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Article abstract

The attention devoted to so-called "computational law" has grown exponentially over recent years. However, to date, there has comparatively been much less discussion about the use of data-driven methods, including artificial intelligence, in the processes and institutions of international law. This paper discusses this in terms of "international computational law" and examines what the implications could be if the normativity of technology encounters the normativity of law in the context of international law-making processes. Will it be a smooth and fortuitous alignment or a surreptitious undermining of accepted legal practices—or something in between? To critically engage with this question, a closer look is had at current and future data-driven practices in international treaty-making, the identification of international custom and international institutional lawmaking. Consequently, three types of normativity (i.e., international legal, legal and technological) are analyzed in this context, building on an analysis of the fundamental underlying structure of law. This analysis of normativity leads to the conclusion that we cannot simply assume that these types of normativity will align organically when it comes to our international legal system. I therefore conclude this article by suggesting that more research should be conducted into an adequate conception of "international legal protection by design" to thoughtfully consider how to safeguard legal protection in an increasingly computationalized international legal order. This will be crucial if we want to ensure that international law in the algorithmic age affords us legal protection and that we design our global order with thoughtfulness, rather than encodethoughtlessness.

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Making the Legal World: Normativity and International Computational Law

Emilie van den Hoven[1]

ABSTRACT

The attention devoted to so-called "computational law" has grown exponentially over recent years. However, to date, there has comparatively been much less discussion about the use of data-driven methods, including artificial intelligence, in the processes and institutions of *international law*. This paper discusses this in terms of "international computational law" and examines what the implications could be if the normativity of technology encounters the normativity of law in the context of international law-making processes. Will it be a smooth and fortuitous alignment or a surreptitious undermining of accepted legal practices—or something in between? To critically engage with this question, a closer look is had at current and future data-driven practices in international treaty-making, the identification of international custom and international institutional lawmaking. Consequently, three types of normativity (i.e., *international legal*, *legal* and *technological*) are analyzed in this context, building on an analysis of the fundamental underlying structure of law. This analysis of normativity leads to the conclusion that we cannot simply assume that these types of normativity will align organically when it comes to our international legal system**.** I therefore conclude this article by suggesting that more research should be conducted into an adequate conception of "international legal protection by design" to thoughtfully consider how to safeguard legal protection in an increasingly computationalized international legal order. This will be crucial if we want to ensure that international law in the algorithmic age affords us legal protection and that we design our global order with thoughtfulness, rather than encode thoughtlessness.

KEYWORDS: computational law, international law, artificial intelligence, normativity, international lawmaking.

RÉSUMÉ

Ces dernières années, l'attention portée à ce qu'on appelle le « droit algorithmique » ou le « droit computationnel » a augmenté de manière exponentielle. Toutefois, il n'y a jusqu'à maintenant que très peu de discussions qui portent sur l'utilisation d'algorithmes et de techniques d'intelligence artificielle dans les procédures et les institutions de *droit international*. Ce papier aborde ce sujet, à travers le terme de « droit algorithmique

international » et examine quelles seraient les implications d'une rencontre entre la normativité technologique et la normativité juridique, dans le contexte de la formation de normes en droit international. Est-ce que cela prendra la forme d'un alignement fluide et fortuit, ou celle d'un subtil ébranlement, ou encore d'un entre-deux ? Pour répondre à cela de manière critique, j'analyse les pratiques algorithmiques en création de traités, en identification de coutumes internationales et dans le cadre de la formation institutionnelle de normes. Trois types de normativité (i.e., juridique internationale, juridique et technologique) sont passées en revue dans ce contexte, opérant ainsi une analyse de la structure fondamentale du droit. Cette étude de la normativité permet de comprendre qu'il n'est pas possible de supposer que ces types de normativité s'aligneront naturellement dans le contexte du système juridique international. Ma conclusion suggère la nécessité de mener davantage de recherches afin de définir les éléments d'une « protection juridique internationale dès la conception » (*international legal protection by design*), et de considérer ainsi la question de la garantie de la protection juridique, dans le contexte d'un ordre juridique international toujours plus informatisé. Au sein de notre ère algorithmique, cela est crucial afin d'assurer la protection juridique par le droit international et de concevoir judicieusement l'ordre global.

MOTS-CLÉS : droit algorithmique, droit international, intelligence artificielle, normativité, formation du droit international.

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Introduction

The attention devoted to so-called "computational law" has grown exponentially over recent years, and its repercussions for the legal field have been studied extensively. International legal scholarship has also started to pay closer attention to the impact of artificial intelligence (AI) on the international legal order. This is demonstrated by recent work on how AI affects specific branches of international law, e.g., international human rights law, international humanitarian law or global health law. However, to date there has been, comparatively speaking, much less discussion about the use of AI in the processes and institutions of international law. This paper argues that not only is it necessary to tend to the branches of international law and their content, but that we pay closer attention to the roots of international law when it comes to the use of AI in its processes. This requires that we look at the underlying assumptions and the implications of the attempts to integrate data-driven computational methods into international lawmaking (what we could refer to, for the sake of brevity, as "international computational law").

When discussing these developments, it is important to note that there are important differences between technological normativity, on the one hand, and the normativity of law on the other.[1] What will the implications be if these two kinds of normativity collide? Will it be a smooth and fortuitous alignment or a surreptitious undermining of accepted legal practices—or something in between? To critically engage with this question, we will first need a clearer grasp of international legal normativity itself. Where does it sit when it comes to this conceptualization of normativity? In pursuit of an answer to this question, this paper looks closer at these three types of normativity (i.e., *international legal*, *legal* and *technological*), building on an analysis of the fundamental underlying structure of law. This analysis leads to the conclusion that we cannot simply assume that these types of normativity will align organically in a way that would serve society best. I therefore end this article by suggesting that more research should be conducted into a conception of "international legal protection by design" to thoughtfully consider how to ensure legal protection in an increasingly computationalized international legal order.

In the next section of this paper (II), I will map the rise of "international computational law." I will focus on the applications, current and prospective (or speculative), in the context of specific forms of international law-making: by international organizations, customary international law identification and treaty-making. In section (III), I discuss Mireille Hildebrandt's conception of normativity, both legal and technological,[2] and explore where international

[1] M Hildebrandt, "Legal and Technological Normativity: More (and Less) than Twin Sisters" (2008) 12 *Techné: Research in Philosophy and Technology 569*; M Hildebrandt, "The force of law and the force of technology" in M R McGuire and T J Holt, *The Routledge Handbook of Technology, Crime and Justice* (Routledge, 2017).

[2] Although, as will hopefully become clear in the following sections, these two cannot be strictly separated given that law in its current form is also embedded in a particular technology—that Walter Ong refers to as the "technologies of

law would fit in this account. This is done in part on the basis of a discussion of the fundamental structure of the law which draws upon work in the social ontology of law and epistemology of institutions. In the last section (IV), I reflect on the affordances of text-driven law as compared to "data-driven law" in terms of their legal protection under the rule of law and call for further research to be done to into the notion of "legal protection by design," followed by a brief conclusion (V).

1. International Computational Law

For the purposes of this paper, I will use the term "international computational law" for all computational or data-driven techniques, like machine or deep learning, used to support international law-making processes or used in support of international legal advice and legal decision-making by means of description, classification, analysis or prediction.[3] Although it already poses a significant challenge to specify what this term would mean or include exactly, in this article, I will use it as a shorthand to focus on the technologies that could play a significant role in the processes of international law-making. These technologies are often still with one foot in the realm of academic scholarship, R&D or testing rather than actual application or implementation. However, the goal of this contribution is to anticipate their integration in practice and to provoke a discussion on how the use of such tools could change the field of international law and its normativity.

To get a better idea of what the use of these technologies can look like in the specific context of international law-making, it is illustrative to look at the following three examples: (A) customary international law identification; (B) international institutional law; (C) international treaty law.[4]

1.1. Customary International Law

As Stefan Talmon observed: "There are probably few topics in international law that are more over-theorized than the creation and determination of custom. Indeed, at times, one might get the impression that the topic has been theorized to death."[5] However, even though there has indeed been much disagreement on the concept, there is a shared working

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the word." See W Ong, *Orality and Literacy: The Technologizing of the Word* (Methuen, 1982) at 152; see also M Hildebrandt, "The Adaptive Nature of Text-Driven Law" (2020) 1(1) *Journal of Cross-Disciplinary Research in Computational Law*.

