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What Will Robot Laws Look Like? The Code of AI and Human Laws

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Abstract. The author aims to present in the course of this study the possible future interactions between laws and the behaviour of artificial intelligence. Firstly, the theory of code is presented as well as the debate regarding the aptitude of laws to represent a means for the control of machine behaviour either directly or, as is more likely, when embedded in code. Secondly, the author analyses the consequences of the emergence of 'robot law', the ways in which a mixed, two-, or possibly three-tiered normative system is arising. In such a system, human-readable law and robot law are likely to diverge and even possess different characteristics such as an added degree of instability in the case of robot law. The author analyses the difficulties posed by transitioning between these systems and those of endowing machines with behavioural concepts such as ethics and unbiased action, problems compounded by the inherent opaqueness of the processes which underpin artificial intelligence. Finally, the author raises the possibility that codes designed to regulate human–machine interrelationships in and of themselves may constitute the beginning of a new, supranational legal system, with the platforms employing such codes transformed into quasi-sovereign entities.

Keywords: artificial intelligence, normative regulation of behaviour, laws governing artificial intelligence, laws and machine learning, opaqueness of artificial intelligence decision making

1. Introduction

Since Asimov's three laws of robotics,[1] we have taken for granted that robots (and artificial intelligence) should *somehow* be regulated. It is also a commonplace that this regulation should look something like Asimov's laws, at least in one respect – namely, that they should impose a 'duty' on the robots (or on their developers?) *to do no harm* to human beings or, in other words, to comply

1 Asimov 1991. 37.

with the same laws people should follow. Most of the ethical guidelines that have been collected on a dedicated website[2] ultimately have this characteristic feature although some of them express it in a very detailed and sophisticated way.

The interrelationship between law and AI (robots),[3] however, is a lot more complicated than these ethical standards might suggest. First, it is quite obvious that robots are not governed by legal rules. They are controlled by algorithms, and algorithms are not expressed in (or rather embedded in) natural language as laws are; they are *codes*, collections of zeros and ones, often intertwined with some form of hardware. In other words, the 'transporting agent' of a code – unlike a law – is *not* the language itself. This raises serious questions about the extent to which humans can predict and understand them. A further and even more serious challenge is the *translation* of laws and ethical standards (values and other aspects) into codes and vice versa. And even if we properly translate laws to algorithms, we must still keep our natural language-based laws because we need them. This will surely lead to a double normative system. Within a short period of time, a further issue will also arise because, unlike laws, algorithms do not have to be fixed entities as robots are not confused by rules in constant flux the way people are: for them, stability and foreseeability are not indispensable, so it makes no sense to limit their capacity with rigid rules. We must let them adapt to changing circumstances – so long as they stick to certain high-level standards. Finally, the codes – a great part of them AI code – which are and will be running within the large-scale platforms and other services that are and will be central to our everyday life are opaque to us either because they are proprietary or because they are too complicated for a comprehensible explanation. Sometimes even their programmers do not see clearly how they function in individual cases – as in the case of neural networks – because they self-train themselves and constantly change. The opaqueness of the code limits human influence over them: and this is also problematic for nation-states. Although governments attempt to regulate platforms, and the platforms obey them, ultimately governments are not able to control the codes themselves.

In short: codes – the laws of robots and AI – show greater differences than similarities to our language-based laws. This paper attempts to present some of the problems which follow from this. The structure of the paper is as follows: in part I, I will recapitulate the theory of code – mainly following the arguments of the debate that has been going on since the middle of the 90s. In part I, I will also demonstrate how algorithms and laws differ. Part II deals with some of the consequences of the emergence of algorithms as a special means of behavioural control: their non-linguistic character, the consequences of the two parallel

2 AlgorithmWatch 2019.

3 In this Article, I will use 'robots', 'AI', and 'agents' synonymously.

normative systems (algorithms and laws), the problem of dynamic (self-training) rules versus predictability, the difficulty of coding value choices, and the global and secret nature of platforms' codes versus local, state-issued laws.

