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The Future of Computational Law in the Context of the Rule of Law

Mireille Hildebrandt*

Abstract

In this position paper, I argue that lawyers must come to terms with the advent of a rich variety of legal technologies and define a series of challenges that the position papers in this special issue aim to identify and address. Before doing so, I address the question of what it means to discuss the future of computational law and how that relates to the Rule of Law. This, in turn, raises the question of whether there could be something like 'a computational Rule of Law', or whether that would be a bridge too far because neither the concept nor the practice of Rule of Law lends itself to computation. In that case, how would the integration of computational technologies into legal practice relate to a non-computational Rule of Law? The answer to that question will structure the challenges I see for the uptake of legal technologies, resulting in a research agenda that should enable, guide and restrict the design, deployment and use of legal technologies with an eye to the future of law.

Keywords: legal technologies, computational law, legal effect, speech act theory, rule of law, legal protection, incomputability, cross-disciplinary collaboration, access to justice, legal education, evaluation of legal technologies

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* Professor, Vrije Universiteit Brussels, mireille.hildebrandt@vub.be.

The future of computational law

Computational law and legal effect

CRCL23's position papers have been invited under the general heading of 'The Future of Computational Law'. This raises the question of how we should understand computational law and whether such a thing could or should have a future. I propose that for something to be called 'computational law', *legal effect must be attributed* to the output of a computational system. Legal effect defines the difference between law-as-we-know-it on the one hand and morality or politics on the other. Legal effect is a performative effect in the sense that it does what it says, as in a civil servant declaring a couple husband and wife. It should not be confused with a causal effect or a logical deduction. The civil servant did not cause the couple to marry (at least I don't hope so) and their speech act is not a matter of logical deduction, even if some deduction may be required to check if all the conditions for a valid marriage have been fulfilled. In law, speaking and writing are 'actions'; law is a matter of 'doing things with words', as speech act theory explains.[1] We have developed this position in our Research Study on Text-Driven Law,[2] distinguishing between legal effect as 'performative effect' and various types of 'effect on legal effect' as 'perlocutionary effects'. A perlocutionary effect refers to effects achieved by speakers who wish to *influence* others, rather than *constituting* the effect their words have. A performative effect is the result of a constitutive spoken or written speech act. The notion of 'effects on legal effect', referring to effects brought about by the deployment of legal technologies, is further explained in our *Research Study on Computational Law*,[3] and in our *Typology of Legal Technologies*.[4]

The attribution of legal effect depends on positive law, that is on the complex interplay between legislation, public administration, legal judgments (case law) and the principles and practices that inform the applicable law in a specific jurisdiction. The attribution of legal effect to the output of a computational system could be done by, for instance, writing legislation in computer code that is given *force of law*, or by enacting legislation that (1) determines that computational prediction of judgments will define the outcome of court cases or (2) gives legal effect to contracts written in executable code.

The attribution of legal effect to the output of computational systems should be distinguished from the deployment of legal technologies by human decision-makers or advisors. For instance, by using a legal search engine to find relevant case law, drafting legislation in computer code while only attributing legal effect to the natural language version or resolving backlog of court applications by prioritising some with the help of predictive software. In this special issue, Pasquale and Malgieri advocate the use of score based natural language processing (SBNLP) to prioritise specific applicants for social security payments in the case of disability; they argue that insofar as such decisions do not disadvantage vulnerable subjects but instead offer them benefits, this should be seen as an administrative practice that decreases unwarranted inequality. They do not, however, suggest that the software should have force of law; instead, they bring the decisions under the heading of 'technological management', which would probably mean that people should be able to contest decisions by which they are not prioritised.

Legal technologies and effect on legal effect

In the case of computational law, the legal effect *becomes dependent on* computational systems, whereas in the case of 'mere' deployment of legal technologies, the legal effect depends on a human decision-maker. In the latter case we

[1] JL Austin, *How to Do Things with Words* (2nd, Harvard University Press 1975).

