordon A. Christenson, *Attributing Acts of Omission to the State*, 12 MICH. J. INT’L L. 312, 355–56 (1991).

often arises in the context of environmental and human rights treaties. For example, “compliance by states with environmental agreements depends in many cases not simply on state action, but on the actions of private parties, whose failure to reduce their pollution . . . may cause a state to violate its obligations.”¹²⁷ I have previously called this type of treaty a “persuasion treaty,” because it requires the state to use persuasion—either regulatory or through softer forms of inducement—to change a private actor’s conduct.¹²⁸ Generally, however, the broader obligation of the state to ensure that those within its jurisdiction follow the law is articulated as a separate duty of “due diligence,” which the state may satisfy through making and reasonably enforcing laws.¹²⁹ The behavior of those private entities is not attributed or imputed to the state simply because the state failed adequately to make and enforce those laws.

What is particularly unsettled is exactly what are the outer limits of attribution. A state assumes responsibility for organs and agents, but what are the agency rules that determine which private entities count as agents? In a circumstance where governmental functions are increasingly privatized, which exactly are “elements of the governmental authority”? And what level of control is necessary for a nation be exercising “direction and control” over otherwise private acts? Malcolm Shaw notes that the ILC’s rules were formulated “in reaction to the proliferation of government agencies and parastatal entities.”¹³⁰ Others have observed that the lines between government agencies and private agencies are becoming increasingly blurry, and understanding when an entity acts on behalf of a state is increasingly contested. For example, in the context of the commercial activity exception to the sovereign immunity doctrine, Robert Wai has observed that existing tests that distinguish between “commercial” and “non-commercial” are incoherent and virtually impossible to apply.¹³¹ Wai has observed that often “interactions between governmental and business actors are multiple and intricate,”¹³² that “an increasing number of

127. Bodansky & Crook, *supra* note 19, at 783.

128. Melissa J. Durkee, *Persuasion Treaties*, 99 VA. L. REV. 63 (2013).

129. See, e.g., *Velásquez-Rodríguez v. Honduras*, Merits, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 4, ¶ 172 (July 29, 1989) (stating that the responsibility of a state may arise “because of the lack of due diligence to prevent the violation or to respond to it as required by [treaty]”); see also *McCorquodale*, *supra* note 108, at 98 (“[A] state is considered to have an obligation to protect (also called an obligation to exercise due diligence) all persons within its jurisdiction from violations of human rights by anyone.”).

130. SHAW, *supra* note 107, at 572.

131. Robert Wai, *The Commercial Activity Exception to Sovereign Immunity and the Boundaries of Contemporary International Legalism*, in *TORTURE AS TORT: COMPARATIVE PERSPECTIVES ON THE DEVELOPMENT OF TRANSNATIONAL HUMAN RIGHTS LITIGATION* 213, 220 (Craig Scott ed., 2001).

132. *Id.*

traditional state functions are being devolved to the commercial realm,”¹³³ and that as a consequence, it is often the case that “the sharp separation of the commercial and non-commercial is simply a fiction.”¹³⁴ These difficulties will also pose challenges in the context of attribution of private conduct to the state, even as questions of attribution take on urgent importance to scholars and policymakers in areas like cyber attacks.¹³⁵

Setting aside these difficulties for a moment, the key for our purposes is that whenever it is concluded that a conduct *is* attributed to the state, and the state bears responsibility for that conduct, there are lawmaking implications.

2. Reactions

A nation has several possible reactions to private acts attributed to it: affirmation, rejection, or passivity. The three reactions have different international legal consequences. The attributed lawmaking theory highlights the implications of each of these responses, and focuses particular attention on the third option: passivity.

First, consider affirmation. Does a nation explicitly endorse the private behavior, through passage of a law or regulation, through affirmative statements, or some other behavior? In this case, while the private behavior may have caused or provoked this response by nations, it is not the private behavior *itself* that serves as evidence of state practice and *opinio juris* but instead those responses made by nations. While these acts constitute state practice and *opinio juris* even under the most conventional accounts of custom formation, little attention has been paid to the role of private business actors in nudging states toward their preferred rules in this way, and this is a fertile area for further study. Similarly, when a nation rejects the private actor’s behavior, also through passing laws, regulations, policies, or explicit criticism of that behavior, this reaction is also relevant to custom formation by expressing state practice or *opinio juris*. This, too, is insufficiently studied but formally captured by conventional understandings of custom formation.

Attributed lawmaking focuses on the third potential reaction: passivity, or non-response. In failing to actively affirm or deny the non-state behavior for which it is responsible, a state implicitly accepts it. The private behavior is in fact imputed to the state. That private sector behavior and the state’s implicit adoption of it are both relevant state practice for the purposes of

133. *Id.* at 222.

134. *Id.* at 220.

135. *See, e.g.*, Kristen E. Eichensehr, *Decentralized Cyberattack Attribution*, 113 AJIL UNBOUND 213 (2019) (discussing difficulty of cyberattack attributions and literature proposing various solutions).

custom formation or treaty interpretation. To understand the content of the norm the state is accepting, one must look back to private behavior. What exactly has the private actor asserted to be legal, through its conduct and statements? This is the relevant state practice for the purpose of custom formation or treaty interpretation.

Indeed, the ILC has recently explicitly included the conduct of “organs of a State” and “private actors acting under delegated public authority” within the definition of “subsequent practice” under the Vienna Convention on the Law of Treaties.¹³⁶ Although the ILC states that “[conduct] by non-State actors[] does not constitute subsequent practice under articles 31 and 32,” that conclusion refers to private conduct *qua* private conduct, and does not encompass conduct that is attributed to the state.¹³⁷

Custom has always been understood to be reactive in the sense that it forms not just through the actions and beliefs of nations but also through nations’ reactions and failures to react to the acts and statements of other nations.¹³⁸ Custom forms both through affirmative state practice and manifestations of *opinio juris*, and also through responses of other states to perceived violations of emerging rules. Nations may also fail to object to the emergence of a rule, and have that failure counted as implicit consent to the rule, though this is somewhat contested and may only be true in the context of specially affected states.¹³⁹ Attributed lawmaking focuses attention not on the responses of nations to the claims and behavior of other nations, but on their responses to subnational actors for whose behavior they are responsible through doctrines of attribution.

In addition to a nation’s response to its own nationals, a nation’s response to acts occurring in other nations matters too. If nation A fails to respond to the overtly law-flaunting acts of private parties in nation B, for which nation B is responsible, that, too, can be taken as nation A’s implicit consent to the emerging norm. For example, if, purely hypothetically, China were to fail to respond to the permissive stance the United States takes toward the rules its private companies are advancing, even while China increases its own presence in space, China’s failure to object could arguably contribute to the

136. ILC Report on Subsequent Practice, *supra* note 82, at 37.

137. *Id.* at 14 (“Conclusion 5: Conduct as subsequent practice”); *see also id.* at 37 (offering commentary on Conclusion 5).

138. Draft Conclusions, *supra* note 86, at 140 (concluding that a state’s “[f]ailure to react over time to a practice may serve as evidence of acceptance as law (*opinio juris*), provided that States were in a position to react and the circumstances called for some reaction”).

139. CURTIS A. BRADLEY & JACK L. GOLDSMITH, *FOREIGN RELATIONS LAW*, at xxv (4th ed. 2011) (identifying the principle that silence may constitute acceptance); Heller, *supra* note 64, at 233 (acknowledging greater support for the principle that silence constitutes consent in the context of specially-affected states).

hardening of a customary international rule in favor of the rules U.S. companies are seeking.

The attributed lawmaking theory this Part has developed is descriptive and doctrinal in that it describes a plausible legal argument that may be wielded by national officials, scholars, or others who seek to prove that a customary international legal rule exists or that a treaty should be interpreted in a particular manner. It is not offered as a prescriptive or normative account of how international law should evolve.

Nevertheless, some readers will be bothered by the implications of a theory that elevates private conduct to the status of public law without subjecting it to a formal process. The fact that this appears to be a doctrinally sound possibility should underscore the importance of paying attention to it. This is because it is conceivable that arguments based on attributed lawmaking will be advanced, and it is also possible to undercut the significance of this attributed state practice. Governments can guide and clarify the development of international legal norms by legislating, generating state practice, rejecting the privately advanced legal rules, generating *opinio juris*, and entering into formal international agreements.

Other readers may argue that a theory of attributed lawmaking may not fully capture descriptive realities. For example, socio-legally oriented readers may care more about determining to which forms of state practice national or international officials actually appeal, rather than trying to reconcile legal doctrines to determine what counts formally as international custom. In other words, which sources do legal officials gather when they are trying to prove a legal rule? However, because international lawyers and officials consistently use doctrinal reasoning in arguing for particular outcomes, even the plausibility or theoretical availability of a particular argument should be a matter of socio-legal interest. These and other potential objections will be considered at greater length in Part III. To do them justice requires further developing the attributed lawmaking theory. The following Part undertakes that task by examining the case law space study.

II. CASE STUDY: COMMERCIAL USES OF SPACE RESOURCES?

The theory of attributed lawmaking describes a potential legal argument with the power to shape the development of various international legal rules. This Part considers the theory through the lens of commercial uses of space resources. The case study is particularly useful in that it allows the reader to set to one side the complicated and contested law of attribution of state responsibility over private acts. In this instance it is not necessary to resort to background rules of general international law to determine for what non-

state acts a nation has responsibility, because those issues are resolved by treaty. The case study therefore offers a simplified arena in which to describe the theory and to surface its implications about the role of private entities in the development of international law.

A. *The Problem*

May private commercial entities appropriate resources from asteroids, the moon, and other celestial bodies? The question is both important and unresolved. A settled answer would determine the prospects of a burgeoning, billion-dollar industry that currently rests on an unstable legal foundation, and it would determine who has a right to benefit from those resources.¹⁴⁰

1. *The Facts*

In the decade since SpaceX successfully launched its Falcon 1 rocket and “ignited a new space industry,” that industry has developed briskly, featuring many new entrants, “disruptive . . . technolog[ies], business model[s], and] service design[s].”¹⁴¹ One important aim of the industry is mining for useful resources. Asteroid mining companies like Planetary Resources and Deep Space Industries seek to gather precious metals like iron, nickel, cobalt, and perhaps the extremely precious platinum-group metals.¹⁴² They hope to facilitate the project by extracting asteroid water and transforming it into rocket fuel.¹⁴³ Moon Express, iSpace, and a spate of other companies¹⁴⁴ are making plans to mine for resources on the moon, potentially to include helium-3, said to hold the potential to end human

140. See, e.g., Jeff Foust, *Virgin Signs Agreement with Saudi Arabia for Billion-Dollar Investment*, SPACENEWS (Oct. 26, 2017), <https://www.space.com/38596-virgin-signs-agreement-with-saudi-arabia-for-billion-dollar-investment.html> [https://perma.cc/74GD-GZBR] (announcing an agreement whereby Saudi Arabia’s sovereign wealth fund agreed to invest \$1 billion into Virgin’s space ventures); Jeff Foust, *Space Ventures Raise Nearly \$1 Billion in First Quarter of 2018, Led by SpaceX*, SPACE.COM (Apr. 15, 2018), <https://www.space.com/40296-space-ventures-raise-nearly-1-billion-in-first-quarter-of-2018-led-by-spacex.html> [https://perma.cc/MB8S-PRM6] (“[T]here was \$975.8 million in non-government equity investment in space companies in the first quarter of 2018. That would put the industry on a pace for nearly \$4 billion for the year . . .”).