2. The Debate around Code as a Means of Behavioural Control

Soon after the emergence of the Internet ('cyberspace', as it was then called), Johnson and Post[4] raised the point that it 'requires a system of rules quite distinct from the laws that regulate physical, geographically defined territories'.[5] Already at the end of the 90s, Reidenberg[6] argued that in cyberspace rules are embedded into systems and technology.

> [F]or network environments and the Information Society, however, law and government regulation are not the only source of rulemaking. Technological capabilities and system design choices impose rules on participants. The creation and implementation of information policy are embedded in network designs and standards as well as in system configurations.

This became the leitmotif in Lawrence Lessig's seminal book, first published in 1999,[7] and also in the second edition of 2006.[8] Lessig differentiates four types of regulation – or four types of constraints to human behaviour: laws, norms, markets, and architecture. Laws are well-known to us. What Lessig calls 'norms' are mainly customs – widely accepted ways of (or beliefs about) behaviour. Markets regulate behaviour via supply, demand, and prices (the costs of resources). The fourth control is architecture: the design of the outer physical world.

> We can call each constraint a 'regulator', and we can think of each as a distinct modality of regulation. Each modality has a complex nature, and the interaction among these four is also hard to describe. (…) The code or software or architecture or protocols set these features, which are selected by code writers. They constrain some behavior by making other behavior possible or impossible. The code embeds certain values or makes certain values impossible. In this sense, it too is regulation, just as the architectures of real-space codes are regulations.[9]

4 Johnson–Post 1996.
5 Johnson–Post 1996. 1367.
6 Reidenberg 1997–1998. 554.
7 Lessig 1999.
8 Lessig 2006.
9 Lessig 2006. 124–125.

These regulators are quite different in many respects, but one of the most spectacular differences between them is their 'transporting agent'. Laws are encapsulated – i.e. they are formulated – in a sometimes difficult but still intelligible human language. Customs are typically embedded into human behaviour, but sometimes this widely accepted behaviour can also be underpinned by written rules, as is the case with diplomatic etiquette. The market as a regulator lies somewhere in between: supply and demand as expressed in the form of prices are mainly the result of an 'invisible hand', but they can be subject to rules expressed in a written form, for example, in the way 'fair commercial practices' are enforced and unfair practices are prevented by the competition authorities. Finally, architecture – like a fence, a wall, a speed bump, or an anti-theft tag – is part of the physical world. We can see here (paraphrasing Austin)[10] that while in law things are done with words, in the case of norms (customs) they are done with human actions, and in the case of codes we do things with 'things': we form the physical world in such a way that we shepherd humans in certain directions.

What makes this relevant to us, again, is that in cyberspace architecture is the code. It is not self-evident that code (the algorithm, or software) is a 'thing' or is part of the physical world. But amongst computer scientists it has long been a truism that:

> (H)ardware and software are logically equivalent. Any operation performed by software can also be built directly into the hardware, preferably after it is sufficiently well understood. As Karen Panetta Lentz put it: 'Hardware is just petrified software.' Of course, the reverse is also true: any instruction executed by the hardware can also be simulated in software.[11]

In short: the only way of controlling AI and robots is through the code. Robots cannot be controlled by laws, customs, or by market constraints. (Even trade robots, which seem to react to prices and other market variables, are ultimately controlled by codes and not directly by the prices on the stock exchange.)[12]

Controlling human behaviour with codes has many unique features. Code is not 'normative' in the classical sense, as neo-Kantian legal philosophy perceives normativity, because it is simultaneously a normative structure and therefore part of the intelligible world, and at the same time it has a physical manifestation. Code is a pre-fixed causal relationship. It is part of nature because it can be a number of switches and gates in the physical world, but it is also a self-training – or self-

10 Austin 1962.

11 Tannenbaum 2006. 8.

12 The phenomenon is regulated in the MiFID 2 Directive (Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU), which rules that high-frequency algorithmic trading systems should comply with the legal requirements of MiFID 2.

adaptive – algorithm (as are many AI-s), which can make surprising decisions and can produce end results that seem non-deterministic. It acts in an unforeseeable way (and also freely?). So, the difference between *is* and *ought to be* disappears in the case of code.

