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Law As an Affordance: The Devil Is in the Vanishing Point(s)

Mireille Hildebrandt

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Mireille Hildebrandt[*]

Abstract

This Reply to Critics takes the vantage point of "affordances" to respond to the reviews of five noted scholars of law, philosophy and political science to *Smart Technologies and the End(s) of Law: Novel Entanglements of Law and Philosophy*. The reply interacts with the points made, by revisiting the dependencies between law and its technological embodiment, insisting that we cannot take for granted that the upcoming onli*f*e world of preemptive computing will "afford" a Rule of Law that safeguards the testability and contestability of subliminal decision-making, without, however, falling prey to economic, political, social or even technological determinism.

I. Introduction

Let's face it: (1) the difference between the onli*f*e and the "real" world is a matter of affordances (re Brownsword), (2) there is no overarching theory of affordances in my book; instead, the notion helps to summarize some of its inspirations and also explains why blueprints to solve the problems are not the focus of this book (re Calo), (3) rights as capabilities (on the side of human agents) indeed depend on rights as affordances (on the side of the data driven environment) (re Cohen), and (4) affordances often depend to a large extent on the default settings of an agent's environment (re Kerr), while (5) affordances also shape our capabilities to form resilient and if need be resistant publics (re Raab).

Smart Technologies and the End(s) of Law (*The End(s)*)[1] could be interpreted as an inverted pyramid resting on Gibson's insightful work on affordances, claiming and arguing for the importance of investigating and reconfiguring the affordances of our new algorithmic world. However, as I am a lawyer and a philosopher, *The End(s)* is informed by legal theory and philosophy of technology, rather than information science (which Calo believes to be my disciplinary background) or ecological psychology (the origin of the concept of affordances). I am not sure it would be wise to put all one's eggs in one basket,

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[1] Mireille Hildebrandt, Smart Technologies and the End(s) of Law (2015) [hereinafter The End(s)]; see also the reviews by Kyle McGee, On Legal Replicants, 56 Jurimetrics 305 (2016); Bernard Keenan, Book Review, 79 Mod. L. Rev. 733 (2016); Matthew Jewell, Book Review, 13 SCRIPTed 215 (2016); Bart van der Sloot, Book Review, 1 Eur. Data Protection L. Rev. 157 (2015).

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when it comes to investigating the sustainability of legal protection in the age of data driven anything. The argument in the book instigates from a loosely woven and thereby hopefully flexible and resistant theoretical framework, building on a philosophy of technology and law that takes *matter* as seriously as it minds the *mind*. It would therefore be more precise to say that the book forms the top of a pyramid, based on an "intellectual macramé" (Kerr, in this issue) that weaves together a resilient foundation for the argument that is presented. My preferred metaphor here would be a trampoline, as I believe that in the end "nothing is as practical as good theory."

As with a trampoline, good theory should act as a resilient springboard that is also a landing place, rather than acting as the result of handicraft that serves no other purpose than keeping us busy or decorating our inner mind with complicated intellectualisms. This also entails that good theory should not be a straitjacket, built on a single scheme that is conveniently applicable to anything and everything, as it pushes and massages whatever it encounters into the corset of the model it professes. Such modeling is risky,[2] as any model—being a reduction—will render part of reality illegible. That is not necessarily a drawback. On the contrary; it is what makes modeling productive. It does, however, entail that blind spots can only be detected by taking multiple perspectives.[3]

Any book—and the approach it stands for—has a vanishing point. The invisible place that determines its points of view, hiding as a utopian perspective: a *u-topos* or "view from nowhere."[4] A colleague of mine, a computer scientist, told me that the core concept of my book is "affordance," though he was not entirely sure what it meant.[5] As Calo rightly notes, *The End(s)* does not develop an overarching theory based on a single concept. Nevertheless, the concept is of prime importance and informs the central argument, even if it is not intended to stand on its own, and should rather help to sensitize the reader to a set of concepts that emphasize the dependencies between the information and communication infrastructures (ICIs) and human agency, which they *enable and constrain*. In more philosophical terms, the book investigates the emerging ICI that *co-constitutes* and *co-*

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[2] Even lawyers and philosophers can learn from some of the great minds in information science: Claudio Ciborra, Digital Technologies and the Duality of Risk (2004).

[3] This is what F. Scott Fitzgerald seems to say in his *On Booze* (2011): "[T]he test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function." Id. at 11.

[4] Thomas Nagel, The View from Nowhere (1986).