[2] See notably chapter 4 in Laurence Diver and others, *Research Study on Text-Driven Law* (funded by the ERC Advanced Grant 'Counting as a Human Being in the Era of Computational Law' (COHUBICOL) by the European Research Council (ERC) under the HORIZON2020 Excellence of Science program ERC- 2017-ADG No 788734 (2019-2024), 2023).

[3] Pauline McBride and Laurence Diver, *Research Study on Computational Law* (funded by the ERC Advanced Grant 'Counting as a Human Being in the Era of Computational Law' (COHUBICOL) by the European Research Council (ERC) under the HORIZON2020 Excellence of Science program ERC-2017-ADG No 788734 (2019-2024), 2024).

[4] Laurence Diver and others, The Typology of Legal Technologies, 'COHUBICOL' (2022).

need to dig a bit deeper to unearth how these technologies *influence* legal effect. Such 'effect on legal effect' may be due, for instance, to automation bias, to the fact that prioritising certain types of cases implies de-prioritising other types of cases or to massive dependence by courts, law firms, public administration and legislatures on (1) systems that extrapolate inferred patterns from past data or on (2) the execution of software code defined at some point in the past.

Whereas China seems to have invested in computational law in the above sense, that is giving legal effect to the output of computational legal technologies,[5] most 'Western' jurisdictions seem to reject this.[6] Instead, legislators, courts and other legal practitioners may assume that legal technologies are meant to serve as efficient and effective tools to achieve goals set by those who design, deploy or use them, and not to replace human decision making. This entails a clear task for computational legal technologies which is usually framed as enhancing the efficiency and effectiveness of the law. Such a position, however, takes for granted that ends are independent of the means to achieve them. Actually, means often reconfigure the ends they are meant to achieve,[7] for instance when framing the law in terms of efficiency and effectiveness results in prioritizing what is countable over what counts. This puts supposedly quantifiable 'interests' or 'assets' in the same basket as more qualitative dimensions of the law, such as 'values' and 'norms', while also ignoring the many qualitative decisions that must be taken before legal norms, decisions and relationships can be quantified (*i.e.* datified and/or codified).[8] By way of example, we could imagine that drafting legislation in code, even if the output of that code has no legal effect, will affect the drafting and/or the interpretation of the natural language version of the legislation that does have legal effect. Rules as Code is often 'sold' based on the idea that drafting or translation of legislation in computer code will provide new insights into potentially contradictory or ambiguous legal norms,[9] advocating that the legislature should learn from – and perhaps restrict itself to – what computer code can handle. This is a clear example of such software having an 'effect on legal effect' without itself having the force of law.

My conclusion is that computational law (defined as positive law where legal effect is attributed to the output of computational systems) has no future in constitutional democracies, but that its less sensational twin (defined as positive law where legal technologies frame, reconfigure and redefine legal effect) may nevertheless recreate the future of law.

A computational Rule of Law?

Rule *by* law and Rule *of* Law

Having concluded that computational law has no future in constitutional democracies, it may seem that the question of a computational Rule of Law can be skipped. That would, however, be overly optimistic. To begin with, the Rule of Law should not be understood in terms of either a deductive or an inductive system of abstract legal rules, as this would rather qualify as a rule *by* (not *of*) law. Such a rule by law implies the instrumentalization of the law by whoever enacts or deploys it. Instead, the Rule *of* Law involves three interrelated elements. The first element concerns the institutionalisation of checks and balances or countervailing powers meant to constrain the powers of the state. The second element involves the contestability of legal decisions in a court of law that is independent from

[5] Changqing Shi, Tania Sourdin, and Bin Li, 'The Smart Court – A New Pathway to Justice in China?' en-US (2021) 12(1) 4 (Number: 1 Publisher: International Association for Court Administration); Zhenbin Zuo, 'Automated law enforcement: An assessment of China's Social Credit Systems (SCS) using interview evidence from Shanghai' [2024] Journal for Cross-Disciplinary Research in Computational Law (CRCL) (forthcoming). The underpinning assumptions on 'legal mathematics' can be found here: Ji Weidong, 'The domain of computational law' (2022) 10(2) Peking University Law Journal 109.