141. Joel Wooten, *A Decade of Commercial Space Travel – What’s Next?*, CONVERSATION (Sept. 27, 2018, 4:24 PM), <https://theconversation.com/a-decade-of-commercial-space-travel-whats-next-103405> [https://perma.cc/38LD-5U8U].

142. Mike Wall, *Asteroid Mining May Be a Reality by 2025*, SPACE.COM (Aug. 11, 2015), <https://www.space.com/30213-asteroid-mining-planetary-resources-2025.html> [https://perma.cc/E79J-9G87].

143. *Id.*

144. Mike Wall, *Moon Rush: These Companies Have Big Plans for Lunar Exploration*, SPACE.COM (Jan. 17, 2018), <https://www.space.com/39398-moon-rush-private-lunar-landings-future.html> [https://perma.cc/LT8R-JWRW].

dependence on fossil fuels.¹⁴⁵ Potential other finds on the moon could include rare earth elements like uranium and thorium.¹⁴⁶ These projects now seem more possible than ever. According to one commentator, a new “vibrant private sector consists of scores of companies working on everything from commercial spacecraft and rocket propulsion to space mining and food production.”¹⁴⁷ Groundbreaking technological innovations like reusable rockets and successful asteroid landings have become realities.¹⁴⁸ “The next step is working to solidify the business practices and mature the industry,”¹⁴⁹ for which commercial space companies seek a stable regulatory environment.¹⁵⁰ Others fear a race for space resources and seek clearer guidance on how these resources are to be governed, or wish to clarify that outer space resources are beyond the reach of commercial exploitation.

2. *Contested Treaty Law*

The two treaties most relevant to questions about the commercial use of outer space resources are the Outer Space Treaty and the Moon Treaty.

i. *The Outer Space Treaty*

The broadly-supported Outer Space Treaty¹⁵¹ binds 107 nations, including all of the “principal space powers,” and is widely considered

145. Wooten, *supra* note 141.

146. Leonard David, *Is Moon Mining Economically Feasible?*, SPACE.COM (Jan. 7, 2015), <https://www.space.com/28189-moon-mining-economic-feasibility.html> [<https://perma.cc/GRB7-MEXN>].

147. Wooten, *supra* note 141.

148. *See Space: Investing in the Final Frontier*, *supra* note 2 (reviewing current space projects).

149. Wooten, *supra* note 141.

150. Wall, *supra* note 142 (“From a lawyer’s interpretation, I think the landscape is clear enough. But from an international aspect, and some investors—I think they would like to see more certainty.” (quoting a representative of Deep Space Industries)). The American Astronautical Society (AAS) affirmed as early as 2001 that “for private entities and investors to expand their business models and to reach for the next new application, they will need to see predictable, transparent and flexible international and domestic legal frameworks.” Joanne Irene Gabrynowicz, *Space Law: Its Cold War Origins and Challenges in the Era of Globalization*, 37 SUFFOLK U. L. REV. 1041, 1052 (2004) (quoting AM. ASTRONAUTICAL SOC’Y, *supra* note 5, at 1). The report lists a number of important applications of commercial space activities, such as “satellite telephony, direct-to-home television, high-speed Internet connectivity, telemedicine, distance learning, remote sensing of the Earth, global positioning and navigation and materials processing.” *Id.* In the eighteen years since that pronouncement, both commercial applications in space and private-sector ambition have exponentially expanded. However, the lack of a clear international legal answer to whether and how off-earth resources can be appropriated still chills investment and innovation in this sector. Bilder, *supra* note 7, at 248. Moreover, any attempt by a private entity to acquire and bring to Earth significant quantities of an outer space resource could lead to conflicts. *Id.*

151. Outer Space Treaty, *supra* note 3, at art. VI. As Joanne Gabrynowicz observes, “[t]he speed with which the international community established this treaty regime demonstrates a clear intent that

international space law's "charter."¹⁵² The treaty entered into force in 1967 and continues to be the most authoritative source of law governing outer space activities half a century later.¹⁵³ The treaty was passed during the height of Cold War bipolarity, and it responds to the issues of the era. In particular, it sought to preserve space as a peaceful, non-militarized realm that could not be claimed by either of the Cold War powers or their proxies. The focus of the treaty is to bring space exploration within the UN Charter's prohibition on the threat or use of force and ensure that nations pursue the "common interest of all mankind" in their activities there.¹⁵⁴ To that end, Article IV provides that "[t]he moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes," and no party may establish military bases, conduct weapons testing, or station weapons in outer space.¹⁵⁵ Astronauts are to be regarded as "envoys of mankind," and are to be assisted by all,¹⁵⁶ and parties are to be "guided by the principle of co-operation and mutual assistance."¹⁵⁷ Passed a decade after the Soviet Union's launch of Sputnik, the implicit aim of this treaty is to avoid extending the Cold War to outer space, or inadvertently turning it hot.¹⁵⁸

Because the Outer Space Treaty was negotiated by two antagonistic superpowers at a time when forming agreements was challenging, it leaves many questions unanswered. Moreover, because the purpose of the Outer Space Treaty was to avoid militarization and colonization of outer space, the treaty does not offer clear answers to many of the questions posed by new commercial uses of space. For example, there is no specific answer to whether commercial entities can appropriate, mine, possess, or sell outer space resources.

One relevant provision is Article II, which provides that "[o]uter space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by

space was to be governed by international law." Joanne Irene Gabrynowicz, *One Half Century and Counting: The Evolution of U.S. National Space Law and Three Long-Term Emerging Issues*, 4 HARV. L. & POL'Y REV. 405, 422 (2010).

152. Bilder, *supra* note 7, at 257.

153. *Id.*; see also Outer Space Treaty, *supra* note 3, at art. IV.

154. Outer Space Treaty, *supra* note 3, at pmb1.

155. *Id.* at art. IV.

156. *Id.* at art. V.

157. *Id.* at art. IX.

158. BUREAU OF ARMS CONTROL, VERIFICATION, AND COMPLIANCE, U.S. DEP'T OF STATE, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, STATE.GOV, <https://www.state.gov/t/isn/5181.htm> [http s://perma.cc/U 2QD-B27F] (reporting that the Outer Space Treaty was a "'nonarmament' treat[y]," which "sought to prevent 'a new form of colonial competition' and the possible damage that self-seeking exploitation might cause").

any other means.”¹⁵⁹ Additionally, Article I provides the corollary: exploration and use “shall be carried out for the benefit and in the interests of all countries . . . and shall be the province of all mankind.”¹⁶⁰ While Article II focuses on *national* appropriation, the treaty does anticipate some sort of activity by non-governmental actors. Article VI provides that States Parties will be responsible for “national activities in outer space . . . whether such activities are carried on by governmental agencies or by non-governmental entities.”¹⁶¹ States Parties are also responsible for ensuring that these agencies and entities comply with treaty provisions, and nations themselves bear liability for any damage.¹⁶² Any non-governmental activities must be authorized and supervised by the relevant nation-state.¹⁶³ Subpart II.A.3 explores competing interpretations of these provisions in the context of commercial mining.

ii. The Moon Treaty

The Moon Treaty is also relevant to the questions of whether private commercial parties can engage in mining activities in outer space.¹⁶⁴ While the Moon Treaty entered into force in 1984, it has been ratified by only eighteen countries, none of which are engaged in spacefaring activities.¹⁶⁵ Because the Treaty does not bind any non-party, it has arguably limited relevance. Nevertheless, some scholars have argued that its provisions should be used to interpret ambiguous provisions in the Outer Space Treaty. For that reason, it merits a brief treatment here. The Moon Treaty was meant to cover not just the moon but “other celestial bodies within the solar system.”¹⁶⁶ Like the Outer Space Treaty, the Moon Treaty includes a number of provisions providing for peaceful use of the moon and forbidding hostile acts, military installations, and other non-peaceful uses. In addition, it includes provisions that quite unambiguously prohibit appropriation,

159. Outer Space Treaty, *supra* note 3, at art. II.

160. *Id.* at art. I.

161. *Id.* at art. VI.

162. *Id.*

163. *Id.*

164. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 5, 1979, 1363 U.N.T.S. 3 (entered into force July 11, 1984) [hereinafter Moon Treaty].

165. See Comm. on the Peaceful Uses of Outer Space, Rep. of the Legal Subcomm. on the Status of International Agreements Relating to Activities in Outer Space as at 1 January 2019, U.N. Doc. A/AC.105/C.2/2019/CRP.3 (2019). Moon Treaty parties include Armenia, Australia, Austria, Belgium, Chile, Kazakhstan, Kuwait, Lebanon, Mexico, Morocco, Netherlands, Pakistan, Peru, The Philippines, Saudi Arabia, Turkey, Uruguay, and Venezuela. *Id.* Notably, India has signed but has not ratified the treaty. *Id.* The Moon Treaty was developed by the United Nations Committee on the Peaceful Uses of Outer Space and opened for signature in 1979. *Id.*

166. Moon Treaty, *supra* note 164, at art. 1 ¶ 1.

going further than the Outer Space Treaty in providing that “[t]he exploration and use of the moon shall be the province of all mankind and shall be carried out for the benefit and in the interests of all countries.”¹⁶⁷ Indeed, it provides that “[t]he moon and its natural resources are the common heritage of mankind” and “[t]he moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means.”¹⁶⁸

The Moon Treaty gives parties mining rights for the purpose of scientific investigation. They “have the right to collect on and remove from the moon samples of its mineral and other substances” to be used for scientific purposes or for the support of missions in pursuit of those scientific investigations.¹⁶⁹ However, the Moon Treaty appears to explicitly disavow any potential property rights:

Neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property of any State, . . . 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 . . . shall not create a right of ownership over the surface or the subsurface of the moon¹⁷⁰

Instead, the treaty envisions the development of an international regime that would oversee “[t]he orderly and safe development of the natural resources of the moon,” and management and “expansion of opportunities in the use of those resources.”¹⁷¹ Pointedly, the anticipated international regime would oversee an “equitable sharing by all States Parties in the benefits derived from those resources.”¹⁷²

Together, the provisions of the Moon Treaty and the Outer Space Treaty serve as the principal international legal rules that govern commercial mining on asteroids or the moon. The next sections examine the debate among scholars and lawmakers about what these provisions mean for commercial mining projects.