[5] The concept is not part of our common sense, but explained in *The End(s)* as "the types of behaviours that a specific environment makes possible for an organism. In this book: the types of behaviours that a specific socio-technical infrastructure (STI) 'affords,' i.e., makes possible or impossible for the agents that employ it." Hildebrandt, The End(s), supra note 1, at 260. Further explanation can be found throughout *The End(s)*. See, e.g., id. at 146 (relating the concept to Deleuze's "agencement"—usually translated as "assembly"—and Varela's "enaction") & 170-71 (discussing the difference between Gibson's original and Norman's derived usage of "affordance"). The concept is vernacular in design studies, based on Norman's focus on visible affordances. Computer science does not think in terms of affordances, and would actually fit better with James Gibson's original concept, as this emphasizes hidden as well as obvious affordances (especially relevant where computer science is focused on digital security, e.g., attacker models). See Donald A. Norman, Affordance, Conventions, and Design, 6(3) Interactions 38 (1999) & James J. Gibson, The Ecological Approach to Visual Perception (1986).

regulates[6] human self, mind and society.[7] It takes a post-cognitivist perspective, without necessarily being anti-cognitivist.[8]

Other core concepts that inform the book are those of "data driven agency," "digital unconscious" and "onli*f*e world." The latter refers to the increasing artificiality of the distinction between online and offline.[9] Speaking of an onli*f*e world emphasizes that techniques such as machine learning transform our life world (*Welt*) as their predictions and pre-emptions envelop us like an external "digital unconscious." Our new onli*f*e world confronts us with an abundance of mindless, data driven agents that feed on our behavioral data, resulting in a data driven environment that is always in the process of figuring us out, predicting or even pre-empting our next move. In that sense, our inorganic environment seems to incorporate new artificial life forms, turning our offline world *on*line as well as on*life*.

In effect, "data driven agency," "the onli*f*e world" and the "digital unconscious" make for three more vanishing points, providing alternative inroads into the argument of the book. A landscape with multiple vanishing points cannot exist in two-dimensional space (unless your name is Escher),[10] so the book indeed invites the reader to take multiple perspectives within a multidimensional space. I will frame this reply, however, with the concept of affordances, since the book basically inquires into what data driven agency affords human beings and human society, while exploring how law may sustain both its instrumentality and its protection in the face of an ICI with radically novel affordances.

II. Modern Law and the Rule of Law as an Affordance of Written and Printed Text

The core thesis of the book can be found in chapters 7 and 8 and can be explained as follows. The plasticity of our brains enabled the invention of human language, its expression and externalization in writing and reading.[11] This in turn afforded abstract thought,[12] further

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[6] About the—originally Kantian—distinction between constitution and regulation, further developed in the context of speech act theory by Austin and Searle and for law by MacCormick, see Mireille Hildebrandt, The Force of Law and the Force of Technology, in The Routledge International Handbook of Technology, Crime and Justice 597 (M.R.P. McGuire & Thomas J. Holt eds., 2017).

[7] Such a relational conception of human agency has been developed by American pragmatist Mead, see George Herbert Mead & Charles William Morris, Mind, Self, and Society from the Standpoint of a Social Behaviorist (1962), which had a major influence on sociologists such as Goffman, Parsons and Luhmann.

[8] See the exchange between Tim Parks and Riccardo Manzotti, The Ice Cream Problem, N.Y. Rev. Books, Jan. 26, 2017, http://www.nybooks.com/daily/2017/01/26/consciousness-the-ice-cream-problem/. On engaging cognitivist psychology see Mireille Hildebrandt, Autonomic and Autonomous "Thinking": Preconditions for Criminal Accountability, Law, Human Agency and Autonomic Computing 141 (Mireille Hildebrandt & Antoinette Rouvroy eds., 2011).

[9] Luciano Floridi, The Onlife Manifesto: Being Human in a Hyperconnected Era (2014).

[10] Notably in M.C. Escher's "Three Intersecting Planes." See Bruno Ernst (Hans de Rijk), M.C. Escher's Legacy: A Centennial Celebration ("Selection Is Distortion"), Impossible Worlds, http://impossible.info/english/articles/eschers-legacy-bruno-ernst-selection-is-distortion.html.