[3] See E van den Hoven, "Hermeneutical injustice and the computational turn in law" (2021) 1(1) *Journal of Cross-disciplinary Research in Computational Law*, available at: https://journalcrcl.org/crcl/article/view/6 (accessed: 19 August 2021). As I said there: "note that this term is only used as a shorthand for the types of initiatives to make these legal technologies part of the workings of the legal system, rather than an acknowledgement that they, in fact, qualify as 'law' properly so called." See on this, generally, Mireille Hildebrandt, "Law as Computation in the Era of Artificial Legal Intelligence—Speaking Law to the Power of Statistics" (2018) 68(1) *University of Toronto Law Journal* 12; Mireille Hildebrandt, *Smart Technologies and the End(s) of Law* (Edward Elgar Publishing 2015).

[4] Parts of this section is text adapted from my LLM thesis: E van den Hoven, "Artificial Intelligence and the Making of Public International Law" (LLM Thesis, University of Amsterdam 2018) [on file with author].

[5] S Talmon, "Determining Customary International Law: The ICJ's Methodology between Induction, Deduction and Assertion" (2015) 26 *EJIL* 2, 429.

understanding in practice among international actors as to what the essential requirements are for a norm to constitute customary international law (CIL). That shared understanding of what custom is and how it emerges is crucial for "establishing a greater certainty with regard to its content, as well as for the legitimacy of public international law more broadly."[6] Common orthodoxy on CIL is that when the two elements of CIL—the element of *opinio juris* and the more objective element of state practice—relating to a certain norm are both demonstrably present, one can justifiably speak of the existence of a rule of customary international law. Despite CIL being one of the oldest systems governing the international community, it has certainly not lost its relevance. However, several authors and institutions have held that CIL has problematically defied systemization. Additionally, a multitude of authors have observed problematic issues in the context of CIL, for example that the International Court of Justice (ICJ) has provided limited guidance on how it emerges in practice and how it is to be ascertained. Some observe that the ICJ "paints with a fairly broad and liberal brush" and accuse the Court of having a "marked tendency to assert the existence of a customary rule more than to prove it."[7] This was also held by Talmon, who claims that international custom can either be induced or deduced, but that the ICJ has a clear tendency to *assert* custom:

> Traditional custom is to be established by examining the practice and opinio juris of states. This is not a *mathematical exercise* of simply *counting* state behaviour but, rather, a process prone to subjectivity and selectivity. It is *practically impossible* for the Court to examine the practice and opinio juris of almost 200 states. Thus, any customary rule will, by necessity, be based on a selection of state practice—a selection made by the Court. The Court could thus engage in a self-fulfilling collection of state practice—that is, a selective collection of practice that is supportive of a preconceived rule of customary law.[8]

It is this assumption, that it is practically impossible to take all state practice and opinio juris into account, that underlies the custom identification processes, like the one by the ICJ. Practical considerations like this one permeate the discussion on CIL, as was also illustrated when former judge de Visscher said custom "defied systematization" or when Judge Tomka once spoke of using only the most "expedient evidence." Some measure of selectivity and potential bias are thus inherent problems in the current methods of determining custom and, for lack of a better alternative, the international legal community has tried to make peace with these significant imperfections.[9]

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[6] O Sender & M Wood, "The emergence of customary international law: Between theory and practice" in C Brölmann & Y Radi (eds), *Research Handbook on the Theory and Practice of International Lawmaking* (Edward Elgar Publishing 2016) at 133–134.

[7] I MacGibbon, "Means for the Identification of International Law: General Assembly Resolutions: Custom, Practice and Mistaken Identity" in B Cheng (ed), *International Law: Teaching and Practice* (Stevens, 1982) at 10, 21; A Pellet, "Shaping the Future of International Law: The Role of the World Court in Law Making" in M H Arsajani ao (ed), *Looking to the Future: Essays on International Law in Honor of W. Michael Reisman* (Martinus Nijhoff Publishers, 2011) at 1065, 1076.

[8] Talmon *supra* note 5 at 432 [emphasis added].

[9] See R Pavoni, "An American Anomaly? On the ICJ's Selective Reading of the United States Practice in Jurisdictional Immunities of the State" (2011) 21 *Italian Yearbook of International law* 143.

However, unsurprisingly, some are starting to speculate that the rise of AI can be a potential remedy to some of these issues. The integration of computational tools, they hold, might bring the determination of customary international law closer to a mathematical exercise by quantifying state behaviour and opinio juris. Wolfgang Alschner, for example, has said:

> One of the greatest promises of computational methods lies in providing better tools to establish customary law or to reveal general legal principles. Work here is still in its infancy as many conceptual challenges (e.g., what state pronouncements express opinio juris?) as well as technical difficulties (e.g., how to work consistently across languages without authoritative glossaries?) remain. Yet, in the longer term, computational methods will enable international lawyers to systematically mine the vast corpora of sovereign utterances and domestic legal documents to draw inferences about the existence of custom and general principles.[10]

An argument along similar lines is exactly what Meggido has also suggested in her article, "Knowledge Production, Big Data and Data-Driven Customary International Law."[11] In the paper, Meggido studies "the degree to which big data and data analytics can impact the examination of whether state practice and opinio juris are evidenced to a degree justifying a conclusion that a new customary international norm has crystallized."[12] She suggests that a data-driven approach to custom can remedy CIL's democracy deficits and although she qualifies her optimism by stating that the sophistication of the technology required is still a barrier, on the whole the author is convinced that data analytics can be an important part of the answer to custom's current imperfections. She holds that "creation of larger, more diverse and more representative datasets on which CIL queries are tested have the potential of reducing concerns of biased samples" and that "use of text-as-data computerized content analysis methods may further improve bias in interpretation or analysis."[13] Moreover, she says, "Applying machine learning algorithms to big datasets may generate hitherto unconsidered hypotheses regarding customary norms which could later be vetted by human researchers."[14]

Meggido provides several interesting examples of recent scholarship that demonstrate increasing interest in this approach, including a project that maps states' reactions to the US strikes against Syria in April 2018 to distill their legal positions on the matter and deduce the state of play on the legality of the use of force in this context,[15] an article that made use of big data and data

[10] W Alschner, "The Computational Analysis of International Law" in Rossana Deplano & Nicholas Tsagourias (eds), *Research Methods in International Law: A Handbook* (Edward Elgar Publishing, 2021). For an example of an early attempt of this, see also David S Law, "The Global Language of Human Rights: A Computational Linguistic Analysis" (2018) 12 *The Law and Ethics of Human Rights* 111.

[11] T Meggido, "Knowledge Production, Big Data and Data-Driven Customary International Law" (2019) available online at https://papers.ssrn.com/abstract=3497477.

[12] *Ibid* at 8.

[13] *Ibid* at 2.

[14] *Ibid*.

[15] A Gurmendi Dunkelberg et al, "Mapping States" Reactions to the U.S. Strikes Against Syria of April 2018 — A Comprehensive Guide (*Just Security*, first version 07/05/2018) available online at

analytics to map and evaluate whether and to what degree the Tallinn Manual 2.0 is accepted by states[16] and work that built large datasets of bilateral investment treaties and used natural language processing to investigate the status of legal rules on bilateral taxes among states.[17] Although Meggido recognizes that data-driven CIL cannot solve all that is imperfect about custom today and "smaller, less affluent and non-English-speaking states will remain underrepresented" because of the resources data-driven CIL will require (favouring actors from more economically developed states), in the conclusion, she states:

> Even if computer interpretation of legal documents is reasonably thought to be inferior to human interpretation, the ability to process huge amounts of information carries alternative benefits that should not be understated. Systematic analysis is able to mine and include in its evaluation more countries [with] greater representation to poorer, non-Northern countries, which do not have the resources to document, publish and translate their opinions or practise into English. It therefore carries significant promise in attenuating contemporary Northern/English-language bias in customary international law research. […] Data-driven CIL can therefore promote CIL research that is more representative and egalitarian and that is in keeping with the fundamental principle of sovereign equality.[18]

Other authors, like Ashley Deeks, also discuss the possibility of computational identification of CIL and affirm Meggido's take. Deeks explains:

> In the CIL context, tools such as natural language processing and topic modelling could allow states to identify previously unknown state practice and opinio juris within vast state and U.N. archives and contemporary online data.[19]

These methods warrant further examination as to their feasibility and the potential they offer to attenuate concerns associated with CIL's current mode of existence, but in this paper, I aim to draw attention to the simultaneous risk of a replication of some of the techno-solutionism that we have seen in other domains. The promise of scientific, seemingly objective, solutions to international law's problems of subjectivity, bias and politics is enticing—but the oft-cited adage that technology is neither bad nor good but never neutral serves as a perennial reminder that we must pay due regard to the underlying assumptions that these proposed solutions presuppose.[20] Let me stress that the

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https://www.justsecurity.org/55835/mapping-states-reactions-syria-strikes-april-2018-a-comprehensive-guide/.