3. *The Interpretive Debate*

The provisions of the Outer Space Treaty are ambiguous at critical points, and the Moon Treaty does not bind most nations. What then is the

167. *Id.* at art. 4 ¶ 1.

168. *Id.* at art. 11 ¶¶ 1–2.

169. *Id.* at art. 6 ¶ 2.

170. *Id.* at art. 11 ¶ 3.

171. *Id.* at art. 11 ¶ 7.

172. *Id.*

nature and extent of the legal commitments that bind space-faring nations and their private companies? In particular, may these countries or their companies appropriate property in outer space?

Debate abounds. As one commentator notes, these arguments “have played out in public hearings, academic journals, space-focused podcasts, and the popular press.”¹⁷³ Both sides invoke the Outer Space Treaty’s language and context.¹⁷⁴

i. Common Ground: Non-Appropriation Principle

As a starting point, the Outer Space Treaty clearly forbids “national appropriation” of outer space resources.¹⁷⁵ There is no serious debate about the binding nature of this prohibition or whether it binds all space-faring parties.¹⁷⁶ In addition, most commentators agree that the non-appropriation principle has attained the status of a customary rule of international law, and so binds even non-parties to the treaty.¹⁷⁷ One commentator calls this the “grundnorm” or foundational principle of international space law.¹⁷⁸ Debate centers on the meaning and scope of that non-appropriation principle.

173. Julie Randolph, *Fly Me to the Moon and Let Me Mine an Asteroid: A Primer on Private Entities’ Rights to Outer Space Resources*, DRI FOR DEF., Dec. 2017, at 41, 45 (collecting sources). This area has also been of keen recent interest to law students, who are leading the academic literature in considering the significance of private sector activities in outer space. For a sampling of the dozens of notes on this debate, see, for example, Amanda M. Leon, Note, *Mining for Meaning: An Examination of the Legality of Property Rights in Space Resources*, 104 VA. L. REV. 497, 497 (2018) (concluding that U.S. legislation “abrogates the United States’ international obligations . . . [and] fails to achieve its goal of providing the private space industry with the legal certainty it . . . requires”); Alison Morris, Note, *Intergalactic Property Law: A New Regime for a New Age*, 19 VAND. J. ENT. & TECH. L. 1085 (2017) (considering whether national regulation granting private companies property rights in outer space resources is consistent with the Outer Space Treaty); Stephen DiMaria, Note, *Starships and Enterprise: Private Spaceflight Companies’ Property Rights and the U.S. Commercial Space Launch Competitiveness Act*, 90 ST. JOHN’S L. REV. 415 (2016) (same); Thomas R. Irwin, Note, *Space Rocks: A Proposal to Govern the Development of Outer Space and Its Resources*, 76 OHIO ST. L.J. 217 (2015) (evaluating current law and proposing a new international treaty on this topic); Austin C. Murnane, Note, *The Prospector’s Guide to the Galaxy*, 37 FORDHAM INT’L L.J. 235 (2013) (considering whether national and international laws apply to outer space resources); Blake Gilson, Note, *Defending Your Client’s Property Rights in Space: A Practical Guide for the Lunar Litigator*, 80 FORDHAM L. REV. 1367 (2011) (considering Outer Space Treaty interpretation in context of property law principles); Kelly M. Zullo, Note, *The Need to Clarify the Status of Property Rights in International Space Law*, 90 GEO. L.J. 2413 (2002) (focusing on the Outer Space Treaty).

174. See sources cited *supra* note 173.

175. Outer Space Treaty, *supra* note 3, at art. II.

176. See Bilder, *supra* note 7, at 257 (noting that the Outer Space Treaty binds all “principal space powers”); see also Comm. on the Peaceful Uses of Outer Space, *supra* note 165 (listing ratifications to the Outer Space Treaty).

177. See, e.g., Laurence R. Helfer & Ingrid B. Wuerth, *Customary International Law: An Instrument Choice Perspective*, 37 MICH. J. INT’L L. 563, 581–82 (2016) (characterizing the non-appropriation principle as unchallenged).

178. Paliouras, *supra* note 8, at 54.

ii. *Does Non-Appropriation Apply to Private Parties?*

One debate considers to whom the prohibition on appropriation is directed. Does the treaty prohibit only *national* appropriation but permit appropriation by private parties?

Those answering this question in the affirmative have access to a strong textual argument. Article II of the Outer Space Treaty specifically references “national” appropriation.¹⁷⁹ The context surrounding that appears to confirm that the prohibition of “national” appropriation is directed at nations, as only a nation could have a legitimate “claim of sovereignty.”¹⁸⁰ Moreover, “occupation” refers to old international legal doctrines that once allowed nations to claim territory based on occupation. The historical context within which the treaty was drafted supports this position, as the concern of the time was colonization, not commercial use of space resources. As for private parties, they are specifically anticipated by the treaty: Article VI states that States Parties bear international responsibility for activities by “non-governmental entities” as well as governmental agencies.¹⁸¹ The fact that they are anticipated by the treaty but not included in the Article II prohibition on appropriation suggests that the treaty intended to prohibit only *national* appropriation of outer space resources.¹⁸²

Those claiming that the treaty prohibits both national appropriation and appropriation by private parties can marshal their own textual argument. Article VI defines “national activities in outer space” to include both “activities . . . carried on by governmental agencies” and those carried on by “non-governmental entities.”¹⁸³ This definition of “national” must inform Article II’s prohibition on “national” appropriation and thus extend to a nation’s citizens and commercial entities as well as governmental activities. Moreover, a contrary interpretation defies logic: if nations themselves may not claim property rights to outer space objects, they have no power to confer those rights on their nationals.¹⁸⁴

179. Outer Space Treaty, *supra* note 3, at art. II.

180. *Id.*

181. *Id.* at art. VI.

182. VIRGILIU POP, WHO OWNS THE MOON?: EXTRATERRESTRIAL ASPECTS OF LAND AND MINERAL RESOURCES OWNERSHIP 63 (2009).

183. Outer Space Treaty, *supra* note 3, at art. VI.

184. Leslie I. Tennen, *Enterprise Rights and the Legal Regime for Exploitation of Outer Space Resources*, 47 U. PAC. L. REV. 281, 288 (2016) (“State recognition of claims to extraterrestrial property by its nationals is national appropriation ‘by any other means’ prohibited by Article II, no matter what euphemistic label is employed to mask the obvious.”).

iii. *What Is Meant by “Appropriation” and “Use”?*

A second debate concerns the meaning of “appropriation.” Does it prohibit mining activities, or does it relate only to the staking out of real property in fee simple ownership structures—such as plots of land on the moon, or entire asteroids?

The argument that the Outer Space Treaty prohibits only real property claims and not claims to resources distinguishes between “appropriation” and “use.” Both the preamble of the Treaty and a number of articles anticipate that nations and their non-governmental entities will engage in “exploration and use” of outer space and celestial bodies.¹⁸⁵ This exploration and use is to be free to all states,¹⁸⁶ performed in accordance with other principles of international law,¹⁸⁷ for peaceful purposes,¹⁸⁸ and “guided by the principle of co-operation and mutual assistance.”¹⁸⁹ Nowhere is “use” defined, but the term cannot be coextensive with “exploration,” and it must refer to something. It follows that the treaty anticipates that nations and their non-governmental entities must be able to “use” space resources in some fashion, notwithstanding the non-appropriation provision in Article I.

One potential way to distinguish “appropriation” and “use,” some scholars propose, is to consider the terms in the context of enterprise rights. As Leslie Tennen observes, “[t]he ownership of a physical location is not an invariable and necessary requirement for the commercial use of resources.”¹⁹⁰ Rather, a variety of enterprises do not require a claim of fee simple ownership, such as “grazing leases for livestock, harvesting of lumber, and extraction of oil” from offshore oil platforms.¹⁹¹ “Use” of resources does not require appropriation of property, but can instead be

185. *E.g.*, Outer Space Treaty, *supra* note 3, at pmb. (emphasis added) (“Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes . . .”).

186. *Id.* at art. I.

187. *Id.* at art. III.

188. *Id.* at art. IV.

189. *Id.* at art. IX.

190. Leslie I. Tennen, *Towards a New Regime for Exploitation of Outer Space Mineral Resources*, 88 NEB. L. REV. 794, 799 (2010); *cf.* Bilder, *supra* note 7, at 268 n.95 (noting legislative debates in the U.S. concerning whether anything in the Moon Treaty should be construed as a “threat to the free enterprise system” or “rule[] out exploitation of lunar resources by private companies” (citing Nathan C. Goldman, *The Moon Treaty: Reflections on the Proposed Moon Treaty, Space Law, and the Future*, in *PEOPLE IN SPACE: POLICY PERSPECTIVES FOR A “STAR WARS” CENTURY* 140, 144, 148 (James Everett Katz ed., 1985))).

191. Tennen, *supra* note 190, at 799 (footnotes omitted).

based on a right to engage in a particular enterprise—“‘enterprise rights,’ not ownership rights.”¹⁹²

Others disagree. A contrary position is that “use” must be read in the context of provisions in the treaty that state that “[t]he exploration and use of outer space . . . shall be carried out for the benefit and in the interests of all countries.”¹⁹³ Requiring that all countries must benefit from any “use” suggests that “use” cannot refer to commercial benefit, but instead to scientific uses that can benefit all.

iv. Does the Moon Treaty Help?

While the Moon Treaty has a number of provisions that may assist in determining whether commercial use of the Moon’s natural resources is legally permissible, the treaty’s authority is contested because it has not been ratified by any nations currently engaged in space activities. For this reason, debates about the Moon Treaty extend not just to the meaning of its provisions but also to their legal effects.

Several provisions of the treaty appear to clearly outlaw the possibility of commercial mining activities on the Moon.¹⁹⁴ In particular, the Moon Treaty goes further than the Outer Space Treaty by specifying *what* may not be appropriated: “[n]either the surface nor the subsurface of the moon, nor any part thereof or natural resources in place,” and by *whom*: “any State . . . national organization or nongovernmental entity or . . . any natural person.”¹⁹⁵ The Moon Treaty anticipates that an international regime will govern any exploitation of natural resources.¹⁹⁶ Under this anticipated regime, nations are to inform the United Nations, the public, and the scientific community of any natural resources they may discover;¹⁹⁷ the regime will coordinate “development” and “rational management” of those resources; and it will ensure “[a]n equitable sharing by all States Parties in the benefits derived from those resources.”¹⁹⁸

The Moon Treaty seems to unambiguously foreclose the possibility of commercial mining on the Moon. Nevertheless, it does offer some fodder

192. Tennen, *supra* note 184, at 285 (footnote omitted).

193. Outer Space Treaty, *supra* note 3, at art. I.

194. Like the Outer Space Treaty, the Moon Treaty provides that the Moon “is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means.” Moon Treaty, *supra* note 164, at art. 11 ¶ 2.

