

A NEW HERMENEUTICS FOR COMPUTATIONAL LAW

**Mireille Hildebrandt, FBA
PI COHUBICOL ERC ADG project**



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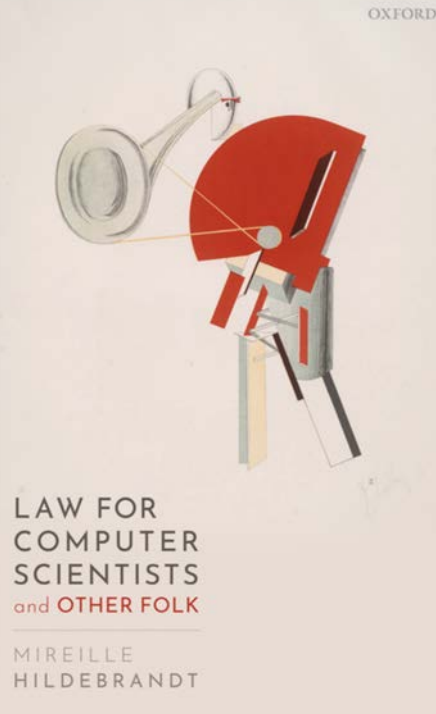
Smart Environments, Data Protection, and the Rule of Law
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Smart Technologies and the End(s) of Law



Mireille Hildebrandt



LAW FOR
COMPUTER
SCIENTISTS
and OTHER FOLK

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HILDEBRANDT



Research Interests:

- The implications of
 - automated decisions, ML and mindless artificial agency
 - for law and the rule of law in constitutional democracies

Significant Contributions:

- Author of 5 scientific monographs, 23 edited volumes or special issues, and over 120 scientific chapters and articles

Major Projects and Editorship:

- ERC Advanced Grant for 'Counting as a Human Being in the era of Computational Law' (COHUBICOL: 2019-2024)
- Co-founder and co-editor of the Journal of Cross-Disciplinary Research in Computational Law (CRCL)

Awards and Honors:

- Elected as a Fellow of the British Academy (FBA) in 2022

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TRANSACTIONS A

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Research

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One contribution of 13 to a discussion meeting
issue 'The growing ubiquity of algorithms in
society: implications, impacts and
innovations'.

Subject Areas:
cybernetics

Keywords:
written law, code-driven regulation,
data-driven regulation, machine learning,
cybernetics

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THE ROYAL SOCIETY
PUBLISHING

Algorithmic regulation and the rule of law

Mireille Hildebrandt*

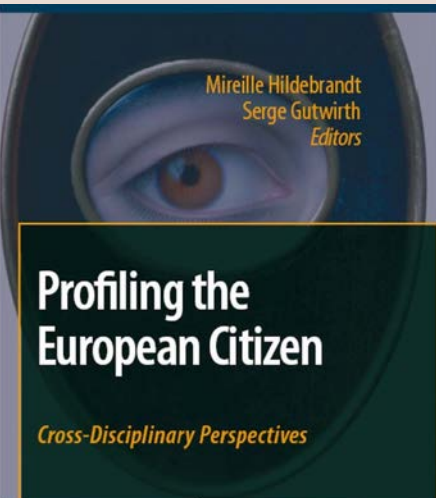
Metajuridica, Faculty of Law and Criminology, Vrije Universiteit
Brussel, Pleinlaan 2, 1050 Etene, Brussels, Belgium
MHL.0000-0003-4558-9949

In this brief contribution, I distinguish between
code-driven and data-driven regulation as novel
instantiations of legal regulation. Before moving
deeper into data-driven regulation, I explain the
difference between law and regulation, and the
relevance of such a difference for the rule of
law. I discuss artificial legal intelligence (ALI) as
a means to enable quantified legal prediction and
argumentation mining which are both based on
machine learning. This raises the question of whether
the implementation of such technologies should
count as law or as regulation, and what this means
for their further development. Finally, I propose
the concept of 'agonistic machine learning' as a
means to bring data-driven regulation under the
rule of law. This entails obligating developers, lawyers
and those subject to the decisions of ALI to re-
introduce adversarial interrogation at the level of its
computational architecture.

This article is part of a discussion meeting issue
'The growing ubiquity of algorithms in society:
implications, impacts and innovations'.