[11] Walter Ong, Orality and Literacy: The Technologizing of the Word (1982).

developing with the proliferation of the printing press and all the institutions built upon written and printed documentation, such as our educational system, public administration, economic markets and, last but not least, modern law.[13] In other words, law-as-we-know-it is an affordance of a specific ICI; it is neither entirely determined nor caused by this ICI, but the "force of positive law" depends on it. This "force of law" has some very specific characteristics, such as a division of labor between those who enact law and those who interpret and apply it, which has resulted in the complex system of checks and balances that informs the Rule of Law. The latter includes a series of individual rights that enable legal subjects *to speak law to power*, resisting attempts to impose a rule *by* law (*by man*). Modern law *is* thus an affordance of the printing press and the ensuing proliferation of text. In turn, modern law *has* specific affordances that may, however, depend on an ICI that can no longer be taken for granted as the prevalent architecture of human society. My concern sits with the fact that the affordances of modern law depend on the affordances of human language and the proliferation of text. There is no reason to assume (as most of the reviewers seem to do)[14] that these affordances will survive the transition to computational language and the proliferation of preemptive computing. To ensure that legal protection is sustainable we should therefore assess the novel ICI and reconfigure it in ways that afford such protection.[15] This calls for keen attention to the defaults of the ICIs that "run" the onli*f*e world (see Kerr in this issue). Simultaneously, we need to assess what tasks (now performed by lawyers) we can delegate to data driven agents, reconfiguring the division of tasks between legal norms and what Brownsword calls "technological management."[16]

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[12] Hildebrandt, The End(s), supra note 1, § 3.3.1. On the relationship between written language and abstract thought, see id. § 4.4. & James Gleick, The Information: A History, a Theory, a Flood ch. 2 (1st ed. 2010).

[13] In this sense institutionalization is a matter of reification, i.e., the fabrication of stable expectations as to how certain transhuman entities will behave (corporations, schools, governmental agencies). Many institutions are shaped, reinforced and maintained by the performative force of the law (legal effect is to a large extent based on what Austin and Searle describe in their speech act theory, on what Peirce explains in his semiotics and pragmatism, and on what Wittgenstein denotes language games, namely the performative dimension of the "life world" or "life forms" that envelop human interaction. See Peter Winch, The Idea of a Social Science (1958). It is pivotal to understand that the force of law does not reduce to logic, physical force or mechanical application, but —first and foremost—builds on the role of language (*langue*) and language usage (*parole*) in making out *what counts as* a marriage, a corporation, a school, or a criminal court. See also Paul Ricoeur, The Model of the Text: Meaningful Action Considered as a Text, 5 New Lit. Hist. 91 (1973).

[14] Brownsword cautiously assumes that some room will be left for the law; Calo does not explain whether law as an affordance of future ICIs will offer the kind of affordances modern law provides; Cohen professes that a "rule of law prime" will survive in the era of smart infrastructures (I agree it might, but depending on how we reset their defaults); Kerr believes we must either accept that smart technologies could undermine the essence of the rule of law or work to reset their defaults (I think we need to acknowledge the first to ascertain the urgency of the need to perform the second); Raab, however, pushes for an argument based on political theory as what might save us from sleepwalking into a brave new onli*f*e world.

[15] This argument is similar to Helen Nissenbaum's argument for a decision heuristic for contextual integrity; see Helen Fay Nissenbaum, Privacy in Context: Technology, Policy, and the Integrity of Social Life (2010); Michael Herrmann et al., Privacy in Location-Based Services: An Interdisciplinary Approach, 13 SCRIPTed 144 (2016). It also closely aligns with the legal obligation to implement a data protection impact assessment and—if necessary—data protection by design.

[16] Roger Brownsword, Technological Management and the Rule of Law, 8 Law, Innovation & Tech. 100 (2016).

III. Matters of Concern (re Brownsword)

Roger Brownsword has written extensively on the idea of code as law, providing a salient criticism of Lessig's suggestion that code and law are two—seemingly interchangeable— ways of regulating society.[17] Brownsword speaks of smart technologies and law as "regulatory rivals." One of his points has been that—other than code, market forces or social engineering—law provides us with the choice between *obedience to* and *violation of* legal norms that have been *explicitly articulated*. This choice feeds on and contributes to the development of moral agency, of "doing the right thing for the right reason" instead of merely being forced or nudged by a technical infrastructure. Brownword has proposed and argued for a triple bottom line that should underpin the social contract of any society of moral human agents, requiring that we only accept new technologies insofar as they preserve, protect and promote this triple bottom line: "(1) the essential conditions for human existence (given human biological needs), (2) the generic conditions for human self-development and agency, and (3) the essential conditions for the development and practice of moral agency" (Brownsword, in this issue). His concern is that an onli*f*e world that is built on preemptive computing could help us do the "right" thing without even bothering about the reason, thus reducing both our agency and our moral agency.