195. *Id.* at art. 11 ¶ 3.

196. *Id.* at art. 11 ¶ 5.

197. *Id.* at art. 11 ¶ 6.

198. *Id.* at art. 11 ¶ 7 (also noting that the sharing regime should be conducted with particular sensitivity to the interests of developing countries and the investments of countries who have participated in Moon exploration).

for debate. The treaty anticipates some manner of “use” of the Moon, and the “equitable sharing” provision anticipates some sort of benefit to be derived from it.¹⁹⁹ How these benefits are to be shared is not clarified, but various possibilities seem available: perhaps, for example, some sort of tax could be levied on the profits of space mining and distributed “on a basis of equality.”²⁰⁰ The Moon Treaty has also provoked debate by invoking the “common heritage” principle.²⁰¹ Some claim that the common heritage principle requires that any resources must be appropriated and managed “under the aegis of an international organization controlled by a majority of nations,”²⁰² while others assert that the principle merely requires “some sharing among all nations of the benefits of such ‘common heritage’ resources.”²⁰³

Debate about the Moon Treaty extends not just to the meaning of its provisions but also to its relevance to international law. There are three principal positions. The first is that the Moon Treaty is irrelevant since it has been ratified by so few nations, none of which are currently involved in space activities.²⁰⁴ In other words, the treaty only binds nations who do not engage in the conduct it regulates. A second position is that the Moon Treaty is relevant to international law in that it helps interpret the meaning of ambiguous provisions in the Outer Space Treaty. It constitutes “a reinforcement, spelling-out, or agreed interpretation by the space powers and many other concerned states . . . of a number of principles and obligations already contained or implicit in the Outer Space Treaty.”²⁰⁵ More specifically, it could either be evidence of “an emerging body of customary lunar law,” because it is the product of a long process of careful negotiation by space powers, or it may exert some sort of normative force as “the most sensible and viable rules for the conduct of activities on the Moon.”²⁰⁶ A third available position is that the Moon Treaty is relevant to the interpretation of the Outer Space Treaty, but as evidence of a *rejection* of the principles it elaborates. The argument would assert that the fact that no space powers adopted the treaty is evidence that they do not agree with

199. *Id.* at art. 11 ¶ 4 (providing that “States Parties have the right to exploration and use of the moon without discrimination of any kind, on a basis of equality” and pursuant to international law).

200. *Id.*

201. *Id.* at art. 11 ¶ 1 (“The moon and its natural resources are the common heritage of mankind . . .”).

202. Bilder, *supra* note 7, at 265.

203. *Id.* at 266 (also noting that this position asserts that “there should be particular concern for the protection of the environment in areas regarded as the ‘common heritage’”).

204. *Id.* at 269 (“Arguably, the agreement should be given little weight as evidence of developing customary law, since, in contrast to other ‘space law’ agreements . . . the Moon Agreement has, over a considerable period, gained few adherents, none of which are significant space powers.”).

205. *Id.*

206. *Id.* at 269–70.

the treaty's approach. The rejection is itself subsequent practice that can help interpret ambiguous provisions of the Outer Space Treaty.

B. *Potential Solutions*

The international community could definitively resolve the debate by adopting a new multilateral space law treaty that would clarify and elaborate the law. Such a treaty could update international space law for the new realities of commercial plans for outer space and the new technological capacities that have developed since 1967. The new treaty could explicitly supersede the Outer Space Treaty or, alternatively, parties could amend the Outer Space Treaty to clarify the meaning of certain provisions like the prohibition on national appropriation of celestial resources.

However, thus far there have been no major attempts by nations to negotiate such a treaty. Indeed, the early twenty-first century is not an era of institution-building. Developing a major new agreement to elaborate legal rules in the space law context would present serious, and perhaps insurmountable geopolitical challenges.

C. *The Role of Subsequent Practice*

The wealth of scholarship on potential interpretations of the Outer Space Treaty focuses almost exclusively on “the ordinary meaning . . . [of] the terms of the treaty in their context and in the light of its object and purpose.”²⁰⁷ Some have looked to the preparatory work of the treaty (*travaux préparatoires*). An underexplored way to confirm the treaty's meaning is to consider, “together with the context,” the subsequent practice of states and the evolution of customary international law in the over fifty years since the treaty entered into force.²⁰⁸ <https://perma.cc/FJV8-SZ6J>

As described earlier, treaties may be interpreted in light of “[a]ny subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation.”²⁰⁹ Thus, when parties converge in their practice in a way that suggests agreement regarding a treaty's interpretation, that practice can inform the interpretation of a treaty

207. Vienna Convention on the Law of Treaties, *supra* note 21, at art. 31 ¶ 1.

208. DIRECTORATE OF STUDIES, *supra* note 4, at 27. While legal scholarship has generally lagged behind, the International Institute of Space Law, an international non-governmental organization dedicated to “fostering the development of space law,” *Introduction*, INT'L INST. OF SPACE L., <https://iislweb.org/about-the-iisl/introduction/> [<https://perma.cc/FJV8-SZ6J>], recently commissioned a background paper on this topic that does consider subsequent practice. DIRECTORATE OF STUDIES, *supra* note 4, at 35–41.

209. Vienna Convention on the Law of Treaties, *supra* note 21, at art. 31 ¶ 3(b).

term. Custom can also be relevant to the interpretation of a treaty when a treaty leaves a gap in the law. Together with a treaty's context and the subsequent practice of its parties, interpreters may consider "[a]ny relevant rules of international law applicable in the relations between the parties," including subsequent treaty law and customary international law.²¹⁰

There is state practice that is relevant to the interpretation of the Outer Space Treaty. Specifically, legislatures in the United States and Luxembourg have tried to use national law to simply legislate away the international ambiguity.²¹¹ In the United States, the U.S. Commercial Space Launch Competitiveness Act of 2015 (the Space Act) explicitly granted to private parties rights in asteroid resources:

A United States Citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States.²¹²

Unsurprisingly, the Space Act was passed in response to urging by private companies, who were seeking legislative certainty that their business plans would pass legal muster.²¹³ The Act nevertheless specified in a "Disclaimer of Extraterritorial Sovereignty"—seemingly passed in order to ensure the United States' compliance with its obligations in the Outer Space Treaty—that "by the enactment of this Act, the United States does not thereby assert sovereignty or sovereign or exclusive rights or jurisdiction over, or the ownership of, any celestial body."²¹⁴ It also maintained a caveat, conferring rights to asteroid resources so long as they are obtained "in accordance with applicable law," explicitly to include international law.²¹⁵ If international law *in fact* prohibits commercial mining and use of outer space resources, then the caveat may swallow the rule. Thus, the Act offers

210. *Id.* at art. 31 ¶ 3(c); *see, e.g.*, AUST, *supra* note 76, at 244 (noting that "[i]n interpreting today a reference in a treaty of, say, 1961 to the continental shelf, it would be necessary to consider not only the Geneva Convention on the Continental Shelf 1958, but also the much more up-to-date provisions on the same subject in the Law of the Sea Convention 1982 (UNCLOS)"); *see also* Richard Gardiner, *The Vienna Convention Rules on Treaty Interpretation*, in THE OXFORD GUIDE TO TREATIES 475, 499 (Duncan B. Hollis ed., 2012) ("[E]volutionary or evolutive interpretation has largely overtaken attempts to align principles of interpretation with the difficult formulation of an 'intertemporal rule.'"); GARDINER, *supra* note 73, at 290–334 (collecting sources).

211. Randolph, *supra* note 173, at 45.

212. U.S. Commercial Space Launch Competitiveness Act, Pub. L. No. 114-90, § 51303, 129 Stat. 704, 721 (2015).

213. Randolph, *supra* note 173, at 44.

214. U.S. Commercial Space Launch Competitiveness Act § 403.

215. *Id.* § 51303.

some evidence that the United States interprets the Outer Space Treaty to permit commercial mining, but with some persistent ambiguity.

Luxembourg followed the United States with its own legislation conferring rights on private parties to space resources. The “Draft Law on the Exploration and Use of Space Resources,” passed in 2017, asserts baldly that “[s]pace resources are capable of being appropriated.”²¹⁶ The law also creates a detailed legislative regime aimed at space resource exploitation.²¹⁷ Just as with the U.S. legislation, the Luxembourg law was aimed at creating legal certainty for companies and investors, and, as a result of the legislation, Luxembourg has indeed successfully attracted private sector space business.²¹⁸ The Luxembourgian legislation is less ambiguous than the U.S. legislation, as it does not include the caveat that commercial appropriation of state resources must be obtained “in accordance with . . . the international obligations of” Luxembourg.²¹⁹ Indeed, the Luxembourg law includes explicit implementing regulations to govern the process of private appropriation of space resources.²²⁰

The United States and Luxembourg are the only two nations that have legislation on commercial appropriation of space resources. But they are not the only states with relevant treaty practice. For example, reactions of other nations to these laws is also relevant. In particular, the United Nations Committee on the Peaceful Uses of Outer Space (“COPUOS”) and its Legal Subcommittee have considered whether to explicitly respond to the new laws in the United States and Luxembourg. While some national delegates to the Legal Subcommittee (including, predictably, delegates from the United States) have asserted that national legislation on space resources is “consistent with . . . international obligations under the Outer Space Treaty and with half a century of practice under the Treaty,”²²¹ others have disagreed. For example, the Russian Federation has made submissions to COPUOS accusing the United States of “total disrespect for international law order [sic]” by adopting the Commercial Space Launch

216. Loi du 20 juillet 2017 sur l’exploration et l’utilisation des ressources de l’espace [Law of 20 July 2017 on the Exploration and Use of Space Resources], JOURNAL OFFICIEL DU GRAND-DUCHÉ DE LUXEMBOURG [OFFICIAL GAZETTE OF THE GRAND DUCHY OF LUXEMBOURG], No. 674-1.

217. See Randolph, *supra* note 173, at 45 (reporting that the law “goes into great detail about the authorization process, including establishing the need to receive ministerial authorization for space exploration and resource use, the factors to be considered in granting the authorization, a requirement for a risk assessment and regular audits, and fee ranges”).

218. See *id.* (noting that since the law was passed, DSI has established its European headquarters in Luxembourg and the country has formed a partnership with Planetary Resources).

219. *Id.* at 44, 45.

220. *Id.* at 45.