[16] D Efrony & Y Shany, A Rule Book on the Shelf? Tallinn Manual 2.0 on Cyber Operations and Subsequent State Practice (2018) 112 *American Journal of International Law* 583, 585 where the authors seek to make observations on "state practice and opinio juris in relation to the cyberoperations and on the extent to which they accept the Tallinn Rules as a *normative point of reference*."

[17] E Ash & O Y Marian, "The Making of International Tax Law: Empirical Evidence Using Natural Language Analysis" (2019) available online at https://ssrn.com/abstract=3314310 as cited in Meggido (note 11): "Although they 'stop short of concluding that a customary international law of taxation exists,' they believe that their findings 'lend some support to such arguments'."

[18] Megiddo, *supra* note 11 at 15.

[19] Ashley Deeks, "High-Tech International Law" (2020) 88 *George Washington Law Review* 575–653 at 592; also see generally Ashley Deeks, "Introduction to the Symposium: How Will Artificial Intelligence Affect International Law?" (2020), 114 *AJIL Unbound* 138–140.

[20] M Kranzberg, Technology and history: "Kranzberg'sLaws" (1986) 27 *Technol Cult* 544–560 as cited in M Hildebrandt,

argument I am making here is not that these new technologies should necessarily be resisted wholesale at all stages of the lawmaking process or that they do not potentially offer routes to mitigating flaws in the current methods, but rather that we should not assume that the legal protection traditionally offered by the operation of CIL-as-we-know-it will flawlessly translate to international computational law.

Therefore, in the case of custom, it is not only that computation potentially creates new problematic issues, for example of linguistic dominance at the level of the dataset in terms of representation, or of country by country discrepancies in the level of digitization of relevant sources (as Meggido already flags as potential problem areas). But, importantly, also that the computation of custom as envisaged by Meggido and others proceeds from the idea that notions like "state practice" and "opinio juris" can be validly and legitimately represented in a computational model.[21] Even if a satisfying consensus is reached on who should be mandated to make the decisions on this, what checks and balances ought to be put in place and what that computational representation looks like, it must also be noted that computational approaches like this presuppose a conception of CIL that might not represent the full complexity of its operation in the international legal order. As Monica Hakimi has for example argued, although common orthodoxy on CIL conceptualizes it in what she calls a "rulebook" way, i.e., as a body of rules that are both discernible and generalizable that centres around the two-element test of state practice and opinio juris, this test is "turtles all the way down."[22] To demonstrate how the reality of CIL is more complicated in actuality, Hakimi points to number 8 of the International Law Commission's Conclusions on the identification of customary international law.[23] That conclusion might appear like a clear rule in holding that state practice "must be sufficiently widespread and representative, as well as consistent" to satisfy the two-element test. However, Hakimi argues, citing the ILC's commentary to Conclusion 8, it is much less straightforward in practice:

> The accompanying commentary recognizes that what counts as sufficient for purposes of establishing a supporting practice "does not lend itself to exact formulations, as circumstances may vary greatly from one case to another." In some cases (the ILC doesn't give us any guidance for identifying which ones), the supporting practice "may have to be widely exhibited," while in others (again, we don't know which) it "may well be less." What Conclusion 8 tells us is that the practice might or might not have to be "widely exhibited."

"Saved by Design? The Case of Legal Protection by Design" (2017) 11 *NanoEthics* 307 at 310.

[21] Some have described this process of the construction of a computational representation as devising a "proxy". See on the issue of proxies in this sense: M Hildebrandt, "The Issues of Proxies and Choice Architectures. Why EU Law Matters for Recommender Systems" (2022) *5 Frontiers in Artificial Intelligence*.

[22] As, Hakimi points out, was also the conception of CIL depicted by the authoritative set of guidelines by the ILC on custom, see ILC, "Draft Conclusions on identification of customary international law, with commentaries" (2018) A/73/10 (adopted in the 70th session of the United Nations General Assembly) [hereafter "CIL Conclusions"]. See M Hakimi, "An Introduction to Making Sense of Customary International Law" (Opinio Juris blogpost, 06/07/2020) available online at http://opiniojuris.org/2020/07/06/an-introduction-to-making-sense-of-customary-international-law/.

[23] *Ibid* CIL Conclusions.

> This is not a rule. Its core content is not discernible or generalizable, like a rule's would be. It is highly malleable and contingent.[24]

Thus, if a computational method to identify custom is deployed that might imply upstream (design) decisions that entail, for example (1) the presupposition of a particular conception of CIL; (2) the adoption of one particular computational representation of what concepts like "widespread," "representative" and "consistent" mean, it might lead to a simplistic and potentially problematic account of CIL. Ultimately, these types of underlying assumptions will significantly impact what counts as CIL and what does not.

1.2. International Institutional Lawmaking

At this stage, it is commonplace to say that international organizations (IOs)[25] consider artificial intelligence as an important new topic of interest and as a new set of technological tools that is increasingly being used in their own practices. Many organizations have caught on to and are publicly speaking out on the significant and transformative potential of AI. Many of the biggest IOs have released policy and white papers, blog posts, videos and other sources that canvass how these technologies will impact their fields of interests and reflect on the opportunities they create as well as the challenges they pose. However, when it comes to IOs themselves making use of machine learning techniques in their institutional and lawmaking practices, matters are less transparent. But visible or not, the work of IOs is undeniably undergoing transformations in the face developments in AI. This has consequences for the workings and practices of many of these institutions.

While many IOs were originally established as frameworks to enable institutionalized cooperation in a given issue area, they are increasingly considered as being capable of lawmaking (referred to here as "international institutional lawmaking"[26]). As Ramses Wessel observes: "There is nothing new in arguing that international organizations engage in lawmaking."[27] The role of IOs has thus clearly developed far beyond the role of mere facilitators in the process of treaty-making, and their decisions have been increasingly accepted as sources of law in and of themselves.[28] Although IOs are capable of issuing straightforwardly binding legal norms, they are also recognized here as an interesting example of what could be called "lawmaking by stealth." Through their agenda setting, policies and rules and guidelines, they exert

[24] *Ibid*.

[25] International Organizations (IOs) being commonly defined as "forms of cooperation (1) founded on an international agreement; (2) having at least one organ with a will of its own; and (3) established under international law," see H Schermers & N Blokker, *International Institutional Law: United within Diversity* (Martinus Nijhoff Publishers, 2011) 37 as cited in R A Wessel, "Institutional lawmaking: The emergence of a global normative web" in C Brölmann & Y Radi (note 6) at 182.

[26] N.B. "Institution" here is used in the sense of "organization" (IO), not in the sense of "institutional fact" as in later sections below.

[27] Wessel, *supra* note 25 at 179.

[28] *Ibid* at 183-184. Organizations with some competence to take legally binding decisions include the WHO (Assembly), ICAO (Council), OAS, WEU, NATO, OECD, UPU, WMO, and the IMF, and these include standard setting by the IMO, FAO, ICAO, ILO, IAEA, UNEP, World Bank, and the IMF.

increasing normative influence on the global legal landscape. This section will focus on ways in which AI influences the daily practices of international organizations. These daily practices, documented inter alia in these codes, guidelines and standards, will continue to seep into and further shape the realm of international law. This makes the use of data-driven tools in the daily practices of IOs as a contribution to international legal normativity a reality that international law will need to grapple with.

For example, the International Monetary Fund (IMF) has been researching the uses of machine learning, deep learning and blockchain in terms of both their current impact and potential for prospective use.[29] For their own uses of these technologies, examples include short-term macroeconomic forecasting and the prediction of recessions (the organization is conducting research on these applications and also makes use of natural language processing techniques in the process).[30] One of their goals in doing this is to develop algorithms that can predict any target macroeconomic variable to inform their work and policies. Their work is also increasingly being analyzed itself and evaluated by computer scientists by use of computational tools.[31] Other organizations, like the World Bank, have also increasingly been paying attention to the uses and application of machine learning,[32] and so have the World Health Organization (WHO),[33] World Intellectual Property Organization (WIPO),[34] International Atomic Energy Agency (IAEA) and many others.[35] With the datasets that organizations like the IMF and the World Bank have at their disposal, they will be in a unique position to devise machine learning algorithms, on the basis of which, for example, an economic model of the world economy can be devised, which in turn would inform global macroeconomic policy.