In his review Brownsword engages with great acuity with the narrative introduction of *The End(s),* iterating a series of pivotal questions: what if personal digital assistants perform better than humans? how does artificial agency affect human agency? can we take autonomy for granted? is autonomy a matter of choice and control? what about the right not to know? He raises these questions to highlight how and why smart technologies should be everyone's concern and why especially jurists are faced with the question of how to safeguard the core tenets of moral community and human dignity in the face of increasing "technological management." There are, however, three contentions that I would not entirely agree with. First, he suggests that "difficulties for agents who want to understand how they look through the eyes of fellow agents . . . is surely not the major cause for concern," second, he assumes that the core of the Rule of Law is formed by rules, and third, he opposes general utility and individual justice as if this is necessarily a zero-sum game. My emphasis on our double contingency (our mutual anticipation of how we are anticipated) is not a matter of vanity or reputation management. It regards another level of analysis, highlighting the relational nature of self-constitution, meaning that the self as a self-conscious subject is born in the process of anticipating what others seem to expect from us, as in "how others will read our actions and intentions."[18] This goes with an "expectancy theory of norms," including legal norms,[19] which implies that legal norms cannot be reduced to rules but must be seen in

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[17] Roger Brownsword, Rights, Regulation, and the Technological Revolution (2008); Lawrence Lessig, Code Version 2.0 (2006).

[18] Hildebrandt, The End(s), supra note 1, at 15, 53-54, 67, 93, 222-23, 261.

[19] J.F.G. Glastra van Loon, Rules and Commands, LXVII (268) Mind 1 (1958).

the context of an underlying web of principles and policies that inform the meaning and application of the rule.[20] This also means that doing justice in individual cases is always and also matter of general utility, being both more and less than an aggregate of slices of individual justice, as individual justice (in)forms the expectations and thereby the authority of the law. His reference to the English case of *CCN Systems Ltd v. Data Protection Registrar* demonstrates that courts indeed consider individual justice as something that cannot be overruled by a statistical argument that claims to provide a more cost-effective insurance. The opposition here is not public benefit versus individual justice, but the *distribution* of public benefit.

In the end, Brownsword frames the challenge of smart technologies by observing that "[t]he domain of legal rules is set to shrink," thus taking "stock of the changing complexion of the regulatory environment." This is indeed one of the crucial challenges we face; rather than rejecting "technological management" we should (1) acknowledge that it does not equate with law, but rather with public administration or corporate nudging and (2) acknowledge that the crucial question is about when this may be good thing and when it decapitates either democratic decision-making or human autonomy—or both.

IV. Overarching Theory and Policy Blueprints (re Calo)

Ryan Calo is one of the very few lawyers who has written about law in terms of affordances.[21] As a lawyer, I believe this is pivotal in times when (1) *law as an affordance* as well as (2) *the affordances of the law* are on the verge of radical change. For some reason Calo believes, however, that I would "bristle" at his seeing law as an affordance or as providing a set of affordances. He finds that "Hildebrandt does not go so far as to characterize law as an affordance" and worries that I could equate seeing law as an affordance (of what?) with instrumentalization. Throughout *The End(s)* I argue that lawyers should acknowledge that law is an affordance of the information and communication infrastructures (ICIs) of our societies; this is the central thesis of the book: "law is not technologically neutral and necessarily shares the affordances of its embodiment."[22]

Understanding modern law as an affordance of the ICI of writing and printing implies that I reject the view that law is *merely* an instrument of policy making or regulation (this would be instrumentalism).[23] I do argue, however, that law is an instrument to achieve the public good (law's purposiveness). My point is that it should *simultaneously* protect individual rights and freedoms; law's instrumentality should not be opposed to its protection.[24] Instrumentalism assumes a neutral conception of law, where law can be re-

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[20] Ronald Dworkin, Law's Empire (1991).

[21] Ryan Calo, Can Americans Resist Surveillance?, 83 U. Chi. L. Rev. 23 (2016).

[22] See Hildebrandt, The End(s), supra note 1, at 174; see also id. at xiii, 17, § 8.2.4 (building on § 3.3.1).

[23] See id. § 8.2.2.