221. Comm. on the Peaceful Uses of Outer Space, Rep. of the Legal Subcomm. on Its Fifty-Sixth Session, ¶¶ 221–50, U.N. Doc. A/AC.105/1122 (Apr. 18, 2017).

Competitiveness Act, and by its stated approach to the use of the Moon's natural resources.²²²

D. Attributed Lawmaking

The theory of attributed lawmaking suggests another form of state practice exists. Specifically, when private commercial entities advance interpretations of ambiguous provisions in the Outer Space Treaty and act on them, those private entities, too, define the meaning of the treaty's terms.

To review, this is because while only nation-states who are treaty parties have the authority to generate subsequent treaty practice, nations are under an obligation to supervise and regulate the activity of their nationals in space. That private sector activity is in fact attributed to the state as "national" activity under the Outer Space Treaty:

States Parties to the Treaty shall bear international responsibility for national activities in outer space . . . whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty.²²³

Nations may also be responsible for some of the activities of private actors in space under the background rules of international law, even aside from their commitments in the Outer Space Treaty, but making that argument would require establishing that the private actors are, for example, exercising governmental functions, as noted previously in Part I.C. Because the Outer Space Treaty stipulates that private activities are national activities that are attributed to states, however, the attribution question does not require falling back on the background customary rules of attribution.

Because the activities of private actors are attributed to home nations, those activities count among the evidences of "state practice" relevant both to treaty interpretation and to the formation of customary international law capable of filling treaty gaps. In particular, when private entities launch rockets intended to exploit outer space resources, extract those resources, and ultimately to sell them, they contribute to the development of a treaty

222. Comm. on the Peaceful Uses of Outer Space, Rep. of the Sci. & Tech. Subcomm. Reviewing Opportunities for Achieving the Vienna Consensus on Space Security Encompassing Several Regulatory Domains: Working Paper Submitted by the Russian Federation, ¶ 7, U.N. Doc. A/AC.105/C.1/2016/CRP.15 (Feb. 16, 2016); *see also* Comm. on the Peaceful Uses of Outer Space, Rep. on Its Sixtieth Session, ¶¶ 227–37, U.N. Doc. A/72/20 (June 27, 2017) (recording this disagreement).

223. Outer Space Treaty, *supra* note 3, at art. VI. The provision goes on to state that "[t]he activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty." *Id.*

interpretation that sanctions commercial exploitation of outer space resources. This is not to say that this will be a winning argument at the moment; commercial exploitation of outer space resources is currently at an early stage. Moreover, the number of treaty parties who have commercial entities engaged in developing a resource extraction business—and thus for whom one can potentially marshal attributed state practice—is still small. Nevertheless, the point is that as commercial plans and activity unfold, this argument will become increasingly available.

The next subsections review the status of commercial plans and activities in outer space before evaluating the strength of the arguments that these plans and activities constitute attributed lawmaking now or in the future as they continue to develop.

1. Commercial Space Companies Offer Interpretations

Commercial space enterprises assert that the Outer Space Treaty does not prohibit mining and commercial use of resources on asteroids and the Moon. As this Section will describe, space companies have been making these assertions explicitly, by lobbying at national and international fora, and also implicitly, by securing billions of dollars of investment money and building businesses around the prospect that their preferred interpretations will prevail.

Testimony in the U.S. Congress offers an example of ways private companies are making assertions in public fora to defend their preferred rules about space resource mining. This is because, as the U.S. government has grappled with a variety of questions related to “new space” (a term used to refer to the new commercial interest in outer space activities),²²⁴ committees of both houses of Congress have held hearings in which they solicited corporate views. Heads of commercial space enterprises have used these opportunities to share their plans, including plans for mining of lunar and asteroid resources. For example, at a Senate hearing in 2017, Robert Meyerson, the President of Blue Origin, stated that the company’s “near-term goal is to compete in the commercial market We are building the next generation of transportation infrastructure: reliable, affordable, frequent rides to space for everything from . . . resource mining to microgravity manufacturing.”²²⁵ George Whitesides, the CEO of Galactic

224. See, e.g., *Partnerships to Advance the Business of Space: Hearing Before the Subcomm. on Sci. & Space of the S. Comm. on Commerce, Sci., & Transp.*, 113th Cong. 8–14 (2013) (statement of Patti Grace Smith, Principal, Patti Grace Smith Consulting, LLC).

225. *Reopening the American Frontier: Reducing Regulatory Barriers and Expanding American Free Enterprise in Space: Hearing Before the Subcomm. on Space, Sci., & Competitiveness of the S.*

Ventures, noted that his companies “are a part of a robust and growing domestic commercial space industry. . . . made up of companies with private financial backing working on a myriad of missions . . . [including] asteroid mining, lunar landers, and in-space habitats. The commercial space industry is well underway and poised to continue its growth.”²²⁶

Similarly, at a 2017 hearing before the House Subcommittee on Space, the CEO of the privately funded commercial space company Moon Express reviewed an array of plans the company has made to engage in collection of lunar resources.²²⁷ Bob Richards stated that the company was formed to “unlock the resources of the Moon through a progressive series of commercial robotic missions.”²²⁸ Richards explained to the House why the Moon is of commercial interest²²⁹ and how his company intends to exploit that opportunity.²³⁰ The CEO outlined plans for three lunar expeditions, concluding with a “sample return . . . with a goal of proving out the technologies and legal premise of the first privately obtained lunar soil and rocks.”²³¹ That third expedition, titled “Harvest Moon,” is intended to “begin[] [the company’s] business phase of lunar resource prospecting and harvesting. The samples brought back will be the only privately obtained lunar materials on Earth, and will be used to benefit science as well as commercial purposes.”²³²

In addition to outlining plans that depend upon a permissive legal environment toward commercial use of space resources, the private sector leaders advanced their position that the Outer Space Treaty *is* currently compatible with these plans. For example, a U.S. Senate hearing included a pitch by the president of Bigelow Aerospace to update the Outer Space

Comm. on Commerce, Sci., & Transp., 115th Cong. 13 (2017) (statement of Robert Meyerson, President, Blue Origin).

226. *Id.* at 17–26 (statement of George Whitesides, CEO, Galactic Ventures).

227. *Private Sector Lunar Exploration: Hearing Before the Subcomm. on Space of the H. Comm. on Sci., Space, & Tech.*, 115th Cong. 23–35 (2017) (statement of Bob Richards, Founder & CEO, Moon Express, Inc.).

228. *Id.* at 23. Richards stated, with a degree of dramatic flair, that:

The American flag is returning to the surface of the Moon next year, not because of a government program but because of private sector investments into low-cost rockets and smart robotic explorers that are collapsing the cost of lunar access. Together, we will begin a new democratized program to make the Moon accessible to entrepreneurs.

Id. at 24.

229. *Id.* at 26 (explaining that the moon “has been enriched with vast resources through billions of years of bombardment by asteroids and comets,” and “these resources are largely on or near the lunar surface, and therefore relatively accessible”).

230. *Id.* (“Moon Express is blazing a trail to the Moon to seek and harvest these resources All Moon Express expeditions will prospect for materials on the Moon as candidates for economic development and in-situ resource utilization.”).

231. *Id.* at 27.

232. *Id.* at 28.

Treaty to explicitly accommodate mining. The president nevertheless affirmed his understanding that this update would merely *clarify* what he believed to be the correct interpretation of the Outer Space Treaty. Significantly, the company's president offered his opinion that the updates would not be "inconsistent with most of the language provided in the Treaty."²³³ However, the updates would help establish the rights of lunar mining companies to engage in their proposed ventures:

It's very difficult to not want [updates to the Outer Space Treaty] if you're a company that is promoting mining. You're going to spend large amounts of money, risk people's lives, and you don't have some security of a geographical definition. You're not asking for ownership of the property, but ownership of what you extract in situ from that area.

So I think this is not inconsistent. The 1967 Treaty provides for—that each signatory to that Treaty needs to prepare methods of their own within each country of how they are going to behave to carry out the spirit of that Treaty, which is that all foreign bodies should be used in the interest of the common welfare of mankind. That doesn't exclude free enterprise by any means. . . .

So I don't see any kind of discontinuity. The Treaty provides for these kinds of things because it leaves it up to sovereign countries to make these decisions, but it also could be updated. The risk of that is trying to get a consensus where you would actually be able to get a large population of countries to agree, I think.²³⁴

The company's president is asserting his view that the treaty does not prohibit private commercial activities and confirming his company's plans to engage in them.

233. *Reopening the American Frontier: Reducing Regulatory Barriers and Expanding American Free Enterprise in Space: Hearing Before the Subcomm. on Space, Sci., & Competitiveness of the S. Comm. on Commerce, Sci., & Transp.*, 115th Cong. 40 (2017) (statement of Hon. Tom Udall, U.S. Sen. from New Mexico).

234. *Id.* at 41. Bigelow also stated his opinion that the treaty did not anticipate commercial activities on the moon:

I think that that Treaty was cast in a time-frame where the United States and Russia didn't know who was going to be reaching the Moon first. There were concerns about proprietary possession, ownership of different . . . asset[s] of the Moon. So the philosophy was different than today.

It was un-thought of at that time, I'm assuming, that commercial folks would have the wherewithal or the audacity to be thinking about traveling to the Moon and conducting business there.

Id. at 40.

In a hearing in the House of Representatives, John Thornton, CEO of Astrobotic Technology, Inc., also defended the legality of his company's plans, but walked a fine line to do so. On the one hand he asserted that the U.S. Commercial Space Launch Competitiveness Act offers sufficient legal certainty for companies seeking to proceed with lunar mining, but on the other hand he acknowledged that the U.S. legislation is "creating" norms that may potentially cause international conflict. Thornton engaged in a colloquy with Representative Ed Perlmutter from Colorado:

Mr. PERLMUTTER. And I guess my concern . . . is . . . we're talking about mining, we're talking about taking resources, so, is there title? Is somebody jumping somebody else's claim? Exactly how do you see this working?

. . . .

Mr. THORNTON. So in our view, the Commercial Space Launch Competitiveness Act of 2015, currently that's sufficient for where we're at. We don't view that as a barrier for development or investment or partners to even invest or send payloads in the resources realm. So currently, we don't see the strong push for additional change at the moment.

It's also reassuring that the government of Luxembourg recently had a similar thing where they could say that Luxembourg companies could own the rights for resources. So we're starting to see international—

Mr. PERLMUTTER. Activity?