1. Regulation by algorithm?

Computational systems increasingly 'infuse' govern-
mental legislation, administration and adjudication. For
instance, legislation may at some point be written in
a way that is conducive to algorithmic application,
administration may be automated, notably administrative
decisions, and courts may employ artificial legal
intelligence (ALI) to support judgment. This brief essay
enquires what this means for the rule of law, raising
a number of questions, such as: Are we confronting a
conflict of legislation and administration, insofar as
legislation becomes self-executing? Could legal judgment
at some point be conflated with its prediction? Will



Mireille Hildebrandt
Serge Gutwirth
Editors

Profiling the European Citizen

Cross-Disciplinary Perspectives

Springer

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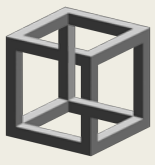
COHUBICOL

Counting as a Human Being in the Era of Computational Law

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However, not everything that can be counted counts, and not everything that counts can be counted
– William Cameron, *Informal Sociology* (1963)**



some hyperlinks for project outputs

www.cohubicol.com

www.journalcrcl.org

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<https://publications.cohubicol.com/vocabularies/cs/>

<https://publications.cohubicol.com/assets/uploads/cohubicol-research-study-on-text-driven-law-final.pdf>

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About the Journal

The *Journal of Cross-disciplinary Research in Computational Law (CRCL)* invites excellence in law, computer science and other relevant disciplines with a focus on two types of 'legal technologies': (1) **data-driven** (e.g. predictive analytics, 'intelligent' search) and (2) **code-driven** (e.g. smart contracts, algorithmic decision-making (ADM), legal expert systems), and (3) their hybrids (e.g. **code-driven decision-making based on data-driven research**).

Legal practice is where computational law will be resisted, used or even fostered. CRCL wishes to raise questions as to (1) when the introduction of legal technologies should be resisted and on what grounds, (2) how and under what conditions they can be integrated into the practice of law and legal research and (3) how their integration may inform, erode or enhance legal protection and the rule of law.

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CRCL23: Computational 'law' on edge

Photo by Evan Provan

CROSS-DISCIPLINARY RESEARCH IN
COMPUTATIONAL LAW

COMPUTATIONAL 'LAW' ON EDGE


The 2nd international conference organised by [COHUBICOL](#) in collaboration with [CRCL](#)

General Co-Chairs:

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[Laurence Diver](#)

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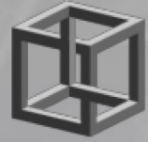


COHUBICOL

Research Study on Text-Driven Law

Laurence Diver, Tatiana Duarte, Gianmarco Gori,
Emilie van den Hoven and Mireille Hildebrandt

September 2023



COHUBICOL

Research Study on Computational Law

Pauline McBride and Laurence Diver

[DRAFT]

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RESEARCH STUDIES

TYPOLOGY OF LEGAL TECH

The Typology

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Typology of Legal Technologies

A Method – A Mindset

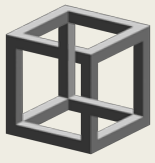
The Typology is a curated set of legal technologies (applications, scientific papers, and datasets) that we handpicked to demonstrate the potential impact on *legal effect* of different types of 'legal tech'. To understand how and why we created this, see the [FAQs & methodology](#) page.

- **Use the filters below** to find legal techs you are interested in. Click a system to view its full profile.
- **Compare systems** by clicking  on one or more systems (view the comparison at the bottom of this page).

SHOWING 30 TECHS

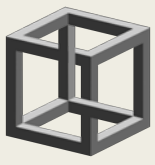
[RESET FILTERS](#)

END-USERS	FUNCTIONALITY	CODE/DATA-DRIVEN	TYPE OF SYSTEM	
Any	Any	Either	<input checked="" type="radio"/> Any	<input type="radio"/> App <input type="radio"/> Dataset <input type="radio"/> Paper
Akoma Ntoso	Automatic Catchphrase Identification from Legal Court Case Documents (Mandal et al. 2017)	Blawx		
Legislation Search	Litigation Search	Legislation		
Casetext	Catala	Chinese AI and Law dataset (CAIL2018)		
Litigation Search	ADM Legislation	Litigation		
Contract Understanding Atticus Dataset (CUAD)	DataLex	Della		



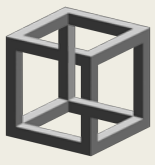
What's next?

1. Modern positive law-as-we-know it
2. Positive law and positivism
3. The Rule of Law, legality and legalism
4. Continuities between legal positivisms and computational law
5. A new hermeneutical approach for data- and code-driven law



1. Modern Positive Law as-we-know-it

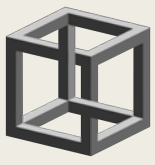
- Like the fish in the water
- We don't realise the text-based nature of MPL
- Technology matters:
 - From oral societies where language is ephemeral (speech)
 - Mnemonic techniques and technologies
 - Face-to-face interaction
 - To societies of the handwritten script
 - Limited amount of copies
 - Major role for the class of scribes
 - Rulers and ruled did not read and write