[24] See id. § 8.2.4.

placed by other instruments if these turn out to be more effective or efficient. Instrumentality assumes a relational understanding of law, where law cannot be replaced by techno-regulation or nudging without changing the nature of the goals to be achieved.[25]

As described in chapters 7 and 8, modern law, as an affordance of a specific ICI, *in turn affords* subjective rights that offer legal protection against government intrusions or unfair treatment, based on a specific understanding of legality. Building on the work of Magnani and Bertolotti[26] one could frame modern law as a "cognitive niche" that, e.g., "affords" human beings privacy, freedom of expression, freedom of contract and the creation of economic markets (to name but a few of modern law's affordances). The question I try to raise in *The End(s)* is *whether the upcoming ICI of preemptive computing would afford a law with similar affordances*, or—instead—reduce law to public administration and private negotiation. Based on the legal protection offered by current—text-based—law, I propose and argue that we cannot take the future of law for granted in the upcoming era of computational regulation.

Three more points made by Calo invite a reply. First, Data Protection by Design (DPbD) and Legal Protection by Design (LPbD) are not close cousins, as he suggests. Rather, DPbD is an instance of LPbD. Other than Privacy by Design, which is a matter of policy or ethics, DPbD imposes a legal obligation that can generate private law liability or administrative fines under EU law. One can easily imagine other instances of LPbD, such as a legal obligation to prevent prohibited discrimination by design (by means of discrimination-aware datamining) or a legal obligation to ensure the presumption of innocence by design (by implementing specific defaults at the level of the ICT architecture for smart policing). The concept of LPbD was developed in counterpoint to the concept of techno-regulation, emphasizing a series of requirements, notably democratic legitimation, the possibility of disobedience or resistance, transparency and publicity of the legal norm that is imposed, and contestability in a court of law. These requirements are not necessarily part of techno-regulation or other "by design" solutions. DPbD is not a matter of policy advice; it has force of law within the EU (applicable from May 2018) and as an example of LPbD it deserves to be situated in the context of the central argument of the book. As clarified in chapter 10, it is not a panacea for the challenges posed by the onli*f*e world. Law is never a panacea; its role is to enable people and societies to develop resilience and a good life, not to impose the preferred road to the good life of the ruling majority. This is where democracy depends on the Rule of Law, as Dworkin has demonstrated, effectively requiring equal respect and

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[25] My rejection of instrumentalism involves a recognition of the instrumentality of law that fits with, e.g., Dewey's pragmatist understanding of language, which aligns well with the idea of affordances. Both highlight the mutual dependencies between organism and environment, highlighting that means and ends cannot be separated. Cf. John Dewey, The Logic of Judgments of Practice, in Essays in Experimental Logic 335 (1916). The difference between instrumentalism and instrumentality has been developed saliently by R. Foqué & A.C. 't Hart, Instrumentaliteit en rechtsbescherming (1990).

[26] Tommaso Bertolotti & Lorenzo Magnani, Theoretical Considerations on Cognitive Niche Construction, Synthese 1 (2016).

concern for each individual person.[27] Democracy is not equivalent with majority rule; it entails that majorities rule in a way that allows minorities to become majorities. The strength of EU DPbD is indeed that it provides an open norm that invites different ways of achieving compliance and different ways of respecting the fundamental right to data protection.

The second point concerns my reference to Odysseus and the Sirens. Tying oneself to the mast is, unlike Calo suggests, not the crux. The point is that ears had to be waxed, to prevent an executive order to untie the hero from being heard. In my argument, Odysseus is not the hero—I don't believe in Herculean superiority. The system of checks and balances is the "hero." We need an ICI that does not require heroic effort to safeguard equal respect and concern. Law is not ethics, but it should enable people, companies and government agencies to act ethically. For instance, rigorous pseudonymization, with keen attention to key management, is one way to make sure that Odysseus can hear the Sirens, without having a chance to be lured into data or pattern abuse. This is precisely what EU data protection law requires: state of the art protection, depending on the risks at stake. EU law should not and does not prohibit research on big data, it does require testable and contestable methodologies, whenever the fundamental right to data protection is at stake. It aims for legitimate data harvesting while preventing silly data hoarding.