As noted above, institutional lawmaking has become increasingly complex because there is a myriad of ways in which IOs contribute to the international legal landscape. Binding Security Council Resolutions are just one

[29] See generally: J Stiglitz, A Korinke & M Schindler, "Technological Progress, artificial Intelligence, and Inclusive Growth" (*IMF Working Paper*, 2021) WP/21/166; M Bazarbash, "FinTech in Financial Inclusion: Machine Learning Applications in Assessing Credit Risk" (IMF Working Paper, 2019) WP/19/109.

[30] IMF Conference on "Using Big Data and Machine Learning for Short Term Macroeconomic Forecasting" (speakers: K Tanyeri, K Moriya and T Chapman) (18 April 2018) available online at https://www.imf.org/external/mmedia/view.aspx?vid=5772737953001.

[31] See e.g. J Åkerström, A Daoud & R Johansson, "Natural Language Processing in Policy Evaluation: Extracting Policy Conditions from IMF Loan Agreements" (2019) *Proceedings of the 22nd Nordic Conference on Computational Linguistics (NoDaLiDa)* at 316–320, available online at https://aclanthology.org/W19-6134.

[32] See e.g. D McKenzie, "How can machine learning and artificial intelligence be used in development interventions and impact evaluations" (5 March 2018, *World Bank Blog*), available online at https://blogs.worldbank.org/impactevaluations/how-can-machine-learning-and-artificial-intelligence-be-used-development-interventions-and-impact; G Myers & K Nejkov, "Developing Artificial Intelligence Sustainably: Toward a Practical Code of Conduct for Disruptive Technologies" (2020) *EMCompass* 80 (World Bank Brief), available online at https://openknowledge.worldbank.org/handle/10986/33613; D Strusani & G Houngbonon, "The Role of Artificial Intelligence in Supporting Development in Emerging Markets" (2019) *EMCompass* 69 (World Bank Brief).

[33] See e.g. WHO, "WHO guidance on Artificial Intelligence to improve healthcare, mitigate risks worldwide" (28 June 2021), available online at https://news.un.org/en/story/2021/06/1094902.

[34] See e.g. WIPO, "WIPO Technology Trends 2019: Artificial Intelligence" (2019) *Geneva: World Intellectual Property Organization*, see generally for their work on AI: https://www.wipo.int/about-ip/en/artificial_intelligence/conversation.html.

[35] See generally, of course, also the work of UN Global Pulse at https://www.unglobalpulse.org/.

example of a much broader set of normative activities, which some understand to include so-called soft law measures or perhaps those norms that start as soft law and gradually "harden" over time. For example, some international conventions incorporate the generally accepted contents of codes, guidelines and standards created by IOs, and in that way turn them into binding legal norms.[36] Institutional lawmaking may also originate from an organization's own internal rules, as is the case with some international financial organizations. Other examples of institutional lawmaking can be found with the UN High Commissioner for Refugees (UNHCR) in relation to devising standards regulating refugee status or the governance of refugee camps, the World Health Organization (WHO) in establishing global health risks, the WIPO in the area of intellectual property, the World Bank in setting criteria for obtaining financial support, in addition to various intergovernmental bodies with very technical and specific mandates (e.g., the International Telecommunication Union). Besides the many different actors within the institutional domain contributing to the making of these norms, the instruments used within these various fora range just as widely.[37] What ultimately becomes clear is that "the impact, direct or indirect, of such international lawmaking and regulatory activities upon citizens and businesses is as yet poorly understood."[38] Clearly, what IOs know, and how they acquire their knowledge, informs what IOs do and how they choose to do it. This means that if international organizations use computational tools in their practices in significant ways and IOs, in various ways, participate in international lawmaking, those tools shape international lawmaking.

Fleur Johns has for example shown, through two examples of IOs (the IAEA and the UNHCR), how the authority of international organizations is expanded through the rise of computational tools like artificial intelligence.[39] Often, few other actors, except the organization itself, will know anything about the techniques that are used in the procedures of the organization. And even though the organization will know what the undisclosed process entails generally, it might perhaps still not be able to explain how its algorithms work exactly. Use of these computational tools, e.g., in the context of ascertaining whether nuclear arsenal is being tested or in the context of the distribution of aid to the most vulnerable groups of the global population, can compound or exacerbate the epistemic opacity or inaccessibility (which, of course, to some extent has always been present in the work of IOs). This type of practice by IOs is perhaps different in nature than the examples discussed in the other two sections, because some would argue it concerns global governance rather than international law, or that it is more a matter of indirect influence rather than straightforward lawmaking. Although there is some merit to that claim, I

[36] Wessel, *supra* note 25 at 184.
[37] *Ibid*, as Wessel states: "These range from 'hard law' to 'soft law', exchange of best practices and bench-marking, to mutual recognition and even to tools that at first sight may not seem normative in nature but that can have such an effect, such as policy programmes, modes of assessment, reporting and monitoring systems and loan conditionality."
[38] *Ibid* at 188.
[39] F Johns, "Data, Detection, and the Redistribution of the Sensible in International Law" (2017) 111 *American Journal of International Law* (1)

argue this ought to be included here nonetheless given the undeniable importance and influence of IOs in shaping international law and legal practices. Alvarez is correct to note:

> The subsidiary forms of rule-making that many of these IOs engage in, whether or not connected to treaty-making and whether or not formally binding, increasingly affect the policy options of governments, especially those in the developing world whose government ministers have no choice but to follow the edicts of the World Bank or the IMF and whose economic traders need to follow the lead of powerful competitors and adhere to harmonized rules for trading in certain goods.[40]

Alvarez's statement will ring truer than ever before in an age of AI, but this is not only a matter of policy. Those who own and design the technology will create the epistemic context in which we operate and, to some extent, for choosing the path forward in deciding which international laws are made or identified. This will create a class comprised of those who do not have epistemic accessibility to this background and these processes and who will have no choice but to follow and acquiesce in their dependence (whether this is epistemic, political, or legal dependence or a combination of these).

1.3. International Treaty Law

Although it perhaps seems very unlikely that multilateral international conventions will be automated wholesale or autonomously in any meaningful sense anytime soon,[41] several developments warrant further attention. First, legal text generation and template treaties in narrower domains of application, like international investment law. Second, the computational tools relied on in the conduct of treaty negotiations by the parties.

As regards the first, there are few published examples of this type of research being done and the work of Wolfgang Alschner seems at the cutting edge of this development. The bulk of Alschner's work focuses the computational analysis of international law itself as a field of research,[42] akin to the work done by Livermore and Rockmore in *Law as Data*.[43] Starting in 2016,[44] Alschner has also authored several papers exploring the use of recurrent neural networks to construct legal text generation and assembly systems in international investment law that can "produce legally meaningful

[40] J E Alvarez, *International Organization as Law-Makers* (OUP 2006) 245.
[41] Although, generally speaking, computation in legislative drafting has obviously been around for a good while; see for very early examples the research by W Voermans in the Dutch context, on the LEDA system that was developed by the Dutch Ministry of Justice in the 1990s to assist with legislative drafting: W Voermans, "Computer-assisted legislative drafting in the Netherlands: the LEDA-system" and W Voermans & E Verharen, "'LEDA: A Semi-Intelligent Legislative Drafting-Support System" (1993) *JURIX Proceedings.*
[42] See e.g. W Alschner, "The Computational Analysis of International Law" (*supra* note 10); also see W Alschner, J Pauwelyn & S Puig, "The Data-Driven Future of International Economic Law" (2017) 20 *Journal of International Economic Law* 217.
[43] M A Livermore & D N Rockmore, *Law as Data: Computation, Text, and the Future of Legal Analysis* (SFI Press, 2019).
[44] W Alschner & D Skougarevskiy, "Can Robots Write Treaties? Using Recurrent Neural Networks to Draft International Investment Agreements" in F Bex & S Villata (eds), *Legal Knowledge and Information Systems: JURIX* (2016 IOS Press) 119.

texts" and "convey meaningful legal concepts."[45] In this 2017 paper, the authors seek to create a "user-driven application for the automated production of treaty texts" and demonstrate how this could facilitate consensus-building at the stage of negotiations.[46]