1. Modern Positive Law as-we-know-it

- Like the fish in the water
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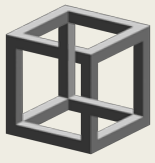
- Technology matters:
 - From societies of the hand-written script
 - To those of the printing press
 - Proliferation of identical copies
 - Distantiation in space and time (extending the reach of law)
 - Distantiation between author and reader (legislator and subject)
 - Distantiation between text and meaning (autonomy of the law)
 - From rule by law to rule of law
 - Coke and Montesquieu on the complexity of law
 - Distantiation between legislature, administration and judiciary



1. Modern Positive Law as-we-know-it

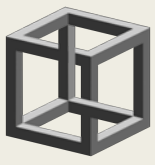
- Like the fish in the water
- We don't realise the text-based nature of MPL

- Technology matters:
 - Law as text
 - Interpretation becomes the hallmark of law
 - Argumentation and contestation become key
 - Stabilisation of meaning (closure)
 - Legal certainty
 - legality



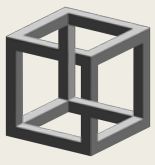
2. Positive Law and Positivism

- Positive law is defined by its 'legal effect'
 - Neither logic nor causality define legal effect
 - Legal effect is the performative effect of a specific type of speech act
 - Legal effect provides legal certainty
 - Supported by
 - the monopoly of violence
 - institutionalisation of countervailing powers



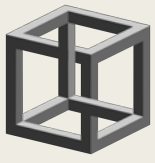
2. Positive Law and Positivism

- The positivity of modern law is one dimension of what makes law law
- The others are justice and instrumentality
- Justice:
 - distributive (equal cases treated equally, geometric perspective)
 - corrective justice (balance between parties, arithmetic perspective)
 - justice not to be confused with moralism
- Instrumentality
 - law is an instrument to achieve myriad goals
 - not to be confused with instrumentalism



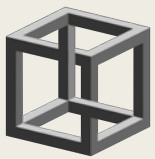
2. Positive Law and Positivism

- Positivism mistakes law's positiveness for its true and defining nature
 - ignoring the equally important role of justice and instrumentality
- Formal positivism turns legal effect into a matter of logic
- Sociological positivism turns legal effect into a matter of statistical regularity
- Computational law fits very well with legal positivism:
 - Formal positivism: logic-based expert systems
 - Sociological positivism: predictive AI and machine learning



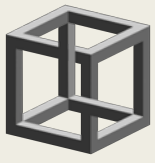
3. Rule of Law, Legality and Legalism

- Rule of law:
 - A legal order where
 - neither the administration nor the legislature
 - have the last word on the meaning of law
 - the decision on the meaning of law is a legal power of an independent judiciary
 - The meaning of law decides legal effect
 - To understand law requires a pragmatist understanding of meaning



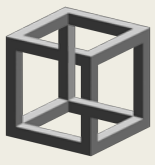
3. Rule of Law, Legality and Legalism

- Legality
 - Concerns the limitation of the decision space of the administration
 - That can only act
 - if the power to act is attributed by the Constitution or a Parliamentary Act
 - in accordance with the fundamental principles of law
- The state cannot act, unless the power to do so is attributed by positive law
 - In the general interest
- Citizens can act as they wish, unless prohibited by positive law
 - In their private interest



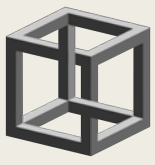
3. Rule of Law, Legality and Legalism

- Legalism
 - Rulism
 - Formalism
 - Closely connected with formal positivism
 - And the formal conception of the *Rechtsstaat*
 - Conducive to ‘computational legalism’ (Diver)



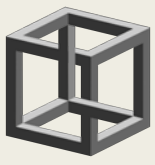
4. Continuities between legal positivisms and computational law

- **Formality in law** and computational formalism
 - **Legal formalism** (Kelsen) closely aligns with logic, abstracting from content
 - Legal formalism ‘thinks’ in terms of validity, based on a ‘pure’ logical deduction
 - Formality in law, however, concerns necessary ‘forms’ that decide legal effect
 - Formality aims to protect specific interests against negotiations
 - **Computational formalism** aims to rule out ambiguities and interpretation
 - Computational formalism aims to pre-empt contestation by getting it right right away



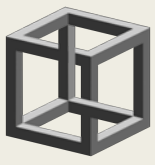
4. Continuities between legal positivisms and computational law

- **Instrumentality** in law and computational instrumentalism
 - **legal instrumentalism** turns law into a mere instrument to achieve policy goals
 - it goes well with legal formalism (once the formal conditions are met, anything goes)
 - legal **instrumentality** means that law serves a wide range of public interests
 - **computational instrumentalism** reduces law
 - to an instrument of **efficiency and effectiveness**
 - making law exchangeable with other policy tools
 - e.g. nudging people behind their back