Third point: seemingly spurious correlations do not necessarily hold the "key to unlocking enormous commercial, health and other value," as Calo claims; they may lead us astray.[28] Their costs—in terms of manipulability—are evident, but their benefits are not. We should stop assuming such benefit and start working on it. My argument is that this requires a methodological integrity that is often overlooked (by unreliable consultants and those who buy into their game; not by academic data scientists). My concomitant argument for purpose limitation is aligned with a goodbye to data pseudo-science. My point is not that we should overlook the "wondrous potential of advances in data science" that Calo hails, but rather that we should acknowledge the hard work required for effective and reliable data science, which includes iterant reflection on purpose, data cleansing, testing of different data sets, different algorithms and a profound awareness that building on spurious correlations can cause havoc to our critical infrastructures (whether in health, finance, energy or "fake" news). I am sure that Calo will not disagree here, as we share an interest in making data science work in a way that "affords" protection of fundamental legal protection.

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[27] Dworkin, supra note 20.

[28] James Kobielus, Big Data's Bogus Correlations, IBM Big Data & Analytics Hub, http://www.ibmbigdatahub.com/blog/big-datas-bogus-correlations. On the epistemology of big data research, e.g., John Symons & Ramón Alvarado, Can We Trust Big Data? Applying Philosophy of Science to Software, 3 Big Data & Society (2016).

V. "Bromides About the Primacy of
Social Shaping Will not Suffice"[29] (re Cohen)

Julie Cohen's review is written with an acuity that not only "gets the point" of *The End(s)* but also takes it from there, developing new inroads into the central argument, lining up with other attempts to deepen our understanding of effective human rights protection. She provides salient examples of how liberties, capabilities and affordances play out in achieving the substance of human rights, notably freedom of association. The examples underline how the rights discourse has operated on what she terms "a set of unstated and often unexamined assumptions about the built environment's properties" (both in terms of constraint and lack of constraint), demonstrating that we need to visit these assumptions, and encompass what she denotes as "the architectural" in our discourse on rights.

When discussing the capability approach to human rights, Cohen shows its added value compared to the liberty approach, noting that capabilities require checking whether individuals are in a position to make use of the opportunities on offer, which depends—amongst others—on the socio-economic infrastructure. I would argue, however, that this also depends on the socio-technical infrastructure. The affordances approach therefore adds insights by investigating to what extent a socio-technical-economic architecture has unfair distributive effects on liberties and capabilities. One could say that rights as liberties require keen attention to the actual capabilities of individual persons, which in turn depend on the affordances of their institutional, economic and technical environment (which can be distinguished analytically but do not lead separate "lives"). Capabilities and affordances are thus two sides of the same coin, because both are grounded in a relational understanding of the human person. They are, nevertheless, different sides, taking the perspective of the subject (capabilities) or the environment (affordances). Since there is no subject without an environment that co-determines its capabilities and no environment without an agent whose environment it is, taking rights seriously means taking seriously that law itself has specific affordances that constrain and/or enable human capabilities (which is Calo's main point). My point is that these affordances depend on the ICI that roots legal articulation.

Cohen foregrounds my argument for a "right to co-determine how we will be read," together with her own salient argument for a right to "semantic discontinuity," which can be achieved by Paul Ohm and Jonathan Frankle's "desirable inefficiency," or by what Luciano Floridi has called "ontological friction," by what Gloria Gonsalez Fuster coined a "right to inaccuracy," and what Finn Brunton and Helen Nissenbaum coined "obfuscation."[30] As should be clear, this is all about "not being read," rather than "co-

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[29] Cohen, in this issue.

[30] Hildebrandt, The End(s), supra note 1, at 102-03; Julie E. Cohen, Configuring the Networked Self: Law, Code, and the Play of Everyday Practice (2012); Gloria González Fuster, Inaccuracy as a Privacy-Enhancing Tool, 12 Ethics & Information Tech. 87 (2010); Luciano Floridi, The Ontological Interpretation of Informational Privacy, 7 Ethics & Information Tech. 185 (2005); Finn Brunton & Helen Nissenbaum, Obfuscation: A User's Guide for Privacy and Protest (2015). Ohm and Frankle's paper is referenced by Cohen in this issue; it is not yet publicly available.

determining how one is read." The latter is not obvious and will require us to reinvent ourselves through the reconfiguration of the technologies that shape us while we shape them. This relates to whether we will find ways to uphold the rule of law. Cohen and myself do not disagree on whether smart technologies *will* disable legality (neither of us are determinist), but on whether they *might* (which cannot be ruled out, precisely because we are not determinist). My take is that this requires more than a right "not to be read," necessitating ways and means to counter—and play with—the subliminal modulation of our environment.[31] Whether we will succeed here may depend on the extent to which we will proceed to effectively require private and public actors *to give reasons for their automated decisions*,[32] thus potentially disrupting their ability to base such decisions on opaque, untestable and uncontestable machine learning.