Mr. THORNTON. —activity, and then also agreement with the norms that the United States is creating.²³⁵

That exchange led to an even more explicit pitch by Bretton Alexander, Blue Origin's Director of Business Development and Strategy. Alexander affirmed industry's "interpretation" of the Outer Space Treaty, but also implicitly recognized that this U.S. private sector interpretation could be an international outlier, and urged the U.S. government to affirm it with foreign counterparts:

I think it's important for the U.S. government through the State Department to be talking internationally with its counterparts, particularly in the U.N. Committee on Peaceful Uses of Outer Space

235. *Private Sector Lunar Exploration: Hearing Before the Subcomm. on Space of the H. Comm. on Sci., Space, & Tech.*, 115th Cong. 76 (2017).

about what the Space Treaty, Outer Space Treaty, allows and how we're interpreting that. It's important for us as an industry to have the certainty that comes with, like you said, with the 2015 law but also that it's founded in the Outer Space Treaty, which basically say[s] that those resources are available to everybody so that when we go, let's say, to the Moon and discover water ice there, we're not saying now we own every piece of resource on the Moon and every bit of water ice on the Moon; we're saying, you know, we are able to utilize what we are able to extract and be able to sell that and have property rights over that but not rights to the entire Moon. So I think it's important from a government perspective that we go out and explain what our interpretation of the treaty is and the framework that we're establishing and lead by example.²³⁶

The argument these companies are making is that they are on solid legal footing in their appropriation-permissive interpretation of the Outer Space Treaty, though they would prefer that the U.S. government take a more proactive role in asserting this interpretation internationally.

These examples of assertions of beliefs made by U.S. companies before the U.S. Congress are not comprehensive, but simply illustrative. There is certainly at least implicit evidence that companies have pressed their cases before foreign governments as well. For example, as previously discussed, the Virgin Group obtained a \$1 billion commitment from Saudi Arabia (though the Virgin Group does not focus its agenda on mining) and Planetary Resources was able to obtain a substantial investment from the government of Luxembourg for its asteroid mining business.

In addition to offering assertions about the meaning of international treaty law, private sector entities from diverse nations have also engaged in "practice." That is, they have built business models and secured massive amounts of funding to begin projects that depend on their preferred interpretations of international law being adopted by the international community. Indeed, some of these companies are beginning to send missions to space in 2019, as this Article goes to print.

U.S. companies are again leaders in this space. As the testimony to Congress reviewed above shows, Moon Express has publicized its intention to "prospect for materials on the Moon as candidates for economic development and in-situ resource utilization."²³⁷ The company has concrete plans to return samples from the moon as soon as 2020.²³⁸ Planetary

236. *Id.*

237. *Id.* at 26.

238. *See id.* at 27.

Resources intends to mine asteroids, beginning with a prospecting mission to a near-Earth asteroid in 2020.²³⁹ The company intends to extract asteroid water, selling hydrogen and oxygen to other space missions, and ultimately to extract platinum and other precious metals.²⁴⁰ Planetary Resources has attracted substantial early investment by “Larry Page, co-founder of Google, [] Charles Simonyi, a former chief software architect at Microsoft . . . [and] the Grand Duchy of Luxembourg.”²⁴¹ The company deployed a demonstration satellite from the international space station in 2015, and in 2018 launched another satellite containing a “demonstration of technology designed to detect water resources in space.”²⁴²

Moving beyond U.S. companies, the Israeli company SpaceIL’s attempted Beresheet moon lander mission is another example. SpaceIL launched a lander atop SpaceX’s Falcon 9 rocket in spring 2019. While the mission was unsuccessful, as the lander ultimately crashed on the moon, the mission represented the fourth country to send a robotic lander to the moon, following the United States, former Soviet Union, and China. Most importantly the attempted moon landing was the very first to be entirely privately-funded. While Beresheet’s mission did not include mining for space resources, the lander was to engage in activities intended to lay a foundation for later mining.²⁴³

Other companies have even more ambitious plans. Tokyo-based “private lunar exploration” company iSpace plans to “locate, extract, and deliver lunar ice to space agencies and private space companies.”²⁴⁴ As a first step, the company is developing a mission called “HAKUTO-R.”²⁴⁵ The mission has two phases, first to orbit the moon in mid-2020, then to land a rover in mid-2021.²⁴⁶ The company has seven more missions planned after that, including missions to look for water in the Moon’s Polar Regions.²⁴⁷

239. Kenneth Chang, *If No One Owns the Moon, Can Anyone Make Money Up There?*, N.Y. TIMES (Nov. 26, 2017), <https://www.nytimes.com/2017/11/26/science/moon-express-outer-space-treaty.html> [<https://perma.cc/CB7N-MX9L>].

240. *Id.*

241. *Id.*

242. *Timeline*, PLANETARY RESOURCES, <https://www.planetaryresources.com/company/timeline/> [<https://perma.cc/3QRR-ASRR>]. Planetary Resources began to face resource shortages in 2018 due to the instability of property rights in outer space. *See* Foust, *supra* note 6 (noting that financing approaches used in terrestrial mining “rely on secured mineral rights that don’t exist for extraterrestrial bodies”).

243. Kenneth Chang, *After SpaceX Launch, Israeli Spacecraft Begins Journey to the Moon*, N.Y. TIMES (Feb. 21, 2019), <https://www.nytimes.com/2019/02/21/science/spacex-launch-israel.html> [<https://perma.cc/NX9W-SU8N>].

244. Jamie Carter, *A Japanese Startup is Set To Go Hunting for Ice . . . On the Moon*, TECHRADAR (Feb. 22, 2019), <https://www.techradar.com/news/japanese-startup-set-to-go-hunting-for-ice-on-the-moon> [<https://perma.cc/UW3Q-R24T>].

245. *Id.*

246. *Id.*

247. *Id.*

According to an iSpace spokesperson, the company wants “to identify where water ice exists and map that out so that we can eventually learn how to use it as a resource Technically speaking this is about developing a way of separating the Moon’s water ice into hydrogen and oxygen to create basic rocket fuel for spacecraft.”²⁴⁸ iSpace has already raised \$95 million to fulfil these goals and has already secured launch space on SpaceX rockets.²⁴⁹ The company has also secured major funding partners such as Japan Airlines, and partnerships with other private companies in Japan such as NGK Spark Plug (which wants to develop solid-state battery technology for the moon), Mitsui Sumitomo Insurance company (which has announced a lunar insurance service), and KDDI (a telecom operator with plans to provide communications between the earth and the moon).²⁵⁰ The HAKUTO-R mission is explicitly intended to “kick-start a new commercial space industry” by laying critical groundwork for activities of other private companies on the moon.²⁵¹

A UK startup called the Asteroid Mining Corporation (AMC) seeks “to extract resources from asteroids to boost the Earth’s economy and kick start the Space Based Economy.”²⁵² The young company headed by ambitious millennials has plans to “prospect the near-Earth asteroids . . . for mining candidates.”²⁵³ The company then intends to “commercialise this data set in order to fund further development of the Asteroid Mining industry” using the revenues from the database to focus R&D on “extraction, processing and utilisation of the available extra-terrestrial materials.”²⁵⁴ AMC claims that its business model is realistic: its incremental goal is to disseminate information of value to other entrants in the commercial asteroid mining space before ultimately gathering resources to engage in extraction itself.²⁵⁵ The company is currently seeking investors and lobbying in the UK for introduction of legislation clarifying private rights over outer space resources, as in the United States and Luxembourg.²⁵⁶

248. *Id.*

249. *Id.*

250. *Id.*

251. *Id.*

252. *Our Values*, ASTEROID MINING CORP., <https://asteroidminingcorporation.co.uk/our-vision> [<https://perma.cc/4RVE-SMBS>].

253. *The Asteroid Mining Corporation*, ASTEROID MINING CORP., <https://asteroidminingcorporation.co.uk/> [<https://perma.cc/PPT6-VX7Y>].

254. *Id.*

255. *See id.*

256. *See id.*

2. *Assessing the Evidence*

The attributed lawmaking theory identifies a potential argument that the behavior catalogued in this Section should count as state practice relevant to treaty interpretation and potentially also to forming customary rules that can fill in any gaps in the governing treaties. That is, to the extent that the Outer Space Treaty's key terms, like "appropriation," are ambiguous, subsequent practice can help define their meaning. To the extent that the Outer Space Treaty is silent on commercial appropriation, customary international law can supply missing terms. Private activity can be relevant to both inquiries as attributed state practice.²⁵⁷

To determine that relevant "subsequent practice" defines an Outer Space Treaty term for the purpose of Article 31 paragraph 3(b) of the Vienna Convention on the Law of Treaties, one would need to show substantial agreement among all 107 parties. At a minimum, one would need to show tacit agreement.²⁵⁸ This is a high threshold that will not likely be easy to reach. Nevertheless, even a limited amount of state practice, from even a much more limited number of states, can help "confirm the meaning" or resolve an ambiguous meaning, pursuant to Article 32.²⁵⁹ In both cases, attributing private behavior to nations for the purpose of treaty practice broadens the range of state practice that is relevant to interpreting the Outer Space Treaty. The evidence likely does not yet permit a strong argument that attributed practice definitively resolves the debate over commercial appropriation. Rather, the point is that (1) state practice is an under-examined body of evidence and should be considered alongside the text of the Outer Space Treaty as a relevant means of determining what international law requires; (2) the activities of private entities are relevant to this analysis as attributed state practice; and, finally, (3) the activities of private entities have been pushing states consistently toward endorsing the legality of commercial exploitation of outer space resources. If this trend continues, it will likely lead at some point to the emergence of a customary international law rule that is permissive toward that commercial use.

The implication of the fact that private practice should count among sources of state practice for the purposes of law formation is that private

257. This is not to say that the analysis would be the same for each type of state practice. The threshold for finding "subsequent practice" relevant to treaty interpretation is lower in the sense that one must only look at the behavior of parties, whereas custom requires a sufficient universality of practice. In this circumstance, however, a court would hypothetically need to find substantial agreement among all 107 parties to the Outer Space Treaty. Courts often find the existence of a customary rule with evidence of practice and *opinio juris* from a much smaller universe of nations.

258. See discussion *supra* Part I.B.2.

259. See *supra* notes 82–85 and accompanying discussion.

actors can become formally sanctioned international lawmakers in this realm.²⁶⁰

The space law case study also describes an instance where private parties put governments in reactive positions, forcing governments to legislate, if at all, in *reaction to* private behavior, once that private behavior has set the ground rules or changed the status quo. Thus, the space law example shows how private entities make uncodified law not only formally, through attributed custom, but also informally, through nudging governments toward their preferred rules. Consider the case study: nations are responsible for ensuring that private parties comply with the non-appropriation principle, whatever its meaning. If, hypothetically, the non-appropriation principle means that private parties may not engage in commercial mining activities on asteroids and the moon, nations are responsible for “assuring” that private companies within their jurisdiction and control do not conduct these activities. If private parties act in contravention of that treaty requirement, nations are responsible to ensure that those entities stop doing so; nations must “offer appropriate assurances and guarantees of non-repetition.”²⁶¹ By moving forward with plans to commercially exploit outer space resources, private entities make it more and more difficult for states to comply with that requirement, increasing the chance that the prohibition on non-appropriation will come to be interpreted permissively, or will fall into desuetude and be replaced by a permissive customary international legal rule. Thus, by openly acting in a way that assumes a certain treaty interpretation, private actors are in the process of nudging, cajoling, or forcing states to engage in behavior that converts the private sector’s preferred treaty interpretations into law. In a *realpolitik* sense then, in addition to a doctrinal one, state behavior is a product of acts by private actors for whom the nation is responsible.