[6] Even the Financial Times finds this highly unlikely, Chris Tart-Roberts, 'AI unlikely to replace lawyers but instead enhance their service' en Financial Times Advisor. Though Susskind admits this could be part of law's future, see Richard Susskind, *Tomorrow's Lawyers: An Introduction to your Future* (New Edition, Third Edition, Oxford University Press February 2023) 174.

[7] John Dewey, 'The Logic of Judgments of Practice Chapter 14' in John Dewey (ed), *Essays in Experimental Logic* (University of Chicago 1916).

[8] PN Meessen, 'On Normative Arrows and Comparing Tax Automation Systems' (ICAIL '23, Association for Computing Machinery September 2023).

[9] Matthew Waddington, 'Rules as Code' en-US (2020) 37(1) Law in Context. A Socio-legal Journal 179.

both the legislature and public administration (building on the first element). The third element relates to the fact that the meaning of legal norms is not decided by the legislature that enacted them but by an independent court, to prevent arbitrary decision-making (building on both the first and the second element). This conception of the Rule of Law goes back to Montesquieu's countervailing powers,[10] and aligns with Waldron's[11] and Radbruch's[12] understanding of the constitutional role of law in constitutional democracies.

Those not familiar with the idea of the Rule of Law may think of it as an ideal whereby rules enacted by the legislature are executed without exception, either by way of compliance (by legal subjects) or by way of enforcement (by public administration, including the police and the courts).[13] It seems to me that the latter portrayal of the Rule of Law underlies many of the claims made for RaC, prediction of judgment and even legal search, as they appear to be based on the idea that the Rule of Law refers to *closing the gap between rules and their execution.* From the perspective of legal theory and legal philosophy, this is the inverse of what the Rule of Law stands for; this gap is precisely what protects us against arbitrary decision-making by those in power. Without it, the legislature or public administration would be the judge in their own case, thus enabling arbitrary decision-making. Under the Rule of Law, the decision on the meaning of the law, that is its application and interpretation, is attributed to an independent third party, being the judiciary. Gapless law thus refers to a Rule *by* Law and invites what Diver has coined as computational legalism.[14]

I will take the argument one step further and argue that both law and the Rule of Law are fundamentally incomputable, as they thrive on human judgement when deciding the identification, application and thus the interpretation of the relevant law. Judgment, in turn, requires a specific kind of discretion.[15] Discretion, in this context, should not be framed as equivalent with arbitrariness but as a normative space, 'ruled' by the principles implied in the relevant legal domain, by applicable constitutional norms and by the human rights framework, with an eye to the real world issue that is at stake. In his seminal work on the promise of artificial intelligence, computer scientist and philosopher Brian C. Smith explains the difference between calculation and judgment, thus highlighting the limitations of current computing systems.[16]Philosopher Matzviita Chirimuuta has followed up on that by referring to Kant's explanation of the chasm between a rule and its application,[17] a theme revisited by the patron saint of rule-following, Wittgenstein, highlighting that rule-following is never only an exercise in logic but rather a matter of 'doing things with words', partaking in a language game, against the backdrop of a specific life form (context, practice, habitat, culture).[18] This means that the application of any legal norm cannot be 'calculated' as if it concerns a stand-alone rule. The meaning of a legal norm must be understood in terms of its 'literal meaning', the goals it targets and its place within the relevant legislative framework or common law domain, but also in terms of the dynamic

[10] KM Schoenfeld, 'Rex, Lex et Judex: Montesquieu and la bouche de la loi revisted' (2008) 4 European Constitutional Law Review 274.