VI. The Tectonic Shift in the Nature of Shifting Defaults (re Kerr)

Only lawyers know that a double negation is not the same as an affirmation.[33] Logicians who believe in the law of the excluded middle will frown upon such frivolous duplication. Ian Kerr bets a golden fiddle that I would not disagree that the threats of smart technologies are "less of a reason *in favor* of understanding that modern law's default mode of existence is in jeopardy" than "an illustration of exactly why the Rule of Law provides a reason *against* permitting or precluding particular defaults . . . ." (emphasis in original). Kerr probably knows that whereas I may not disagree, I would not agree either. Unlike Kerr I believe that modern law's mode of existence, which is preconditional for the Rule of Law, is indeed under threat and will have to be reinvented to make sure that the default affordances of our ICIs do not undermine or simply preclude the institutional checks and balances that enable people to speak law to power.[34]

This is a tall order, but—I believe—entirely doable. It basically means that law makers should investigate whether and when enacting written legal code suffices when they are "making law," and when law making requires the institution of specific computer architectures with particular defaults in order to ensure that the force of law is not frustrated, mechanized or dissipated. Such defaults can be built into the hardware, the firmware and the software of computing systems, providing various levels of interaction with such defaults. In the hardware the defaults are hidden from ordinary human vision and will in point of fact be mandatory. In the firmware they may be more or less hidden

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[31] Cf. Cohen, supra note 30.

[32] E.g., Bryce Goodman & Seth Flaxman, European Union Regulations on Algorithmic Decision-Making and a "Right to Explanation," arXiv:1606.08813 [Cs, Stat] (2016), http://arxiv.org/abs/1606.08813. Mireille Hildebrandt, The Dawn of a Critical Transparency Right for the Profiling Era, Digital Enlightenment Yearbook 2012, at 41 (2012).

[33] This is an overstatement; Simon Stern kindly referred me to a similar capability in linguists: Laurence R. Horn, A Natural History of Negation (1989), which confirms that law is text, after all.

[34] Jeremy Waldron, The Rule of International Law, 30 Harv. J.L. & Pub. Pol'y 15, 27 & n.28 (2006) (citing Richard B. Bilder & Detlev F. Vagts, Speaking Law to Power: Lawyers and Torture, 98 Am. J. Int'l L. 689 (2004)).

and hard to tinker with. In the software default settings may open the floor for reconfiguration and individual intervention, if the default configuration protects against unwarranted intrusion or power imbalances. In short, I believe that Kerr's emphasis on the primacy of defaults is pivotal and one of the crucial challenges here will indeed be to fabricate defaults that allow us to detect "how we are being read" by data driven decision (support) systems.

Holmes professed that "the life of the law is not logic, but experience,"[35] and therefore smart technologies could be both a threat and a treat for the law. These technologies are based on machine learning (ML), which has been defined as "improving task T, in terms of performance measure P, based on experience E."[36] ML is not just a matter of programming (logic), it is a matter of learning, of experience. There we have an affinity between ML and the law. Kerr has written a salient chapter[37] on Holmes's definition of law as "the prophecy of what the courts will decide,"[38] arguing that whereas Holmes presented law as a prediction machine for those subject to the law, the upcoming architecture of prediction machines does not inform individual persons but first and foremost informs commercial enterprise and government agencies. In that sense, preemptive computing systems invert the logic of the law, which is meant to provide an effective understanding of how one's actions will be interpreted under the rule of law, enabling one to foresee the consequences of such actions, making it possible to plan and have a life.

The onli*f*e world may—instead—foster an environment capable of predicting the behaviors of those subject to law, enabling their environment to foresee the consequences of specific interventions, making it possible to preempt such behavior—without such subjects having a clue as to how they may be manipulated. Whether it will come to that, how far this will erode human agency and to what extent this will be the end of law as we know it, is unclear yet. The jury is still out on this one. In that sense, I do not disagree with Kerr that law could reconfigure the force of law by requiring specific technical and organizational defaults, thus preserving and reinventing the checks and balances of the rule of law. But I disagree that we can rule out failure to achieve this. It will be a matter of hard work and close collaboration between lawyers and those who design, engineer, develop and engineer our new, onli*f*e world. I bet a golden fiddle that Kerr does not disagree.