Alschner argues that we could rely on automated text production in law by pointing to the fact that very few legal documents, including treaties, are currently produced from scratch. Legal texts, the authors say, are more standardized than most other types of texts and this lends them particularly well to automation. Although it is recognized that there is more at stake with legal texts in terms of repercussions for individual lives, they hold that "having AI draft legal documents in their entirety is the logical next step to make legal text production more efficient."[47] So although AI currently does not meet that high bar, the authors submit that a contract template can be a useful starting point to negotiate an agreement in international investment law, especially given that the highly fragmented nature of that field coupled with the strong bargaining asymmetries between states the negotiation of new treaties has proven highly contentious.[48] In this context, "AI can facilitate consensus building by generating compromise drafts between states based on their prior treaty practice to avoid a battle-of-the-forms at the outset of the negotiations."[49] AI can also "consolidate thousands of bilateral texts into a single multilateral treaty draft that can serve to harmonize the divergent practice of two hundred countries."[50] To illustrate the operation of the tool, the authors predict the outcome of negotiations over a bilateral investment treaty between the US and China. This application proceeds on the basis that part of the reason why the negotiations have stalled is that the treaty practice of the two countries diverges, in that US agreements tend to be more protective of investors (while China has historically sought to preserve its regulatory power) and the US has been respondent in investment arbitration and has thus concluded more detailed and legalistic agreements than China. To overcome those differences, the authors use their tool to predict a "consensus treaty" that lies somewhere in between the practices of the two respective countries. This paper (and others like it) demonstrates that there is enthusiasm for this line of research and belief in how this will optimize and make international treaty-making more efficient.[51] However, the above examples also illustrate that automated text generation, with fully autonomous treaty-drafting framed as the holy grail that is yet to be reached, is currently proposed to serve primarily as a tool in the treaty negotiation process. That brings me to the second,

[45] W Alschner & D Skougarevskiy, "Towards an automated production of legal texts using recurrent neural networks"(2017) *Proceedings of International Conference on Artificial Intelligence and Law* (London, UK, June 12–15, 2017) 229.
[46] Alschner and his team also have a functional online tool for public use and website dedicated to this project; see: http://mappinginvestmenttreaties.com/.
[47] Alschner & Skougarevkiy, *supra* note 45 at 230.
[48] *Ibid* at 229.
[49] *Ibid* at 231.
[50] *Ibid*.
[51] Also see e.g. R Hilleren Lie, "Treaty Influencers: A Computational Analysis of Treaty-Making Practice in International Investment Law" (2021) Draft article of ongoing research presented at Online Workshop on the Computational Analysis of Law (OWCAL) (on file with author).

overlapping but broader, category of data-driven tools relied on in the processes of treaty negotiation.

This category is perhaps best illustrated by the work of Ashley Deeks, particularly in her recent paper "High-Tech International Law."[52] The paper argues that governments should use data-driven algorithmic tools (primarily computational text analysis tools) in the creation and implementation of international law (what the author calls "high-tech international lawyering"). The article discusses various applications of international legal tech, including its integration in the processes of preparing and conducting treaty negotiations and using it in international dispute resolution. The focus is on the procedural contributions that machine learning and "text-as-data" tools can make to the work of government international lawyers[53] specifically. The author outlines how machine learning can be useful both in the preparation of treaty negotiations and in the actual conducting of those negotiations. As to the former, Deeks suggests these tools can, for example, be used to (1) identify "negotiating partner equities" (1) to better understand the needs and wants of a negotiating partner and help structure proposals (for example through the use of topic models and word frequency distributions in UN databases of voting records, resolutions, etc.); (2) conduct sentiment analysis to gain insights into whether or not the words identified through the techniques under (1) are framed positively or negatively; (3) evaluate the influence of a state on other negotiating parties by studying the references between and within documents through network analysis; (4) help predict the language of the treaty to be negotiated based on previously negotiated treaties to save time and effort or predict the likelihood that a provision proposal will be incorporated into the final treaty text; (5) help negotiators understand the position of their negotiating partners better by identifying and locating their domestic laws that may constrain them in the negotiations; (6) assist in the processing of intelligence about the negotiations and negotiators themselves.[54]

In the context of conducting the treaty negotiations, Deeks foreshadows that these data-driven tools could be used by states for (1) interpretation and translation of documents created during the negotiations; (2) parsing the behavior of negotiating partners based on information and sentiment analysis to help understand their sensitivities ex ante or to run data through empirical models to evaluate other states' positions in order to better understand their approach to ratification and reservation processes; and, more speculatively and certainly controversially, for (3) detecting emotions and truthfulness in order to be aware of potential deception by other parties' in the negotiations; and (4) to ascertain that there is no conflict between new treaties and existing treaty obligations .[55] Towards the end of the paper, Deeks devotes attention to discussing some of the technological, ethical and diplomatic challenges of

[52] A Deeks, "High-Tech International Law" (2020) 88 (3) *George Washington Law Review* 574-653.
[53] i.e., those who are focused on all things international law within ministries of foreign affairs.
[54] A Deeks, "High-Tech International Law," *supra* note 52 at 600-608.
[55] *Ibid* at 608-616.

these types of tools being introduced into the practices of making international law. The challenges discussed are important to consider and focus on crucial issues in this context including, for example, the usability and reliability of the data and well known transparency concerns. Rightly, Deeks makes particular mention of the (re)distributional effects that these technologies could have in practice. However, in this paper, I would like to home in on a different set of concerns, which can be said to be more conceptual in nature, that I believe to be of great significance as well.[56]

1.4. Why It Matters

Why do these technological developments in international lawmaking warrant further attention and discussion? As Johns rightly points out, this is ultimately something the international legal order must learn to cope with:

> Certainly, international lawyers have been concerned with practices of counting, enumeration, and measurement in international law, and justifiably so. Nonetheless, international law and policy have mainly traded in global associations presumed much thicker, more meaningful, and more durable than those instantiated in data […]. Patterns appearing momentarily in data have not typically been a basis for action or inference in international legal affairs, but they are becoming more so.[57]

However, these developments can be worrying. In the remainder of this paper, I want to articulate and discuss one specific cause for such concern—namely, the implications the introduction of data-driven tools into international lawmaking might have for its normative structure.

The main intuitions, analytically distinct but interconnected in significant ways, on why this question is relevant are epistemic and ontological in nature. Epistemic in the sense that power will not rest with those who are in the dark as to who makes the decisions that impact or make the laws that govern them, or by which processes those decisions are made. They will perhaps not know or be able (or find it hard) to understand important parts of the laws or the decisions and processes that shape them.[58] The likelihood that laws lacking those epistemic qualities will be perceived as legitimate, and thus that they are successful or efficacious, decreases. Stronger still, it can have a corrosive effect on the law as an institutional order as a whole. For that which we do not collectively recognize as law, simply because we are not in an epistemic position to recognize it as such, is not law as we have traditionally known it. This last point is an ontological one, for if law's existence and specific normativity hinges on our collective recognition, which I contend it does, and recognition depends on epistemic accessibility and being able to come to a shared understanding, anything that prevents us from recognizing it as law is, to some

[56] *Ibid* at 640-652.
[57] Johns, *supra* note 39 at 97–99.
[58] As mentioned above, this is certainly not to be interpreted as a claim that the current legal system is flawless in this regard.

extent, a threat to its existence as such.[59] We cannot recognize that which is incomprehensible, invisible or unknowable—and thus those norms that suffer these impediments can perhaps not rightfully be called law. This is the specific, yet, in my opinion, important, question that logically precedes other pertinent questions on the implications of international computational law. This is, of course, not to say that the use of every new computational tool risks posing an existential threat to law in such an extreme case scenario, but I argue it nonetheless forms a relevant consideration to be taken into account because these effects can exist in varying degrees and can exert a force of a corrosive and cumulative kind on law's normative structure.

2. Normativity: A Brief Analysis

A great deal of research and scholarship has been devoted to the question of how best to understand normativity in law and how to account for the way it operates and manages to structure our actions and behaviour in the world. The goal of this section, however, is rather modest: to take the distinction between legal and technological normativity as discussed by Mireille Hildebrandt and make a start with examining what such a conception might mean for international law. This will include a discussion of what I consider to be the fundamental basis of legal normativity: speech act theory and an account of institutional facts. This examination is necessary because, following Hildebrandt, I think that technological normativity is capable of reconfiguring the normative force of legal norms and this warrants our urgent attention in the domain of international law. This forms the start to exploring how the normativity of international law in its current mode of existence possibly will translate to a computational mode of existence—in order to tease out how it *should*.