Since code has no linguistic manifestation – it is a virtual architecture –, its translation to human language is non-trivial. In most cases, our everyday narratives cannot be converted to code, and vice versa. Just try to explain in simple language how the Google ranking algorithm works (besides the simple fact that it puts the 'more relevant' items on top). How can the functioning of such a complicated code – written by hundreds of programmers over several decades and improved by billions of searches every day – be explained in human language?

3. Consequences of the Emergence of Robot Law

These characteristics of code have some serious impacts on the future concept and functioning of law, the future of legislation, the judicial interpretation of law, and the way ordinary citizens comply with legal rules. I will demonstrate these impacts on five fields.

3.1. A Mixed Normative System

The first and most spectacular result of the emergence of behavioural control through code is that, while in certain fields where machines entirely take over tasks performed by humans and law will disappear, in certain fields where machines and people 'live together', there will be a double – or even triple – legal system.

Machines are not limited to taking only 5–6 circumstances into consideration when they make decisions, as we humans are, and they can use, process, weigh up, and rely on hundreds or even thousands of parameters, each representing a particular circumstance in a real-life situation. Therefore, the temptation is huge to 'make laws more automation-friendly by specifying them differently and in more detail'.[13] In certain fields, lawmakers will be unable to resist this temptation, and they will create legal rules in such a way that they can be easily implemented through machine codes.

Another interesting consequence could be what McGinnick and Wasick have pointed out: the emergence of a new type of norm we might call 'dynamic rules'. 'Dynamic rules (…) set law's algorithm in silicon, permitting changes in law to occur only in response to previously specified information'.[14] Dynamic rules adapt to circumstances and change automatically in response to changes in external

13 Froomkin 2016. xix.

14 O'McGinnis–Wasick 2014. 997.

information. They 'change (…) by the application of prescribed formulas to new facts as those facts become available.'[15] The authors contend, following Kaplow's thesis,[16] that 'rules are generally more expensive to create, but then generally have lower enforcement costs'. Dynamic rules in this context are the 'standards' created for machines because they have the characteristic advantages of standards (flexibility and cost-effectiveness) without the drawbacks. Even though the authors draw radically different conclusions from the emergence of these new types of rules than I do (namely that a new 'supercharged' legal research system is needed which allows citizens to access legal information more directly), they are right that the phenomenon of self-adapting rules will become a reality in a few years. And to be even more utopian, just try to imagine what happens if these algorithms become self-teaching, self-developing ones, or if they can communicate with each other and learn from each other's experience.[17] The rules which are developed by machines in not easily foreseeable directions are a current reality in self-driving cars.

These self-trained, dynamic rules will be extremely complex and will very probably not be intelligible to humans anymore. We will then need a translation, a parallel system of rules. This might create a double or even triple legal system: one complicated and 'quantified' code for machines, containing thousands of variables and formulas, another, still rather complicated one for lawyers to handle complaints and to serve as a basis of judgement in the case of conflicts, and perhaps yet another system for the ordinary citizen. The simplified explanation of (over)complicated legal rules is not something esoteric: it already exists and is very successful. I am thinking here of the Creative Commons movement's pictograms.[18] Creative Commons is an initiative by Lawrence Lessig, and it primarily aims to promote free licences for copyrighted material, and therefore it offers model licence agreements. For ease of understanding, they have introduced symbols that represent the main rights (rules) within the licence agreement. For example, the crossed dollar sign means that the work can be freely used but not for commercial purposes. In short, these pictograms represent the most important rules within licence agreements. They are, in effect, the compressed and human-friendly versions of very technical licence agreements that can extend to a hundred pages. This method of representing complicated rules in a simple form will become quite ubiquitous in a world where most of the rules are written for machines.

At the same time, law will disappear altogether from some fully automatized fields. Consider the example of driverless cars. Great efforts have recently been made to teach driverless cars to recognize and interpret road signs originally designed for humans. But consider the 'Danger of fallen rocks on the road' sign.