[11] Jeremy Waldron, 'The Rule of Law' in Edward N Zalta (ed), *The Stanford Encyclopedia of Philosophy* (Summer 2020, Metaphysics Research Lab, Stanford University 2020).

[12] Mireille Hildebrandt, 'Radbruch's Rechtsstaat and Schmitt's Legal Order: Legalism, Legality, and the Institution of Law' (2015) 2(1) Critical Analysis of Law.

[13] Gianmarco Gori, 'Legal and Computer Rules: An Overview Inspired by Wittgenstein's Remarks' in Alice Helliwell C, Alessandro Rossi, and Brian Ball (eds), *Wittgenstein and Artificial Intelligence* (forthcoming, AnthemPress 2024) vol II.

[14] Laurence Diver, 'Computational legalism and the affordance of delay in law' (2020) 1(1) Journal of Cross-disciplinary Research in Computational Law.

[15] M Hildebrandt, 'New Animism in Policing: Re-animating the Rule of Law?' in Ben Bradford and others (eds), *The SAGE Handbook of Global Policing* (SAGE Publications Ltd 2016); Ronald Dworkin, *Taking Rights Seriously* (Fifth Printing edition, Harvard University Press November 1978).

[16] Brian Cantwell Smith, *The promise of artificial intelligence: reckoning and judgment* (The MIT Press 2019).

[17] Mazviita Chirimuuta, 'Rules, judgment and mechanisation' en (2023) 1(3) Journal of Cross-disciplinary Research in Computational Law (Number: 3).

[18] Ludwig Wittgenstein and GEM Anscombe, *Philosophical investigations : the German text, with a revised English translation* (vol 3rd, Blackwell Pub 2003); Charles Taylor, 'To follow a rule' in *Philosophical Arguments* (Harvard University Press 1995); GEM Anscombe, 'On Brute Facts' (1958) 18(3) Analysis 69 (Publisher: [Analysis Committee, Oxford University Press]); M Hildebrandt, 'Text-Driven Jurisdiction in Cyberspace' in Micheál Ó Floinn and others (eds), *Transformations in Criminal Jurisdiction: Extraterritoriality and Enforcement* (Hart Publishing August 2023). See also Gori (n 13).

incomputable tenets of constitutional democracy and the Rule of Law.

The challenge then, will be to ensure that the design (by developers), deployment (by lawyers) and use (by those subject to law) of computational legal technologies do not disable the Rule *of* Law.

Legal protection as the protection of the incomputable self

In other work I have advocated the relational and ecological nature of human agency, thus grounding the need for and the right to privacy. The title of the article was 'privacy as the protection of the incomputable self'[19] and though the right to privacy is a specific instance of such protection, I would now frame this as part of a wider acknowledgement that the protection afforded by law in constitutional democracies will soon come to depend on respect for the incomputable nature of human agency (something that could largely be taken for granted before the computational turn).

Incomputability does not entail that counting must be countered indiscriminately. On the contrary, in many instances, the protection of our incomputability will come to depend on advanced computations, for instance to uncover hidden patterns of surveillance and/or discrimination. To explain this paradox, let me assert three insights into the nature of computation in relation to the real world:

1. What matters is not computable
2. It can, however, be made computable
3. This can be done in different ways and this difference makes a difference[20]

What matters is our ability to navigate the real world in real life. In the context of law, this concerns justice, legitimate expectations and instrumentality (not to be confused with instrumentalism) and an environment that is sufficiently stable to enable us to act (which is not possible without reasonable foreseeability). These are all matters 'in flux', prone to changing circumstances and the dynamics of a shared normative understanding. These matters do not follow the laws of mathematics or logic and they do not depend on causality but on the ambiguous, generative and performative nature of human language-use (on 'how we do things with words', see above). The incomputability that is inherent in such 'flux' does not, however, preclude anyone from turning our language use into 'behavioural data' with the intent to enable computational manipulation. The point will be to acknowledge that modelling language-use based on the datafication of our language behaviours implies a translation from real life interactions to necessarily historical data, since we cannot train an algorithm on future data. The same goes for attempts to translate legal norms into computer code; there is no way that the two can be isomorphic, because the meaning of natural language (the stuff legal norms are made of) is in constant flux whereas computer code is stuck with the moment it was written.