2.1. Legal Normativity and Technological Normativity

I take Hildebrandt's overarching definition of normativity equating norms with constraints that either (1) induce or (2) enforce certain types of behaviour while either (3) inhibiting or (4) ruling out other types of behaviour.[60] On this view, constraints thus form the conditions of possibility for behaviour. This definition of norms applies to both human and artificial agents, but when discussing norms that regulate human action, we can distinguish between those that are "deliberately issued *for*, explicitly recognized *by;* and/or tacitly developed *in* the practices of a certain community or collective."[61]

Legal normativity should here not be understood in terms of morality, but as referring to "the way the patterns of our interactions are affected"—it

[59] This is not to say we could never come to recognize these methods or tools as the law—inscrutable sources of authority have been collectively recognized in the history of humanity before, as law or to inform legally relevant decisions, think e.g., of oracles in ancient Greece.
[60] M Hildebrandt, "Legal and Technological Normativity: More (and Less) than Twin Sisters," *supra* note 1 at 170; M Hildebrandt, "The force of law and the force of technology" (note 1) at 601.
[61] *Ibid* at 602.

describes the conditions of possibilities of our interactions.[62] It has, in Hildebrandt's account, two dimensions: vertical and horizontal. In modern states, legal norms depend on state authority and can be characterized in terms of a *vertical* (or "imperative") dimension between citizens and their government (based on the monopoly of violence of the state and its coercive authority) and the *horizontal* (or "normative") dimension (regulating or constituting the relationships of citizens towards each other). These two dimensions are deeply intertwined and co-constitutive in important ways.[63] This distinction leads Hildebrandt to suggest that there are then three categories of legal norms: those that have (1) "only an imperative aspect (newly issued legal norms that are not part of the relevant practice yet)"; (2) "only a normative aspect (norms that have no legal effect, because neither the legislator nor the courts recognize it as a legal norm)"; (3) "both an imperative and normative aspect (legal norms that have become part of the practice they aim to inform)." To count as "legal" however, Hildebrandt points out, a norm must be issued or endorsed by a relevant state authority. Ultimately, however, the effectiveness of a norm will depend on its incorporation into the normative practices and interactions of the community or collective in question. This is important to bear in mind when we return to the analysis of international law below.

Moving to technological normativity, we must firstly recognize that the normative effects technological artefacts have may often not be deliberately issued in the way that law is, but they may nevertheless induce or enforce, inhibit or rule out certain types of behaviour.[64] Irrespective of intention or design choices, technological devices or infrastructures have specific implications and *affordances* for their user(s).[65] Their normative force is often, though not always,[66] determinate rather than persuasive and also lacks the vertical dimension that domestic legal norms typically have. This is important because "the imperative aspect of legal norms is defined in terms of the authority that is capable of imposing the norm, and in point of fact this assumes that the norm—though imposed—can be disobeyed."[67] Therefore, in cases where normative force has been embedded in or successfully delegated to the technological artefact, it often will rule out disobedience.[68]

Technological normativity will thus depend on the specific affordances and constraints of the technological artefact or infrastructure in question and

[62] "Legal and Technological Normativity: More (and Less) than Twin Sisters," *supra* note 1 at 175
[63] *Ibid*; see generally M Hildebrandt, *Smart Technologies and the End(s) of Law* (Edward Elgar Publishing 2015).
[64] *Ibid* at 173.
[65] See e.g. M Hildebrandt, "Law As an Affordance: The Devil Is in the Vanishing Point(s): Reply to critics in the book forum on 'Smart Technologies and the End(s) of Law'" (2017) 4(1) *Critical Analysis of Law* 116; L Diver, "Digisprudence: The Affordance of Legitimacy in Code-as-Law" (PhD thesis, University of Edinburgh, 2019) and L Diver, "Law as a User: Design, Affordance, and the Technological Mediation of Norms" (2018) 15 (1) *SCRIPTed* 4.
[66] It is good to note here that this is a simplification, as technological normativity exists on a spectrum. See on this L Diver, "Digisprudence," *supra* note 64, in particular at 81–92, and generally L Diver, *Digisprudence: Code as Law Rebooted* (2021, Edinburgh University Press).
[67] M Hildebrandt, "The force of law and the force of technology," *supra* note 1 at 603; this point about disobedience was persuasively made by Brownsword; see e.g. R Brownsword, "Human dignity, ethical pluralism, and the regulation of modern biotechnologies" in T Murphy (ed) *New Technologies and Human Rights* (OUP 2009).
[68] M Hildebrandt, "The force of law and the force of technology," *supra* note 1 at 604.

on the way in which we engage with them. Technological normativity can thus be:

> (1) either regulative or constitutive of human interaction, it can be (2) either coercive or persuasive, but (3) it lacks the imperative aspect inherent in modern positive law. Though its normative aspect (the way it orients human interaction) may be instrumentalized by human or institutional actors, it is (4) grounded in the material constraints that create specific affordances for human intercourse. Semi-finally, (5) its normative aspect does not depend on deliberate inscription, making it hard to discern and contest the normative constraints insofar as we are not used to detecting unintended normative implications in the technologies of our own making. […] [Finally,] (6) technological normativity is capable of reconfiguring the normative force of legal norms, for instance by turning them into paper dragons, automating and enforcing their implementation or by eroding the substance they mean to protect.[69]

Hildebrandt suggests that in this way, technological normativity is perhaps more akin to how legal normativity operates in non-state societies that, absent coercive authority or a monopoly on violence, must sustain normativity by other means. The fact that there is no coercive or centralized authority in such societies, however, does not mean that there is no coercion—in a broad sense—at play whatsoever. It does mean that it must be maintained otherwise, either by way of persuasive authority, war, economic and/or military power, or by some other means.[70] Whereas legal norms can rely on those sources for authority, technological normativity does not depend on such sources of authority either. However, it is obvious that the socio-technical arrangements that generate technological normativity impact the way we structure and organize our lives and society at large. This impact can potentially be greater than legal normativity, given that law's current mode of existence is still confined to text and natural language, and therefore dependent on our interpretation and application. This is significant because "[t]he printed script has a very specific normativity, because it can invite but not enforce specific interpretations, thus entailing a radical *under*determinacy that may not be evident in smart, proactive technologies that depend on autonomic computing."[71] Let us delve deeper into how legal normativity works before we turn to the matter of international law.

2.2. Law's Normativity: Institutional Fact and Deontic Powers

Law has a curious ontology: It can be classified as an *institutional* fact rather than a *brute* fact, which entails it depends on our *collective recognition* for its existence.[72] In this way, law is ontologically subjective, yet epistemically objective.[73] Collective recognition implies our acceptance of certain facts as

[69] *Ibid* at 606.
[70] "Legal and Technological Normativity: More (and Less) than Twin Sisters," *supra* note 1 at 176.
[71] *Ibid*.
[72] J Searle, *The Construction of Social Reality* (The Free Press, 1995).
[73] The relationship between the "brute" and the "institutional" is more complex than this. However, for the purposes of

part of our shared practices and background against which we act. Money is a case in point, where a commercial transaction to buy something requires that we collectively understand that the institution of money exists and that we orient our behaviour in accordance with it, e.g., use it to pay for the ice cream we would like to have.[74] Logically prior to the collective recognition of an institutional fact, such as money, is our assignment of a *status function* to an object. We are capable of assigning functions to objects that go beyond their physical existence, e.g., the function of "money" to mere pieces of paper and metal. This is an exercise of *deontic power*—the fact that we can wield this type of power is a crucial insight to the creation of all institutional facts: their function can only be performed in virtue of collective agreement or acceptance.[75] Searle gives the example, pertinent to international law, of a wall that functions as a boundary marker. Imagine a tribe that builds a high wall that, by virtue of its physical construction, can keep intruders out. However, over time, the wall starts to decay to the point where there is only a line of stones left. If all the relevant parties continue to recognize the stones as a border that demarcates the territory and they behave accordingly, they do so in virtue of the assignment of status function of boundary marker or "border," not because of its physical constitution.[76] But for our discussion on technological normativity, it is crucial to note that if the members of the tribe are simply not disposed to cross the boundary marker, as a matter of inclination, the boundary marker is not an institutional fact in our sense. They merely have certain behaviours and dispositions, but there is nothing deontic about the boundary.[77]

Where the imposition of a status function in accordance with the general formula (i.e., X counts as Y in context C) becomes a matter of general policy, according to Searle, it becomes a *constitutive* rule. As Searle sums up: "Collective agreement about the possession of the status is constitutive of having the status, and having the status is essential to the performance of the function assigned to that status."[78] A core lesson to be derived from Searle is thus as follows:

> [E]verything we value in civilization requires the creation and maintenance of institutional power relations through collectively imposed status-functions. These require constant monitoring and adjusting to create and preserve fairness, efficiency, flexibility, and creativity, not to mention such traditional values as justice, liberty, and dignity. But institutional power relations are ubiquitous and essential. Institutional power—massive, pervasive, and typically invisible—permeates every nook and cranny of our social lives, and as such it is not a threat to liberal values but rather the precondition of their

this paper, I do not think it necessary to go into the nuances of this debate here.