15 O'McGinnis–Wasick 2014. 994.
16 Kaplow 1992.
17 Giarratana 2016.
18 Creative Commons 2019.

For humans, this means that they should be careful, probably slow down, and watch the road ahead closely. But what does it say to the driverless car's algorithm? Would it be scanning the road ahead more carefully? 'More carefully' makes no sense for a machine since it is continuously scanning the road anyway. For the software of the driverless car, any rule should be translated into a command *that changes the output*, i.e. reducing speed by not pushing the gas pedal, or using the break, or turning the wheels, etc. Just like the example mentioned here, from this perspective, most road signs make little or no sense to the software, whereas a rule such as 'reduce speed to 30 km/h in 2 seconds' does. If there are only driverless cars on the road, the traditional traffic rules will disappear. They will be superseded by direct electronic signals and messages. The new, more effective highway code for driverless cars will be a command system comprising signals and protocols which will directly determine the outputs of the driverless cars. Vague pictures which require human interpretation will stay but only as courtesy information for the passengers so that they can understand why the machine is doing certain things.

3.2. The Problem of Translation

The translation of legal rules to codes, and vice versa, will be a challenging issue. At first sight, codes are more transparent than laws because they are not corrupted by the fuzziness of everyday language, and they comply with the rules of logic. On the other hand, if there are too many logic gates, junctions, layers, and rules within a system, its functioning starts to become unpredictable and non-explainable in human language, that is – as Frank Pasquale terms it in his seminal book –, 'black-box like'.[19]

As long as architecture is visible, and codes are simple predictable restraints (like the rules of the PC game called Solitaire in Susskind's famous example),[20] codes will function as physical architecture. This already starts to become too complicated when algorithms start to manage longer processes or to make decisions on the basis of (sometimes rather difficult) decision trees. These semi-automatic and automatic decisions have already been part of legal ecosystems for decades, for example, in the form of traffic law enforcement systems.[21] Likewise, all around the world authorities are using expert systems and automatic document generation tools. Although such algorithms generate relatively easy decisions in simple problem situations (based on a few numeric parameters), they already raise certain questions.

19 Pasquale 2015.
20 Susskind 2008. 141.
21 Blackburn–Gilbert 1995.

In these cases, the problem is, as Bryant Walker Smith[22] points out, that the language spoken by lawyers and by technical staff is different. In a sense, this problem is rooted in the familiar issue of the ambiguity of legal language – which is part of everyday language – when compared to any meta-language of logic or maths. This was already highlighted by Lee Loevinger, founder of the Jurimetrics movement, in 1949:

> The difficulty is that we have no terms to put into the machines, as the scientists have numbers and symbols. Legal terms are almost all vague verbalizations which have only a ritualistic significance. (…) [T]he choice of legal terms to describe an act is certainly not a 'logical' operation. Where it is not purely arbitrary, it is, at most, intuitive.[23]

So, no matter how absurd it sounds, Liza Shay and her co-authors are right when they state that 'robots dream of electric laws'.[24] The authors performed an experiment where 52 programmers were assigned the task of automatic speed limit enforcement, and, even in this relatively easy case, where rules are narrow and straightforward, the number of mock tickets issued (i.e. legal consequences computed by the algorithms) varied to a very substantial extent. Clearly, the programmers interpreted the rules and the possible factual situations in very diverse ways at certain points. But simply coding traffic rules for AI is a challenge.[25] The same is true when the rules of GDPR need to be translated into a code on Facebook.[26]

The problem of translation is a serious challenge in the opposite direction too, when the decisions of the computer (AI) should be explained in some way. People need explanations for decisions, and the more a decision affects their lives, the more they demand a justification. This is the reason why the rules of automated decision making include the right to an explanation.[27] And explanation – even though some legal cultures prefer to refer to it as a logical subsumption – is more like storytelling. Does this mean that we have to teach our machines storytelling? I will return to this in more detail in the next point.