Having asserted that, on the one hand, *what matters is not computable*, while, on the other hand, *it can be made computable*, should prime us for the third insight: making real world and real life states/events/objects computable *can necessarily be done in different ways*. Much depends on the ends for which matters are made computable and much depends on the means deployed, admitting that means often reconfigure the ends (as indicated above). This implies a need to detect the many upstream design decisions that impact downstream legal protection, whether affecting the substance of fundamental rights or more generally the attribution of legal effect.

Finally, legal protection in constitutional democracies aims to protect individuals against being overruled, humiliated, disempowered or deceived by big players, such as the state, corporations or tech platforms that are run by corporations while developing state-like functions within their transna-

[19] Mireille Hildebrandt, 'Privacy as Protection of the Incomputable Self: From Agnostic to Agonistic Machine Learning' en (2019) 20(1) Theoretical Inquiries in Law.

[20] On 'the difference that makes a difference' see G Bateson, *Steps to an Ecology of Mind* (Ballantine 1972) 386, where he defines 'information' as such, noting that Bateson was one of the founding fathers of cybernetics.

tional remit.[21] Upon detecting the impact of dedicated design decisions involved in specific types of legal technologies, lawyers and developers should collaborate to investigate such downstream impact in more detail, carefully scrutinising how the claimed functionalities relate to those that can be substantiated, while digging into reasonably foreseeable 'misuse', 'side-effects' or more generally unintended or undisclosed affordances. For this, as referred above, the COHUBICOL team, consisting of both lawyers and computer scientists, developed the Typology of Legal Technologies. This Typology offers a method and a mindset to evaluate such unintended affordances.[22]

Challenges for the integration of legal technologies into legal practice

In this special issue, leading academics working in the domain of legal technologies, computational law or AI and law, share their position on the future of this domain. Below, I group the challenges they detect and address in terms of (1) the collaboration between lawyers and developers, (2) ensuring access to justice while automating the law, (3) the transformation of legal education and (4) the evaluation of legal technologies. The grouping is not meant to be mutually exclusive, all themes run through most of the papers. Nevertheless, it is important to make distinctions and table crossovers.

How should lawyers and developers collaborate?

Lawyers and developers have a different disciplinary background and serve different professional goals. As law defines the architecture of constitutional democracies, and legal technologies aim to serve the law, the collaboration should be based on a proper understanding of law and the Rule of Law.[23] It may be tempting for computer scientists and developers to look at the law as a set of text corpora that offer training data for myriad NLP technologies, or to look at the law as a set of deductive rules that can be expressed in various types of logic or programming languages to produce executable code. But law is neither a set of text corpora nor a set of deductive rules. It is both more and less, or rather something entirely different.

On top of that, issues such as data leakage,[24] concept drift or a mistaken assumption of isomorphism between legal norms and their computational translation,[25] could be hidden under the carpet when initiating a collaboration. This raises a number of questions as to (1) what conditions must be fulfilled for a cross-disciplinary collaboration to be genuinely productive, sustaining instead of eroding the Rule of Law; (2) what critical computational training must be integrated in the academic study of the law and what training would be required in the context of professional legal training; and (3) whether developers of legal technologies should subscribe to a charter like that of practising lawyers, committing themselves to uphold the integrity of legal practice under the Rule of Law.