[74] See for this and many more useful examples: A Beever, *Law's Reality: A Philosophy of Law* (Edward Elgar Press, 2021)—I am greatly indebted to Beever's account of institutionality and his application of Searle's work to the legal domain.

[75] *Ibid* at 109; Searle, *supra* note 71 at 39. This terminology of "status function" and "deontic power" etc. is borrowed from Searle.

[76] *Ibid* at 39-40.

[77] *Ibid* at 71.

[78] *Ibid* at 51.

existence.[79]

Arguably then, so holds Searle, the most fundamental institution humans have is language because it is used to create all of our social reality. His entire theory on what is involved in the process of *Making the Social World* revolves around this core insight—language is essentially constitutive of institutional reality.[80] Using pieces of paper as legal tender accepted as payment depends on our linguistic practices to do so, which will create a class of entities that will not endure if the practice does not. Simply put, for that practice to exist, people must also be able to have the language at their disposal to formulate the thought, "This piece of paper is a ten-euro bill."[81] This must be so because, if the systems are to function, the institutional facts must be communicable, even (and maybe especially) when invisible to the naked eye. You must be able to tell people that the line of stones is a border, a collective must be able to reach a shared understanding: "Even in simple cases of institutional facts, this communicability requires a means of public communication, a language."[82] In this way, law as an institutional order is thus wholly dependent on language.

Implicit in this discussion of language and how we use it to create meaning is J. L. Austin's discussion of speech acts.[83] Crucial to understanding the law's normativity is an appreciation of speech acts that helps lay bare a normative structure implicit in linguistic practice.[84] As Austin himself states at the very beginning of his first William James lecture, a lecture series that came to make up his seminal *How to Do Things With Words*, that performative speech acts might masquerade as statements of fact, but that they are not. He says in a footnote: "Of all people, jurists should be best aware of the true state of affairs. Perhaps some now are. Yet they will succumb to their own timorous fiction, that a statement of 'the law' is a statement of fact."[85] Law's current mode of existence consists of a dynamic collection of speech acts. Let us turn to some examples to see what legal speech acts can look like in practice: a legislature that *enacts* a rule about the legal effect of concluding contracts, followed by two parties who *enter into a contractual agreement* to sell and purchase a car. If one of the parties then claims that terms of the contract were violated, e.g., because the seller does not hold up his side of the bargain and the car is not in the agreed upon condition or meets the discussed requirements, the injured party then *claims in court* that the other party has breached the contract in some way or other and is liable to pay

[79] *Ibid* at 94.
[80] See J Searle, *Making the Social World: The Structurer of Human Civilization* (OUP 2010).
[81] Searle, *supra* note 71 at 76.
[82] *Ibid* at 77.
[83] The diverse array of types of speech acts will be left to one side for now, but it is important to note the terminological inconvenience that not all speech acts are, in fact, acts of *speech*—they can also be written or implicit. See generally J L Austin, *How to do Things with Words* (The William James Lectures delivered at Harvard University in 1955) (Clarendon Press, 1962).
[84] Green, Mitchell, "Speech Acts," *The Stanford Encyclopedia of Philosophy* (Fall 2021 Edition), Edward N. Zalta (ed.), forthcoming URL = <https://plato.stanford.edu/archives/fall2021/entries/speech-acts/>.
[85] *Supra* note 82 at 4.

compensation, followed by the court *deciding* the case.[86] In each case the, legal effect is indeed a performative effect—it brings about an institutional fact and as such has real effects in the make-up and constitution of our legal institutional world. Performative speech acts are thus very closely tied to institutional facts and capable of creating our shared institutional world.

But whether a speech act has such a performative effect is dependent on a Wittgensteinian idea of meaning as use, in the sense that meaning is constituted by a shared practice, shared background and understanding in a pragmatist sense of the meaning of language. Modern law consists in both unwritten and written performatives. Whereas oral performatives are directly embedded in the context in which they were uttered, written performatives (like most text) endure far beyond the moment of inscription and are thus extended in both time and space. This instantiation in time and space makes context of prime importance and interpretation in light of the context into the hallmark of positive law, which requires keen attention to the tacit background knowledge at stake and the cultivation of a shared understanding.

2.3. How Does International Law Fit In?

Analogies between domestic law and international law have always been fraught, as for example discussions on the rule of law on the international plane have borne out.[87] It cannot, nor does it have to be, denied that there are significant discrepancies between international law and domestic law. That fact, however, does raise interesting questions when it comes to legal normativity. Because if it is true that the incorporation of technological normativity into lawmaking can reconfigure the normative force of legal norms, then it at least raises the question whether international legal normativity would be similarly reconfigured. How does international law "induce or enforce, inhibit or rule out certain types of behaviour" given its divergent architectures to domestic law?[88] I argue that despite the many relevant differences between national and international legal order, in the most fundamental respects the normativity accompanying them operates in a similar way.

In their book *Legitimacy and Legality in International Law*, Jutta Brunnée and Stephen Toope have developed an "interactional account" of international law to shed light on how the concept of legitimacy and a Fullerian conception of legality operate at the level of the international legal order.[89] Borrowing from international relations scholarship and theory, and deeply embedded in constructivist literature, they seek to elucidate, much like Fuller, the fundamentally *interactional* character of the law. They place

[86] Examples drawn from M. Hildebrandt, "A Philosophy of Technology for Computational Law" in D Mangan, C Easton & D Mac Síthigh, *The Philosophical Foundations of Information Technology Law* (forthcoming 2021) at 6.
[87] See e.g. J Waldron, "Are Sovereigns Entitled to the Benefit of the International Rule of Law?" (2011) 22 (2) *European Journal of International Law* 315.
[88] "Legal and Technological Normativity: More (and Less) than Twin Sisters," *supra* note 1 at 171.
[89] J Brunnée & S J Toope, *Legitimacy and Legality in International Law: An Interactional Account* (CUP 2010).

emphasis on the relationship between the system of rules that constitutes international law and the participants within that system.[90] Brunnée and Toope use Fuller's work to distinguish legal norms from non-legal ones and provide an account of international law that hinges on *shared understanding* as the basis for its effectiveness, obligatory character—and ultimately, its very existence as *law*. Brunnée and Toope thus (controversially) radically break with classical positivist accounts of international law and normativity and follow Fuller in grounding law's normativity and its legitimacy in the eight principles of legality that constitute his "inner morality of law."[91] Law, they say, "can only exist when actors collaborate to build shared understandings and uphold a practice of legality."[92] This echoes the Searlian explanation of legal normativity above, as being rooted in collective recognition and shared understandings.

The core idea in this interactional account therefore is that what distinguishes law and legal norms lies not in form or enforcement, but in both the creation and the effect of legal obligation. In this way, formal indicators are not necessarily coextensive with legality or with the practice that bears out the commitment to that conception of legality. This is one of the authors' key contentions: building and maintaining the reciprocity that grounds obligation is an ongoing business—the formal existence of law is only one indicator of its effectiveness and even bindingness. For Fuller, law is not a finished project, nor is it for Brunnée and Toope, who hold that "the hard work of international law is never done." This resonates with Hildebrandt's conception of legal normativity when she explains:

> Deliberately enacted legal norms depend on the competence to legislate, which presumes a form of political authority, while the effectiveness of enacted law in the end depends on the extent to which the issued legal norms become part of the normative practices of the relevant community/collective. This implies that—as in the case of brute facts and institutional facts—the distinction between deliberately issued norms and norms that are part of a normative practice is *analytical and not ontological*. In a modern legal system*, to count as legal* a norm must be covered by state authority, but whether and to what extent it informs the normative practice of a community depends.[93]

The combination of Fuller's conception of law, including the criteria of legality, and constructivism therefore yields a pragmatic view of how international law is created and maintained. Brunnée and Toope argue that (1) legal norms can only arise in the context of social norms based on shared understandings; (2) internal features of the law, i.e., Fuller's principles that make up his "inner morality of law," are crucial to law's ability to inspire "fidelity" (promote adherence); (3) legal norms are built and maintained through continuing practices of legality (or destroyed through the absence of such