22 Walker Smith 2016. 78–101.
23 Loevinger 1949. 471–472.
24 Shay et al. 2016. 274.
25 Carp 2018, Prakken 2017.
26 Houser–Voss 2018.
27 Articles 13(2)(f), 14(2)(g), and 15(1)(h) of the GDPR require data controllers to provide data subjects with information about 'the existence of automated decision-making, including profiling, referred to in Article 22(1) and (4) and, at least in those cases, meaningful information about the logic involved, as well as the significance and the envisaged consequences of such processing for the data subject'. At the time of the birth of GDPR, there was a lively debate in the literature on whether these texts are rules of 'the right to explanation' or not. See: Selbst–Powles 2017.

This phenomenon really becomes ponderous when more complex – legal rule-based – decisions are supposed to be made by artificial intelligences. This is the case, for example, when decisions made by a robo-advisor need to be explained under MiFID 2,[28] or there is a requirement to explain the decisions of the AI which controls content on Facebook.[29] Compared to 2006, when the 2nd edition of Lessig's book came out, the world of codes has expanded enormously because of the large-scale platforms such as social media, online shops, search engines, and matching software like Uber and Airbnb. These platforms have started to dominate our online activities, and they are all based on codes. On platforms, where there is no 'real' physical architecture but only a virtual architecture, the limits and boundaries of (virtual) space, the ways of speaking and acting (online), the channelling of attention, the display of the outer world, and 'life and death' decisions (such as allowing or banning an account) are all determined by codes. A platform's main architecture is its code, and codes have started to control spheres (intimate space, private life, and the means of cognition), what they never did before.

3.3. Values in the Code

A further consequence is that, for these algorithms to work, we have to make more explicit the choices underlying our rules and assign values to them in more explicit ways. The trouble is that value choices are sometimes very hard to justify or even to express.

Modern legal systems are built up in a systemic way. Detailed rules are first based on codes and finally on values and principles, codified in the codes or in the constitution. Although the common law systems' architecture is slightly different, this pyramid of abstraction exists there, too. One can think of constitutional principles of the freedom of speech or special principles of criminal justice such as 'nullum crimen sine lege', and so on. Administrative decision making and judicial interpretation rely on these principles and policies very heavily.[30]

One might argue that codes and algorithms, as well as algorithmic decision making, have nothing to do with these principles. Still, it seems that in the last few years the 'morality of the codes' has become one of the most important debates within 'robot law'. There is a website which collects the ethical codes of AI (algorithms) from all around the world, and there are more than 80 of these ethical codes available. In most of them, we see recurring requirements: codes should be transparent, codes must not discriminate, decisions made by the codes should be explainable, etc.[31]

28 ESMA-EBA-EIOPA Report 2018. 9.
29 Bickert–Fishman 2017, Macdonald et al. 2019.
30 Dworkin 1967.
31 AlgorithmWatch 2019.

The risks associated with making high-level values or principles explicit are even more visible when we want to quantify the principles of justice – the ultimate value in law. There are several ways to organize a judicial system, but all of them reveal that justice is Janus-faced: it requires each case to be decided on its own merits, on the basis of the special, individual, and unrepeatable circumstances inherent to the event, but at the same time it also requires similar cases to be treated alike. If a decision-making algorithm can take a practically endless number of parameters into consideration, there is a strong temptation to use all of these parameters (as justice must account for all the relevant considerations). But then, after a while, there will be no more 'similar' cases. Each case will be judged on its own merits, which ultimately – I imagine – will undermine our sense of justice.

One can argue that even this inner tension can be quantified with the help of, say, vector maths or cluster analysis. In the former case, 'vectors' are the circumstances that have to be taken into account, while 'clusters' are the groups of cases that have to be treated 'equally'. I am unable to assess at this stage the value or feasibility of these methods. Both might work. But whatever the result is, it is still true that in these cases value choices should be made explicit and should be somehow quantified. With human decisions, we sometimes accept strange decisions, especially if the decision maker has great authority and provides a valid reasoning. I have doubts as to whether machines can provide acceptable reasoning. People are rationalizing rather than rational creatures. Persuasive reasoning is more important than the rational decision itself. The absurdity of algorithmizing high-level value choices becomes apparent when we go through the 'moral machine' test.