Some answers to these questions are proposed in this special issue by Lawsky, Bennett Moses, Merigoux and in the article co-authored by Kapoor, Henderson and Narayanan. Lawsky develops the notion of 'epistemic trespassing',

[21] On the power of big tech platforms that control global mobile infrastructure, see Tatiana Duarte, 'Google and Apple Exposure Notifications System: Exposure Notifications or Notified Exposures?' (Agnieszka Gryszczyńska and others eds, Lecture Notes in Computer Science, Springer International Publishing 2022). On the need to give voice to those who are disempowered, see Emilie van den Hoven, 'Hermeneutical injustice and the computational turn in law' (2021) 1(1) Journal of Cross-disciplinary Research in Computational Law.

[22] The Typology of Legal Technologies (n 4).

[23] Sarah Lawsky, 'Form as Formalization' [2020] (Publisher: Ohio State University. Moritz College of Law).

[24] See the seminal work of Masha Medvedeva, Martijn Wieling, and Michel Vols, 'Rethinking the field of automatic prediction of court decisions' en [2022] Artificial Intelligence and Law and more recently Masha Medvedeva and Pauline McBride, 'Legal Judgment Prediction: If You Are Going to Do It, Do It Right' (2023). On similar concerns outside the domain of law: Sayash Kapoor and Arvind Narayanan, Leakage and the Reproducibility Crisis in ML-based Science (arXiv:2207.07048 [cs, stat], arXiv July 2022). And Kapoor, Henderson and Narayanan in this special issue.

[25] On issues of isomorphism see Meessen (n 8). And Merigoux in this special issue.

[26] Nathan Ballantyne, 'Epistemic Trespassing' (2019) 128(510) Mind 367.

quoting Ballantine's definition of epistemic trespassers as 'thinkers who have competences or expertise to make good judgments in one field, but move into another field where they lack competence—and pass judgment nevertheless'.[26] Lawsky argues for modesty and even humility when trespassing, while advocating for trespassing in the context of what she calls 'hybridised questions' that require *perspectives of* and even *interventions by* those trained in different disciplinary domains. An interesting example of such collaboration could be pair programming, where domain experts work with programmers to make sure that domain expertise counts when developing 'solutions' for real world domains of applications. Merigoux indeed developed a domain specific programming language (CATALA) based on pair programming by lawyers and developers. Bennett Moses seems less worried about epistemic trespassing and more concerned about the monodisciplinary silos that define both law and computer science, resulting in either rejection of the relevance of the 'others" insights or in uninformed outsourcing. I will return to her position under the heading of legal education as her proposals for overhauling the traditional monodisciplinary training of lawyers are highly relevant there. Merigoux addresses the key issue of formal methods in both the theory of computer science and the practice of developing computational systems, highlighting the role of the user in the latter and calling for a return to the scientific method when it comes to testing and evaluating the value of such systems when used in real world practices. This concern returns in the article of Kapoor, Henderson and Narayanan, who emphasise the need for socio-technical evaluation that takes into account the vicissitudes of real world application of legal technologies, instead of purely formal or technical testing.

How to ensure access to justice while automating the law?

Could it be that some legal norms are algorithmic in and of themselves,[27] inviting automation in a way that enhances legal certainty, contestability and transparency, while such automation would be beneficial for those subject to law in terms of the speed, foreseeability and reliability of correct application? Should we qualify such automation as an enhanced access to justice?[28] Or would the automation of a law, whether code- or data-driven or both, *de facto* narrow the gap between a rule and its application, making arbitrary decision-making more likely? Could this reduce access to justice, insofar as it results in restricting access to justice to what a legislature or public administration consider conducive to their understanding of the public interest. If we define access to justice in terms of 'the ability to contest decisions on legal grounds',[29] we need to resist its redefinition as logging into a platform and filling in some data to obtain a supposedly meaningful prediction of how the law applies. If contestability reduces the efficiency and effectiveness of legal automation, automation that is geared towards efficiency gains will probably reduce the contestability of automated decisions. This would be counter to the Rule of Law, which requires additional safeguards when scaling the application of the law.