VII. All Is Politics, but Politics Is Not All (re Raab)

In his magnificent tour de force, Charles Raab highlights the stamina I seem to expect from those visiting my book (note that books are supposedly read, whereas websites are visited). The visiting reader is challenged by twists and turns, vistas and vertigo, while en-

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[35] Oliver Wendell Holmes, The Path of the Law, 110 Harv. L. Rev. 991 (1997).

[36] Thomas Mitchell, Machine Learning (1997).

[37] Ian Kerr, Prediction, Preemption, Presumption: The Path of Law After the Computational Turn, in Privacy, Due Process and the Computational Turn: The Philosophy of Law Meets the Philosophy of Technology 91 (Mireille Hildebrandt & Katja de Vries eds., 2013).

[38] Holmes, supra note 35.

couraged to traverse cultural and disciplinary universes, multiple scales and levels of abstraction that overlap and interact with each other. Raab calls for more concrete approaches to solve the problems described, or more concrete depictions of the solutions presented. He is particularly interested in the institutional issues, the division of tasks and roles where it comes to legal protection by design. He raises a number of pivotal questions as to whether "by design" can do the job, how this should be envisaged, by whom, based on what negotiations and power play. In other work, I have commented on this in terms of whether we can be "saved by design,"[39] highlighting that legal protection by design is driven by a very specific concern. Not merely by that of legal certainty but also by the interaction between legal certainty and less flexible attempts to impose certainty, while foregrounding that law aims for more than stable expectations. Law must also target justice as fairness and must be instrumental in achieving democratically legitimated policy objectives that may be incompatible in specific instances with either legal certainty or fairness. The concern of the law is how to compatibilize legal certainty, justice and purposiveness, and—if incompatible in specific situations—how to provide countervailing measures to compensate trade-offs. Raab may wish for more concrete recipes or handles to come to terms with such arduous tasks. He is right, but that would be the stuff of another type of book, notably a book that analyzes the interaction between case law and technical defaults, matching legal conditions with technical requirements. Though there is some of this in chapters 9 and 10, my first concern here is theoretical—trying to develop the trampoline mentioned above, hoping others will employ it to flex their muscles in the context of the onli*f*e world. Theory, here, is not merely modeling or mapping—it is a matter of structured and iterant reflection,[40] of developing a "reflective equilibrium" as advocated by John Rawls.[41] Theory in that sense is a practice, an exercise, and a learning process.

Raab finds that the book is unfinished. Its solutions require work and I cannot but wholeheartedly agree. Law and the Rule of Law require hard work, they depend on professional lawyers to prepare legislation, to file, prosecute and decide cases. This is an everyday affair and any lawyer knows that it requires knowledge of the law, experience in its application and an open mind to the vicissitudes of the case brought before them. Law does not speak for itself, it needs humans to weave together the legal framework that protects them and—being rule-bound as well as principled—serves as a springboard for long-term planning. My point is that the onli*f*e world demands new collaborations between lawyers and the architects of the onli*f*e and new sensitivities to the affordances of the information and communication infrastructure that determines the operational backbone of our onli*f*e world.

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[39] Mireille Hildebrandt, Saved by Design? The Case of Legal Protection by Design, in NanoEthics: Studies of New and Emerging Technologies (forthcoming 2017).

[40] Hildebrandt, The End(s), supra note 1, § 2.3.3.

[41] John Rawls*,* A Theory of Justice (rev. ed. 1999).

Raab claims, also, that the book lacks awareness of the politics that is involved or that it refuses to address the political questions raised by and in the onli*f*e environment. I don't think that is a fair criticism, though I agree that this must be further researched. It needs another book to be written in the realm of another domain, notably political science and political theory (which is not my expertise). I am looking forward to Raab's further work here. However, it should be clear from chapters 7 and 8, tackling the entanglements of law and technology, taking a position on the law as the backbone of a fair and open society, that the *The End(s)* has an implied philosophy concerning "the political." One can see the political as a separate realm and politics as a dirty game played by cynical men. Instead, the idea of the Rule of Law refers to a political order that is constraint in such a way that dirty play is ruled out or mitigated as dirty players are called to account; a political order where one power is counterbalanced by another, making sure that we are not ruled by men but by a law that can be transformed by those subject to its rule. Rule *of* law is not rule *by* law by men; it is also not rule *by* law by machines.