A further manifestation of the representation of values, principles, and policies in code is the question of flexibility, or equity, or mercy. Karnow formulated this question in terms of discretion: 'How much human discretion should be built into an automated law-enforcement system?'[32] Another expert in the field, Elizabeth Joh, when tackling the discretion problem (and recognizing that human policemen do not enforce every minor detail of the law), asks the following question: 'Would we live in a better world if police patrol robots enforced minor offenses much more frequently than human officers would in neighbourhoods accustomed to aggressive policing because they were directed to do so by their own artificial intelligence?'[33]

I think these puzzles confront us with two theoretical challenges. The first is the question of the extent to which law is an algorithm. This is crucial because robots can apply legal rules only when they are translated into algorithms (and this will

32 Karnow 2016. 51.
33 Joh 2016. 540.

be the case ever more frequently in the future). The second problem leads us to serious constitutional problems: the access to law and legitimacy issues.

3.4. Non-Transparent Functioning and Non-Explainable Results

Both in mixed and solely algorithmically managed ecosystems, the problem of understanding and explaining machine-made decisions will be a challenge. One might think that, in a certain respect, codes are more transparent because they are in line with the rules of logic, so they are not encumbered with the fuzziness and vagueness of ordinary language. But, on the other hand, their functioning can be so difficult – or, as the literature says, 'black-box-like' – that the end result of their operation cannot be explained in narrative-centred human language.

This issue had a sensational impact when software used by the courts sent a Wisconsin man, Eric L. Loomis, to prison because – according to the judgement of the algorithm – he showed 'a high risk of violence, [a] high risk of recidivism, [and a] high pretrial risk'.[34] Loomis obviously had no chance to study the algorithm and argue against it.

We have to recognize that all of these codes are based on an anthropomorphism. AI cannot understand these standards although it can understand and execute codes. But as soon as we start to operationalize these values, we encounter contradictions that cannot be represented on a code level. This is true in the case of a standalone principle (like the prohibition of discrimination[35] or justice itself), but it is even more spectacular when two or more of these principles are in conflict, which occurs quite frequently in constitutional law. This dilemma is clearly demonstrated by the 'moral machine' of the MIT, which simulates a moral dilemma in an imaginary situation where an autonomous vehicle must make a decision about causing harm.[36] A further problem is that in most cases AI systems are based on self-training algorithms, where the code is developing itself, and/or on 'big' data sets, where the data is produced in a spontaneous, uncontrolled way. In these cases, even the programmers of the code cannot foresee the output of the system, let alone explain the results.[37]

34 This was the COMPAS (Correctional Offender Management Profiling for Alternative Sanctions) software, which has been served since then as a deterrent example of machine bias. For the full story, see: Liptak 2017; for the machine bias in the case of COMPAS, see: Angwin et al. 2016.

35 What makes algorithmic bias a hopelessly complicated problem is 'indirect' discrimination, 'where an apparently neutral provision, criterion or practice would put persons of a racial or ethnic origin at a particular disadvantage compared with other persons, unless that provision, criterion or practice is objectively justified by a legitimate aim and the means of achieving that aim are appropriate' – Council Directive 2000/43/EC.

36 http://moralmachine.mit.edu/.

37 For the definition of AI, see: A definition of Artificial Intelligence 2019. A recurring element within the document is 'machine learning', which – at least at present – seems to be the key component of AI.

The real-life application of rules – the task of translating legal rules to machine commands – will be a task for the programmers, or rather it well might be that a separate profession will emerge, of 'legal knowledge engineers', as Susskind predicts.[38] They will 'organise the large quantities of complex legal content', analyse and 'distil' legal processes, and then embody these into computers systems.