Byrom, in this special issue, highlights the importance of a definition of access to justice that subscribes to practical and effective protection, based on 'existing case law and international treaties and frameworks', requiring access to (1) 'the formal legal system (i.e. access to courts, tribunals, ombudsmen schemes and court annexed mediation)', (2) 'a fair and effective hearing', (3) 'a decision in accordance with law' and to (4) 'the outcome of that decision (remedy)'. She emphasises that a decision in accordance with the law is not equivalent to closing the gap between a legal norm and its application in advance, because this would pre-empt the judgment of the competent court, while she also emphasises the need to ensure that decisions that protect a person's rights have effect in the real world. This is where she calls for access to data, funding and regulation that enable detecting patterns that can uncover a systematic lack of access to justice in the real world, explaining why and how the current crisis of access to justice requires a definition that steers free from naïve reductive

[27] We can think of – parts of – tax law, social benefits law and environmental law, notably those parts that require calculation of taxes, benefits or levels of pollution.

[28] See also Natalie Byrom, *Digital Justice: HMCTS data strategy and delivering access to justice Report and recommendations* (techspace rep, The Legal Education Foundation 2019).

[29] Which raises the question of the role of using legal technologies to predict the argumentation structure of a specific type of case law, as in Piera Santin and others, 'Argumentation Structure Prediction in CJEU Decisions on Fiscal State Aid' (ACM June 2023).

approaches that miss the mark of what the of European Court of Human Rights calls 'practical and effective legal protection'.

As recounted above, Pasquale & Malgieri propose a fast track disability determination as a technological solution to enhance mass equality in public administration. One of the points they make is that we should not confuse the use of LLMs to obtain explanations of such determinations with meaningful legal justifications. It would be interesting to see how this solution fares with Byrom's definition of access to justice. This also concerns Bex's research into how those who make decisions ('screen-level bureaucrats') engage with recommendations without explanations and with technological management that reduces their discretion. His research suggests that 'relatively basic systems that structure and gather information are seen as a positive thing, as long as these systems don't impinge on the bureaucrats' professional discretion as decision makers. Furthermore, recommendations or predictions which are not backed up by an explanation or rationale are ignored.'

Rethinking legal education

There should be no doubt about the need to prepare both students and practitioners of law for the new methodologies that are being developed and deployed in the context of legal practice.[30] This will require keen attention to the different assumptions that underlie the methodologies of computer science and software engineering, compared to those of law. It will be key to make the various methodologies of the legal sciences and the methods involved in the practice of law more explicit, to prevent the colonisation of law and the study of law by disciplinary practices based on maxims that do not align with those of legal practice and may run counter to the institutionalisation of the Rule of Law.[31] Instead of seeing the incomputability of legal norms as a bug that must be repaired, legal scholarship should invest in explicating and demonstrating why and how this incomputability is a feature that safeguards legal protection. However, simultaneously, legal education and professional legal training should prepare law students and legal practitioners for the integration of myriad legal technologies, by demonstrating under what conditions their design and deployment can contribute to legal certainty, justice and to the instrumentality of the law in a way that does not overrule its contestability.[32] This should safeguard that 'natural persons' count as human beings in the era of computational law. In terms of Lawsky and Ballantyne (above), legal education should resist epistemic trespassing while training law students to better understand what computer science can offer as well as making them aware of the limitations inherent in computational systems.

In her article, Bennett Moses argues for integrated and problem-oriented education of both lawyers and computer scientists, finding cross-disciplinary approaches insufficient. She points to education in medical science where such problem-oriented approaches are part of the curriculum, though this seems to concern integration of different domains within medical science, not the integration between e.g. medical and computer science. It would be interesting to see how this relates to Lawsky's proposal to articulate hybrid questions that invite cross-disciplinary collaboration, while preventing epistemic trespassing. In my own work,[33] I have argued that to engage in a genuine, cross-disciplinary conversation, we should foremost invest in a better understanding of the methodological assumptions of the 'other' discipline and the implications thereof, rather than mixing methods before one is properly versed

[30] A mere look at the kind of investment made in legal technologies should convince anyone that the study of law must pay keen attention to the importation of new methodologies, see e.g. Miriam Rozen, 'Six champions of generative AI innovation' [2023] Financial Times.