4. Continuities between legal positivisms and computational law

- Judgement in law and computational decision-making
 - **Legal reasoning may be seen as**
 - an exercise of logic (as in legal formalism)
 - a matter of probability (as in naïve legal realism)
 - Legal judgment requires interpretation and assumes argumentation & contestation
 - **Computational decision-making** cannot but decide based on
 - Formalisation entailing disambiguation
 - Predictive machine learning assuming naïve behaviourism



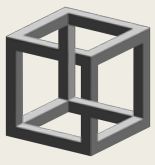
5. A new hermeneutical approach for data- and code-driven law

1. Interpretation theory (legal hermeneutics)

- the hallmark of modern positive law is interpretation
- which implies contestability, requiring both argumentation and closure

2. Speech act theory (legal effect as performative effect)

- performative effect cannot be reduced to logic or causality
- the nature of written speech acts transformed what 'things we can do with words'



5. A new hermeneutical approach for data- and code-driven law

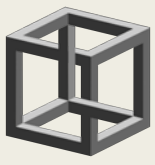
Analytical distinction between data- and code-driven law:

Code-driven:

We define code-driven systems as all those systems that **do not learn based on training data** (for instance legal expert systems, rules as code) and we group dedicated programming languages under code-driven, though they are not systems.

Data-driven:

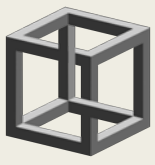
We define data-driven systems as all those systems **that learn based on training data** (whether supervised, unsupervised or reinforcement learning), we include training datasets under 'data-driven', though they are not systems.



5. A new hermeneutical approach for data- and code-driven law

Code-driven:

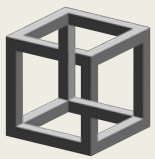
- Types of systems:
 - Logic-based systems
 - Knowledge-based systems
 - Domain-specific programming languages
- Types of deployment:
 - Rules as Code,
 - Automated Decision Making
- Aiming to develop:
 - digital ready legislation (search, interoperability)
 - executable code (decision support, automation, detecting ambiguity)



5. A new hermeneutical approach for data- and code-driven law

Data-driven:

- Types of systems:
 - Clustering, classification
 - Natural language processing
 - Generative AI
- Types of deployment:
 - Legal search
 - Prediction of judgment
 - Drafting of legal documents
- Aiming to develop:
 - Legal search platforms such as Westlaw and Lexus-Nexus
 - Decision support for law firms, judiciary, lay persons

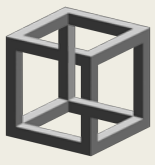


5. A new hermeneutical approach for data- and code-driven law

To interpret and deploy the output of code- and data-driven systems (and their hybrids):

- We need to ask two types of questions:
 1. Concerning the problem a specific system aims to solve
 2. Concerning the reliability of the system at stake

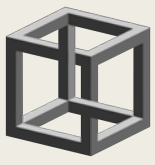
- 1. what functionality is claimed on behalf of a system?
- 2. how is and/or can this functionality be substantiated?



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To interpret and deploy the output of code- and data-driven systems (and their hybrids):

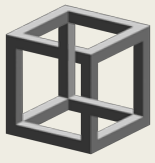
- Concerning the problem a specific system aims to solve, we must ask:
 1. What problem(s) the system can actually solve
 2. What problem(s) it does not solve
 3. What additional problem(s) it creates



5. A new hermeneutical approach for data- and code-driven law

To interpret and deploy the output of code- and data-driven systems (and their hybrids):

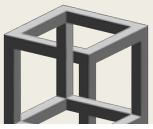
- Concerning the reliability of the system at stake, we should ask:
 1. what functionality is claimed on behalf of a system?
 2. how is and/or can this functionality be substantiated?



5. A new hermeneutical approach for data- and code-driven law

To answer these questions:

- We need to understand the underlying assumptions and their implications:
 1. What matters is not computable
 2. But it can always be made computable
 3. Though always in different ways, and that difference matters



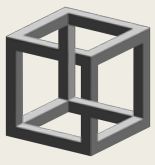
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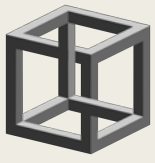
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5. A new hermeneutical approach for data- and code-driven law

These three points refer to the difference between *counting as* & *counting of* in the sense of

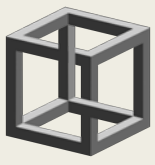
- qualifying as (speech act theory and/or proxification inherent in AI systems)
- mattering (the fundamental question of who and what matters for whom)
- calculating (which raises the issue of proxies and ground truth)



5. A new hermeneutical approach for data- and code-driven law

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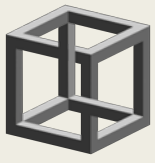
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m.e.menair

Q & A Session



Thank You