Once again, one might say that there is no real problem here. Of course, programmers should interpret and translate human rules into the language of robotics. But that is already happening: legal rules are being implemented into, for example, ERP[39] systems, document generation software, tax software, and speed limit enforcement software. Apart from the interpretational problem I have already indicated, there is another issue: if we reach the period of law making for robots and dynamic rules, this profession will not only be the translator of human legal rules to algorithms but also the lawmakers and maybe the 'back-translators' of robot laws to human language. Or perhaps the back-translator will constitute a separate profession – who knows?

3.5. Platforms as Nation-States? Codes as New Legal Systems?

Another challenge is the tension between the international (non-national) character of codes and the national character of legal rules. This is not true for all codes but particularly true for those that affect our everyday life in the most profound way: the codes of platforms. Platforms organize our lives, we socialize on them, buy and sell on them, order different services on them, and so on. The codes of these platforms are international, while laws are artefacts of nation-states. This leads to a great deal of serious tension.

Firstly, it leads to a continuous battle between nation-states and platforms. Competition and data protection authorities levy more and more heavy fines on Facebook and Google.[40]

However, the even more frightening aspect of this phenomena is that given that the big platforms have their own (albeit virtual) borders, 'inhabitants', and power over their inhabitants: they have the main characteristics of a nation-state. As Julie Cohen puts it, platforms are 'emergent transnational sovereigns'.[41]

38 Susskind 2008. 272.

39 Enterprise Resource Planning software: integrated software tools that support enterprises in organizing their workflows. Many legal rules are embedded in these systems: labour law regulations in the HR module or tax regulations in the accounting module.

40 Just a few illustrations from the latest news: the Federal Trade Commission in the USA fined Facebook 5 billion dollars in 2019 (Glazer et al. 2019); the Italian competition authority in 2018 levied an 8.9 million pound fine (Hern 2018), and during the writing of this paper the Turkish Data Protection Authority fined Facebook 280,000 USD for a data breach (Turkey fines Facebook 2019).

41 Cohen 2017. 199.

There are many indications of this phenomenon: first, platforms build up their own, autonomous regulatory world. They have their own house rules,[42] which have so far been partly, at least in the case of Facebook, a secret document.[43] These rules comprise the definition of basic legal and constitutional concepts such as terrorism or defamation; and although there is a fierce debate as to whether Facebook is biased or not,[44] these rules visibly represent a liberal 'West Coast' set of values.[45] Platforms act like sovereigns, negotiate with governments and with competition and consumer protection authorities, and sometimes explicitly express the idea that 'in an age of nationalism' they want to be a 'trusted and neutral digital Switzerland', as Microsoft President and Chief Legal Officer Brad Smith declared in a conference.[46]

The last and most spectacular development of platforms on their move towards becoming sovereigns, and the transformation of their internal codes into an alternative legal system, is the introduction of the new cryptocurrency, Libra, by Facebook.[47] This cryptocurrency is again a global code because it runs on a blockchain. According to the official statement of the company, it is for those who have Internet access but no bank account because of the lack of financial infrastructure.[48] This global code may one day colonize another sphere involving millions of people.

The codes on these platforms are very often the trade secrets of the owners, as is the data they collect.[49] We cannot yet state that platforms are new nation-states, but their internal code, which decides what we can see from the outside world and how and what can we say, is a code-based competitive normative system. And the main goal of these platforms – no matter what they say – is still the generation of profit by 'datafying' and monetizing our personal data with the help of the code.

However, it is not only nation-states that are threatened by these platforms; there are other legitimacy or constitutional challenges raised by these codes. If there are two or three separate bodies of rules, then the millions of exact rules and dependencies and the precise maths of vectors and clusters will not be transparent for the ordinary citizen, and problems similar to that experienced by the man in Wisconsin may become quite common. What will the unity of law and the uniformity of courts' decisions look like in this new world?

42 https://www.facebook.com/communitystandards/.
43 See Hopkins 2017.
44 See, e.g., Senator Jon Kyl's report.
45 See, e.g., Conger–Frenkel 2018.
46 Conger 2017.
47 See Zuckerberg 2019.
48 Coming in 2020.
49 Pasquale 2015. 82.

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