[90] N Krisch, "Legitimacy and Legality in International Law: An Interactional Account" (2012, book review) 106 *American Journal of International Law* 184 at 203.
[91] L Fuller, *The Morality of Law* (revised edition, Yale University Press, 1964).
[92] Brunnée & Toope, *supra* note 88 at 7.
[93] "Legal and Technological Normativity: More (and Less) than Twin Sisters," *supra* note 1 at 173.

practice).[94] Brunnée and Toope thus put strong emphasis on the shared sense of understanding among law's subjects as being fundamental in the creation and maintenance of a system of norms. According to them, the consequent collective recognition of that understanding induces a sense of responsibility or "fidelity" in the legal system and the norms that constitute it. This, and adherence to Fuller's criteria of legality, is what creates a sense of commitment to follow rules and gives citizens the opportunity *to reason with those rules* and that respects them as active centres of intelligence.[95]

2.4. Tying Some Threads Together

The basic question I sought to raise in this paper is thus a simple, albeit not an easy, one. What are the consequences for international law's normativity if data-driven tools are introduced into its lawmaking procedures? This matters because international law's normativity ultimately depends on shared understandings and collective recognition of the institutional facts that count as international law in our global society. It is dependent on the interaction between actors on the basis of that shared understanding and on the practices that maintain the status function of those norms as *legal*. At times, some aspects of international law seem far removed from the individual and its existing democratic deficits insurmountable. Perhaps from that point of view the rise of international computational law as I have set it out here might not seem like the most pressing concern when it comes to international law's issues, or even seem like a welcome solution to those concerns to some. So why are these things important and why be vigilant? If we introduce computational tools into law-making procedures, we change something about the way international law guides conduct—in short, we change its normativity. This brings us to the notion of legal protection by design.

A First Glance at International Legal Protection by Design

> "Translating the paradox of the 'Rechtsstaat' into digital code—using a technology to protect us against undesired consequences while regulating its use—would thus require two things. First, the use of code must be legitimized in democratic procedure and second, the implications of automatic application must be faced and mitigated."[96]

Text-driven, as opposed to *data-driven*, law offers legal protection "by design" in two senses: first, it straightforwardly offers the protection as stipulated by the content of the legal rule in question. If that law has no legal effect, it cannot protect qua law.[97] A right is protected by way of law, e.g., the prohibition on torture is enacted in the European Convention on Human Rights

[94] Brunnée & Toope, *supra* note 88 at 15.
[95] J Waldron, "The Rule of Law and the Importance of Procedure" (2011) 50 *Nomos* 3.
[96] "Legal and Technological Normativity: More (and Less) than Twin Sisters," *supra* note 1 at 178.
[97] This section draws on my contribution to the first working paper of the COHUBICOL project on text-driven normativity, available online and open for comments at https://publications.cohubicol.com/working-papers/text-driven-normativity/chapter-3/legal-effect-sources-of-law-jurisdiction/legal-effect/.

and thus has legal effect and is justiciable—in that way it will aid in the protection against torture. Second, and crucially for our purposes, law offers protection by virtue of its very nature as a written legal speech act. As such, it has certain affordances that it has by virtue of its technological embodiment: text. The multi-interpretability of human language—as embodied for example in technological expressions of script and the printing press—provides an ever-moving target for the settlement of meaning. Meaning is constituted and reconstituted in its use in practice, but instead of collapsing in a relativistic and subjectivist assemblage of "private languages," it stably guides us and provides us with the contestability that is core to the rule of law. Legal effect as attributed by competent authorities and drawn from the sources of law thereby affords us the closure that legal protection by design requires. We cannot assume that this type of legal protection, the type that is provided by virtue of the multi-interpretability of natural language, will translate flawlessly to different technological embodiments that law may come to be expressed in. This means reconstituting the countervailing powers pivotal to the rule of law into the architectures of law's new modes of existence, guided by a notion of legal protection by design.[98]

The legal protection offered by virtue of the law's text-driven existence needs to be safeguarded because these are affordances of text that, in turn, afford us to institute the checks and balances that make up the rule of law. As Waldron says, to deny the possibility of arguing for a given interpretation "is to truncate what the Rule of Law rests upon respect for the freedom and dignity of each person as an active center of intelligence."[99] The law, in its current mode of existence, by virtue of these affordances of natural language and printed text, can always be contested by those who are expected to apply it to themselves. I argue that this applies to international law as well. *International* legal protection by design then is by no means a pre-emptive exclusion of the use of different technologies in the international legal realm; rather it can be understood as a call for the preservation of *thoughtfulness* in international law. Thoughtfulness in this sense, following Waldron, means the "capacity to reflect and deliberate, to ponder complexity and to confront new and unexpected circumstances with an open mind, and to do so articulately (and sometimes argumentatively) in the company of others with whom we share a society" and means putting the focus on a conception of the international rule of law that embodies those epistemic and discursive features and on the dignity that can be found in being ruled accordingly.[100]

Efficiency, formalism, and optimization are, although increasingly posited as such, not the end goal of the law. The notion of legal protection by design serves to remind us that safeguarding law's core values, like certainty and predictability, is crucially important but that they need to be weighed

[98] This term was coined by Hildebrandt, see e.g., M Hildebrandt, "Saved by Design? The Case of Legal Protection by Design" (2017) 11 *NanoEthics* 307; on reformulating the criteria of the rule of law to ensure code's legitimacy, see L Diver, *Digisprudence: Code as Law Rebooted* (2021, Edinburgh University Press).
[99] J Waldron, "The Concept and the Rule of Law" (2008) 43(1) *Georgia Law Review* 1 at 59-60.
[100] J Waldron, "Thoughtfulness and the Rule of Law" (2011) 18 *British Academy Review* 1 at 1.

against other values, like justice and equality and integrity. This is a continuous evaluative exercise, and it is that exercise and the procedures that facilitate it that are of the utmost importance and afford us real and lasting protection. Legal protection exists by virtue of countervailing powers, institutions, and procedures. As Waldron reminds us:

> [Practitioners] know very well that anything approximating "mechanical jurisprudence" is out of the question. Law is an exceedingly demanding discipline intellectually, and the idea that it consists in the thoughtless administration of a set of operationalized rules with determinate meanings and clear fields of application is of course a travesty.[101]

The adaptive nature or productive ambiguity of natural language might have been a happy accident for the legal protection afforded to us by law's current mode of existence in terms of institutional facts and speech acts, but this does not mean it is a bug.[102] Rather, it is arguably one of law's most important features.

Conclusion

Law is not a spectator sport—without the participation of human beings in the practices of law, law will not endure in the same way. Without interaction, shared understanding, and collective recognition, there would be no legal normativity. Thus, what would happen if lawmaking practices came to be divorced to some extent from the reality of human practices because they are increasingly being automated or generated without our active and ongoing input? Much of the push for improvement in the legal domain by way of computational means is perhaps in part due to an insufficient recognition of the role language plays in law and the importance of the deontic powers that natural language affords. Mathematical patterns are not speech acts. Legal analytics or automatically generated treaty texts do not *constitute* law—they have no legal effect unless we attribute it to them and adjust our lives in accordance with the norms we collectively recognize as law. It is crucial to recognize that an important part of what currently makes up our legal protection is connected to the affordances of the "technologies of the word."[103] Interpretative exercises are not subjectivist inefficiencies, argumentative practices are not endless and inherently relativistic back-and-forths, legal standards are not indeterminate and inchoate rules that we failed to concretize. These are all procedural elements of law, which are core to the rule of law.

International legal normativity is built around text and therefore has different effects on us, our behaviour and our practices than technological normativity does. Because of these differences, legal protection will need to

[101] *Ibid* at 4.
[102] M Hildebrandt, "The adaptive nature of text-driven law" (2020) *Journal of Cross-disciplinary Research in Computational Law*, 1(1) available online at https://journalcrcl.org/crcl/article/view/2.
[103] W Ong, *Orality and Literacy: The Technologizing of the Word* (Methuen, 1982).

be consciously and thoughtfully designed into computational systems used in the international legal context because that protection will not automatically and flawlessly translate to code. This goes to the heart of what a notion of international legal protection by design should entail.

What a design principle like this looks like and what it would mean concretely and practically for international law will require much more research in the immediate future. One thing is clear: discussions on legal normativity, criteria of legality, and also crucially, on a conception of the rule of law befitting for the international legal level will become even more crucial over the coming years. We need to ensure that international law in the algorithmic age affords us legal protection and that we design our global order with thoughtfulness, rather than encode thoughtlessness.