[31] Monika Zalnieriute, Lyria Bennett Moses, and George Williams, 'The Rule of Law "By Design"?' en-US (2021) 95(5) Tulane Law Review 1063.

[32] For instance by combining narrative and rational theory in the argumentation theory, as in Floris J Bex, 'The Hybrid Theory of Stories and Arguments Applied to the Simonshaven Case' eng (2020) 12(4) Topics in Cognitive Science 1152. And by switching the burden of proof regarding the legitimacy of legal technologies, as in Gianclaudio Malgieri and Frank A Pasquale, 'From transparency to justification: toward ex ante accountability for AI' [2022] (712) Brooklyn Law School, Legal Studies Paper.

[33] Mireille Hildebrandt, 'Grounding computational 'law' in legal education and professional legal training' in Bartosz Brozek, Olia Kanevskiaia, and Przemyslaw Palka (eds), *Research Handbook on Law and Technology* (Section: Research Handbook on Law and Technology, Edward Elgar Publishing December 2023).

in the own methodology.[34] This entails that approaching hybrid questions from different scientific practices should avoid constructing degree programmes that would allow students to become only superficially acquainted with a diversity of disciplines (which is also not what Bennett Moses would advocate). In this context, it is key to remind ourselves that law is not only a scientific discipline but also a practice that is key to legal protection and in many ways qualifies as critical infrastructure of society, meaning that the normative foundations of the Rule of Law are deep-linked with legal method, at least in constitutional democracies. This has consequences to potential integration with the methodological constraints of other scientific practices.

Evaluation of Legal Technologies

All of the previous challenges are connected with the ability to evaluate the performance of 'AI' in law, both in the technical sense of computer science verification and validation and in the sense of real world testing. In the context of the COHUBICOL project, we have developed a specific, dedicated method to do such testing, based on an in-depth examination of various types of technologies, in a close collaboration between lawyers and computer scientists. The collaboration here did not concern jointly building legal technologies (as discussed above, under the heading of 'collaboration between lawyers and developers') or the integration of legal and computational methodology in education (as discussed in the previous subsection). It concerned the evaluation of legal technologies. I therefor applaud the position of Kapoor, Henderson and Narayanan, who make a difference between testing a technology in the lab or on paper and evaluating the effects of a technology as deployed in the real world. Distinguishing technical and socio-technical testing allows them to detect a series of key hurdles that must be avoided or called out in the case of large language models, such as GPT, and predictive AI, notably when used to make decisions. It also allows them to ddrecommendations on how to address these hurdles or even avoid deployment in the first place, for instance due to the unreliability of these models or systems.

Conclusion

I conclude with applauding the salience of the invited position papers and the authors' in-depth engagement with the question of the future of computational law, based on solid knowledge and experience in the relevant domain(s). Bringing together global thought leaders on this matter has been a rewarding experience, both during the discussions at the Symposium on the Future of Computational Law[35] and in the sharing of the final papers in this special issue. There is agreement on many of the issues raised by the integration of computational methods in the study and the practice of law, even though each of the authors takes a different perspective, suggests different approaches and comes up with alternative research agendas. We look forward to continuing this constructive and critical discussion, highlighting the double meaning of 'critical' as key to the discussion.

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[34] Meaning that for a 'mixed methods approach' we need more, not less attention to methodological integrity and to the effects inherent in, for instance, qualitative or quantitative approaches. See e.g. Manfred Max Bergman, 'The Good, the Bad, and the Ugly in Mixed Methods Research and Design' en (2011) 5(4) Journal of Mixed Methods Research 271.

[35] The Symposium has been recorded, see https://www.cohubicol.com/about/conference/2023/programme/#day-1.

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