The space law case study thus shows how private actors can force the development of uncodified international law on two levels. On a doctrinal level, in the narrow instances when private conduct is attributed to the state, the private behavior itself becomes state practice that can inform the meaning of a treaty or the development of customary international law.

260. One could also plausibly argue that private entities are forcing the development of *opinio juris*. The argument is that nations are aware of the assertive campaign by private actors to offer interpretations of the Outer Space Treaty that would permit them to make commercial use of outer space resources. Nations are fully capable of correcting these interpretations. To the extent they do not, one might deduce that they agree with those interpretations. Because those nations have committed to regulating their private sector entities according to the requirements of the Outer Space Treaty, this argument assumes that their failure to do so flows from a good faith belief that those private sector entities are not violating the law. Such a belief constitutes the *opinio juris* element. An alternative account for states’ failure to regulate could, of course, be their disinclination to enforce the Outer Space Treaty, and so the argument is a reach because it assumes good faith.

261. See Articles on State Responsibility, *supra* note 18, at art. 30(b).

Descriptively, this argument is important not just because it is plausible, but because it can be used as a tool in the hands of those who would argue for a commerce-friendly rule. On a *realpolitik* level, those private actors can nudge the law toward their preferred interpretations by simply acting as though their preferred rules were already law. Because states make uncodified law by actual practice and belief, rather than a process of multilateral lawmaking, private entities can place states in reactive postures, greatly increasing the likelihood that their chosen rules will prevail. On this second level—the level of lawmaking by nudge—private entities make law even beyond the narrow instance when private conduct is attributed to the state.

III. PUZZLES AND PAYOFFS

The theory of attributed lawmaking holds the potential to intervene in a deeply significant debate over allocation of rights and the potential for commercial gain in outer space, as the previous Part has argued. On a more fundamental level, the theory reads together and rationalizes the disparate international legal doctrines of attribution and the rules of uncodified lawmaking: custom formation and treaty interpretation. That rationalization focuses attention on behavior by private sector entities—particularly business actors—that has underappreciated lawmaking implications. This Part pans out beyond the narrow context of space law to expose those broader implications, and to address potential critiques and questions the theory raises. It asks what potential impact the theory may have on uncodified international law, what the theory means for the doctrine of attribution, and what are the normative consequences of lawmaking by private entities.

A. Critiques and Open Questions

There are a number of potential objections. I will take them in turn.

1. Is the Theory Constitutive?

A reader may object that the theory of attributed lawmaking, while professing to merely rationalize existing legal doctrines, in fact reflects a normative intervention. That is, perhaps the theory suggests a progressive development of international law, rather than describing how it currently functions. By doing so, the critique would assert, the theory of attributed lawmaking could push international law toward an outcome of particular concern to those who seek to restrain the influence of corporate entities. In particular, amid concerns of corporate lobbying that may be detrimental to

public goods, these critics may fear yet another potential avenue of private sector influence.

The concern is not entirely misplaced. The theory is meant to be descriptive, yet even description can have a constitutive effect. To clarify, it must be true that articulating the terms, parameters, or potential uses of a legal doctrine can facilitate use of it. However, drawing attention to this potential argument could also help officials anticipate it. Because the theory clarifies the law-making consequences of state responsibility for private sector activity, it also facilitates responses by nations. They can either proactively regulate domestically or internationally in a way that avoids these law-making consequences, or trump those consequences with clear evidence of state practice or *opinio juris*.

For example, in the space law context, the argument is *not* that private sector activity has fully resolved an interpretive debate or developed a customary rule through the doctrine of attributed lawmaking, and, therefore, that we now have a clear answer to the question about private appropriation of space resources. Rather, the assertion is more modest: private sector activity is relevant *evidence* when determining whether such a rule has emerged. It is useful to highlight this evidence because governments that may object to it now know that the onus is on them do so. These governmental objections will also be relevant to the emerging interpretation or rule and could bar the emergence of the rule for which private actors are advocating.

2. *What Is the Value of a Positivist Doctrinal Theory?*

The paper has so far identified a plausible doctrinal argument that rests on purely positivist, formalist modes of reasoning. This may strike some readers as oddly retrograde, especially in light of the influence of recent social science-inflected literatures in international law that depart from purely positivist accounts.²⁶² For example, the doctrine of sources that elevates custom and its constituent elements has been critiqued as artificially constraining, and as out of touch with the factors that actually explain the behavior of states.²⁶³ Theories of law that rely on formal

262. See, e.g., Gregory Shaffer & Tom Ginsburg, *The Empirical Turn in International Legal Scholarship*, 106 AM. J. INT'L L. 1 (2012) (reviewing literature).

263. See generally d'Aspremont, *supra* note 86 (critiquing the doctrine of sources and the two-element version of customary international law as artificial constructions); Jordan J. Paust, *Nonstate Actor Participation in International Law and the Pretense of Exclusion*, 51 VA. J. INT'L L. 977, 977–78 (2011) (critiquing “ahistorical assumptions,” the erroneous conclusion that customary international law is created only by states, and the “false and inhibiting myth” of “state-oriented positivism”); Bodansky,

hierarchies of lawmaking authority under classic conceptions of state sovereignty do not describe the way norms actually acquire binding force, or succeed in altering conduct, this critique asserts.²⁶⁴

The classic doctrine of sources nevertheless remains the lingua franca of international lawyers, and so this Article's argument surfaces and engages with the kind of doctrinal arguments that may be used in practice. After all, international lawyers, judges, and officials rely on formalist modes of reasoning in developing arguments about what customary international law requires or proscribes.

3. *Is Space Law an Isolated Case?*

A critic might reasonably ask whether the space law case study is unique, or whether the theory of attributed lawmaking also applies in other contexts. Indeed, the space law context is unusual, and it is unusual in a way that makes the analysis more straightforward. Specifically, the Outer Space Treaty unambiguously stipulates that private conduct in outer space is attributed to nations. Things get more complicated in contexts where attribution is more ambiguous. But doctrinal murkiness does not preclude the application of the lawmaking function this paper has described; it simply complicates the analysis and leaves more room for contestation. Indeed, the theory of attributed lawmaking clarifies the consequences of the doctrine of attribution in a way that should encourage states to clarify the parameters of that doctrine, as the next Section explains.

B. Implications for the Law of Attribution

The theory focuses attention not just on the significance of a nation's responses or non-responses to private sector acts for which it is responsible, but also on the importance of clarifying the doctrine of attribution. As noted earlier, the questions of what actors are properly counted "organs" or "agents," what constitutes a "governmental function," or how much direction and control is necessary for attribution, are not entirely straightforward.²⁶⁵ The area is governed by customary international law,

supra note 50, at 111 (noting "a divergence between the traditional theory of customary law, which emphasizes consistent and uniform state practice, and the norms generally espoused as 'customary'").

264. See sources cited *supra* note 263.

265. See Bodansky & Crook, *supra* note 19, at 782 ("The degree to which states should be held responsible for conduct involving private actors is an increasingly significant contemporary issue, as nonstate actors such as Al Qaeda, Somali warlords, multinational corporations, and nongovernmental organizations play greater international roles, and as governments privatize some traditional functions and enter into a variety of public-private collaborations with international organizations and private actors."); Richard B. Lillich, *Attribution Issues in State Responsibility*, 84 AM. SOC'Y INT'L L. PROC. 51,

which does not offer the clarity of a written agreement. Moreover, the International Law Commission's attempt to reconcile the rules has acknowledged weaknesses and ambiguities.²⁶⁶ The question has become even less clear in recent years because of the growing diversity of corporate types, and of the ways that states can have relationships with corporate entities.²⁶⁷ The spectrum of relationships stretches from entirely state-owned enterprises performing governmental functions, which clearly count as agents or organs of the state, to corporations in which a state has a small stake through shares of common stock or exercises some other limited form of control.²⁶⁸

The outer boundary of attribution is ambiguous and contested. Exposing the potential lawmaking implications of attribution offers nations an additional reason to clarify the law. If, as the attributed lawmaking theory suggests, the behavior of corporate entities can be attributed to nations for the purpose of lawmaking, then it is important not only for the purposes of state responsibility but also for law formation to understand exactly what is attributed to the state. For example, if nations are responsible for human-rights-flaunting corporate entities, or privacy-flaunting actors in cyberspace, or military contractors who defy humanitarian norms, do those private acts also become attributed to the state for the purposes of custom formation? Nations could clarify the law of attribution by, for example, taking multilateral steps with a treaty, declaration, or statements of principles.

Short of international efforts to clarify the law of attribution, nations may wish to alter their own behavior to avoid these lawmaking consequences. For example, if nations do not wish to have the acts of private actors count for the sake of lawmaking, this could chill substantial national ownership stakes in private companies. Nations could, perhaps, choose to invest in stock without control rights to clarify their lack of control over the private

51 (1990) ("The more one studies [attribution] . . . the more he or she will find it to be one of the most interesting and controversial areas of state responsibility and, indeed, of international law in general."); *see also* Eichensehr, *supra* note 135 (noting complex attribution questions arising with respect to cyber attacks).

266. As Daniel Bodansky points out, "[t]he Commission was well aware that the articles on attribution sometimes suggest more precision or concreteness than is found in the world." Bodansky, *supra* note 19, at 783. In collecting ambiguities, Bodansky notes that the Articles do not clarify, for example, the meaning of "governmental authority," or when a private actor is "under a state's 'direction or control.'" *Id.*

267. *See* Wai, *supra* note 131, at 220 ("[I]nteractions between governmental and business actors are multiple and intricate," featuring "complex ownership structure[s]" and a variety of situations where "commercial interests overlap with governmental conduct").

268. *See id.* (reviewing blurring distinctions between state-owned and publicly or privately owned corporations).

entity. Alternatively, because the status of a private company as a nation's "organ" or "agent" is determined under domestic law, nations could legislatively clarify the substance of their relationships with private actors to try to avoid attribution and its lawmaking consequences.

C. Implications of Corporate Lawmaking

The theory of attributed lawmaking focuses attention on a little-studied corporate lawmaking phenomenon. While a substantial literature considers how non-governmental actors influence or contribute to customary international law, this literature has focused principally on contributions by international organizations, NGOs, or groups that aspire to sovereignty.²⁶⁹ Conversely, literatures considering business contributions to international lawmaking have not focused on uncodified international law like custom and treaty interpretation.²⁷⁰ The theory of attributed lawmaking thus contributes to this literature and attempts to refocus it.

Business contributions to international custom formation suggest that custom formation could suffer even greater legitimacy deficits than the standard critiques of custom recognize. In the case of attributed state practice, custom may potentially only derivatively reflect the intentions of nation-states, and instead elevate private legal interpretations to the status of law. This may be particularly worrisome to those who fear that the structurally amoral nature of corporate governance may result in corporate

269. See DUMBERRY, *supra* note 26, at 119 n.12 (collecting literature). Moreover, while industry and trade groups share features with classic NGOs, analyses of contributions by NGOs frequently do not recognize that business element. See Durkee, *supra* note 47 (articulating this critique). For reviews of the literature, see generally Steve Charnovitz, *Nongovernmental Organizations and International Law*, 100 AM. J. INT'L L. 348 (2006); Peter J. Spiro, Essay, *Accounting for NGOs*, 3 CHI. J. INT'L L. 161 (2002). Some have recognized business influence through lobbying, see, e.g., TULLY, *supra* note 86, at 92 (focusing on corporate contributions to custom formation through lobbying efforts and acknowledging that "the impact of non-state actors upon customary international law remains 'undertheorized'"), or investment arbitration, see, e.g., DUMBERRY, *supra* note 26, at 119 (examining indirect influence of corporations on custom, considering whether they have direct influence through investment arbitration, and ultimately concluding that they do not).

270. These accounts focus on private standard-setting, see, e.g., BÜTHE & MATTLI, *supra* note 30 (reviewing delegation of regulatory power to international private-sector standard setting organizations); David Zaring, *Informal Procedure, Hard and Soft*, in *International Administration*, 5 CHI. J. INT'L L. 547, 548–50 (2005) (describing the entrenchment of international regulatory standardization through bureaucratic cooperation), participation in multi-stakeholder institutions or other public-private partnerships, see, e.g., Abbott & Gartner, *supra* note 29 (examining multi-stakeholder structures); Abbott & Snidal, *supra* note 29 (public-private mechanisms and projects); Benedict Kingsbury et al., *The Emergence of Global Administrative Law*, 68 L. & CONTEMP. PROBS. 15, 15 (2005) (conceptualizing this activity as administrative action), and lobbying of domestic officials responsible for international policy, see generally Putnam, *supra* note 47 (theorizing that the negotiating behavior of national leaders reflects the dual and simultaneous pressures of international and domestic political games); see also Brewster, *supra* note 47, at 539 ("Governments may form treaties for many of the same reasons that they enact statutes—to achieve domestic goals."); see also Benvenisti, *supra* note 28, at 170 (conceiving of the sovereign state as an agent of small interest groups).

behavior that sacrifices public goods for the sake of profit margins. The implications of business contributions to uncodified law could, moreover, be more pernicious than in the context of contributions to written treaty law. Written treaty law is necessarily the product of considered attention by national delegates, whereas unwritten law can form through unconsidered attrition. Elevating private sector interpretations to the status of law through unconsidered attrition elevates the legal product of structurally amoral market actors outside of any forum designed to surface potential concerns.

Nevertheless, business input is often useful when business entities offer expertise, develop technical standards, or serve as essential stakeholders whose acceptance will be necessary to a rule's success. In the context of attributed lawmaking, the precise *reason why* business acts and beliefs become relevant is because there is contestation over the meaning of a treaty or the content of a customary international legal norm, suggesting an important global regulatory gap. Perhaps business entities have useful expertise. Or perhaps narrow financial interests will thwart public goals.

Whatever the substantive outcome, the theory of attributed lawmaking clarifies the stakes of *non-action* by states. The lesson for those concerned with corporate influence in custom formation is to encourage lawmaking projects by nations that fill the regulatory gap. These projects could take the form of international agreements, tighter national-level regulation of corporate entities for which the state is responsible, or other acts and statements that clearly reveal the state's opinion and practice for the purposes of treaty interpretation or custom formation.

D. Beyond Doctrine: Private Common Law

This Article has so far described a formalist, doctrinally grounded theory of attributed lawmaking by non-state actors, and a *realpolitik* observation that non-state actors can influence lawmaking by nation states. This Section sets aside those proposals to engage in a thought experiment: Perhaps private activity should also be viewed as developing an alternate set of common law norms that operates outside the universe of state-sanctioned lawmaking. In other words, private actors are articulating norms that may come to have legal valence not because those norms are produced by official lawmakers, but simply because they are being articulated and publicized and acted upon.

In the space law case study, private actors who are not formally empowered as lawmakers are articulating norms that are serving a functional normative purpose. Notably, the things private business entities are doing in this space would count as the building blocks for customary international legal norms, if the business entities were national entities. That

is, they are generating bodies of “practice” by acting *as though* their preferred interpretations of the Outer Space Treaty are—or will be—binding law. They are also generating quasi-*opinio juris* by numerous affirmations of the legality of that behavior in various fora. A formalist would not call this custom (outside the context of the attributed lawmaking) because the source of this state practice and *opinio juris* is private entities. Nevertheless, the character of this behavior is identical to behavior we would call law-creating in the context of states.

This account fits within contemporary accounts that eschew positivist analysis. Instead of asking which legal doctrines identify law, one might ask about what norms appear to be relevant to international behavior. Who is responsible for generating these norms? How do they acquire normative valence? For example, the New Haven School takes the approach that international law is constituted by decision processes unconstrained by classic tests of legality.²⁷¹ Global legal pluralism views law as a contest between competing normative orders, which are both publicly and privately generated.²⁷² The theory of transnational legal ordering investigates the life cycles of normative orders by asking about how they develop, disseminate, “settle,” and then “unsettle.”²⁷³ These accounts diverge from classic post-Westphalian international legal theory by unseating the nation as the sole progenitor of legal rules. In these accounts, private actors can take roles in the generation and contest of normative orders, or their settlement, and unsettlement, and so forth. These accounts also capture the descriptive reality that it is often difficult to tell the difference between binding black letter law and proposals about how law ought to be,²⁷⁴ as many norms operate on a “spectrum of binding force.”²⁷⁵ José Alvarez observes that international organizations, for example, “produce lots of post-modern or at least post-positivist norms, outside the three traditional sources of international law.”²⁷⁶

Viewed in this light, private norm-creating behavior in the space law context could be creating the beginnings of a common law of its own. While this form of common law is invisible under positivist tests, it may come to have relevance to the behavior of nations in the way that law is intended to

271. See, e.g., W. Michael Reisman, Siegfried Wiessner & Andrew R. Willard, Commentary, *The New Haven School: A Brief Introduction*, 32 YALE J. INT'L L. 575 (2007) (offering a brief primer on the New Haven School approach).

272. See, e.g., Ralf Michaels, *Global Legal Pluralism*, 5 ANN. REV. L. SOC. SCI. 243 (2009) (reviewing literature).

273. TRANSNATIONAL LEGAL ORDERS (Terence C. Halliday & Gregory Shaffer eds., 2015).

274. See ALVAREZ, *supra* note 99, at 597 (“[S]ome organizational products appear fated to remain in a netherworld between *lex lata* and *lex ferenda*.”).

275. *Id.* at 596.

276. *Id.*

do. To put this another way, the private sector behavior in the space law context offers a case study for two separate kinds of proposition. As the majority of this Article has explored, it is a case study for black-letter law formation and the attributed lawmaking theory: business entities are forcing states to fill the interstices of settled space law through creating attributed state practice or nudging states to react to their preferred rules. On another level, it is a case study for private roles in law formation that function outside the “on the books” rules about how law acquires its authority and binding nature. On that second level, the case study could inform sociological inquiries concerned with how international norms form and acquire the kind of stickiness lawyers come to label as “law.”²⁷⁷

In the end, the two ways of viewing the facts in the space law context likely tell the same story through different lenses: they both explain how, if one were to fast-forward 20 or 30 years and find an established customary law of private appropriation in space, one might then look backwards and find the roots of that law now, today, not just in the acts and beliefs of states, but also in the behavior of private actors.

CONCLUSION

The twenty-first century context requires new forms of lawmaking, or old ones, reinvigorated. It is exposing major geopolitical rifts that divide former allies and make the possibilities for deep, binding international agreements remote. At the same time, borderless problems need international solutions. A flotilla of legal articles have considered new forms of global governance. Much less has been said about new pressures on the oldest form of international law: customary international law. This Article suggests that any analysis of customary international law formation is incomplete without recognizing corporate contributions. It has uncovered the significance of those contributions through a theory of “attributed” lawmaking.

The theory illustrates how established doctrines in international law that are not usually considered together may be reconciled. Theories of attribution are usually considered in the context of a state’s responsibility, or the law relating to what a state must do when a legal violation has occurred. These theories are not usually considered for the purposes of law formation. Similarly, literatures that consider how non-state actors participate in forming customary international law often consider how those

277. See, e.g., Nigel D. White, *Lawmaking*, in THE OXFORD HANDBOOK OF INTERNATIONAL ORGANIZATIONS 559, 580 (Jacob Katz Cogan, Ian Hurd & Ian Johnstone eds., 2016) (rejecting “inflexible allegiance to Article 38 of the International Court’s Statute” which “fails to capture the vast amount, range, and impact” of other forms of lawmaking).

actors influence states, not how non-state behavior itself may become relevant to law formation. Reading together doctrines of attribution, custom formation, and treaty interpretation produces a result that has been neglected in scholarship and practice, yet has important results.

As a doctrinal matter, private activity that is attributed to the state becomes “state practice” for the purposes of interpreting a treaty or gathering evidence of a new customary international legal rule. As a matter of *realpolitik*, private actors standing in the shoes of the state can force states into a reactive posture, easing their preferred rules into law through the power of inertia and changes to the status quo. At bottom, the theory of attributed lawmaking shows that when states delegate authority or responsibility to private actors—when they allow those private actors to stand in the shoes of the states for the purposes of duties—they also delegate rights and privileges: in particular, the right and the privilege of making international law.

The results can be striking. In space law, nations have failed to update Cold-War-era treaties that do not conclusively resolve many questions raised by the new space race. Companies like SpaceX and iSpace are filling in the gaps. The implications might be unsettling. After all, the implications of the theory could reach beyond space law to areas like human rights, humanitarian law, cyberspace, and other areas where nations can bear legal responsibility for corporate acts. Corporate lawmaking in these areas could fill important lacunas, or it could threaten public goods. By uncovering these possibilities, the Article invites affirmative lawmaking responses by states. If the meaning and content of international law can be altered by private commercial entities, then lawyers, scholars, and policymakers concerned with diverse global problems should turn their attention to the potential and peril of this private lawmaking activity.