The Transformation of Democracy and Diffusion of Power

On the Constitution of Algorithms

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The widespread use of algorithms and technologies of artificial intelligence profoundly shapes social structures and dynamics. This contribution explores the intricate relationship between algorithmic governance and the idea of the constitution, aiming to elucidate the transformative impact of these technologies. We suggest that the constitutional perspective offers a comprehensive lens through which to make sense of and navigate the concrete challenges posed by the ascent of the algorithmic society. More specifically, we argue that algorithms, guided by logics of calculation and prediction, provide a competing model of the political-legal order embodied in the democratic constitution. Central to our analysis is the shift from the legality of the law to a new "legality of the normal" detached from public deliberation and the collective construction of meaning. This shift disrupts and reconceptualizes the established coupling of law and politics characteristic of the modern constitution.

A. Introduction[1]

New technologies always change our world. They change how we perceive and understand ourselves and the world around us. In recent years, this has been particularly true of algorithms. They are almost everywhere, from social media to law enforcement, from traffic navigation to medicine. But the way in which new technologies affect social experiences and imaginaries is not a one-way process, in the sense that they simply come upon us, manipulate us and eventually dominate us (though the threat of "algocracy" is real to some)[2]. Similar to ideas, we make creative use of them, apply them in various contexts and modify them in turn. Some technologies soon disappear again. Others, however, become more and more woven into the

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2 Cf. John Danaher, 'The Threat of Algocracy: Reality, Resistance and Accommodation' (2016) 29 *Philosophy and Technology* 245.

fabric of our daily lives, profoundly affecting the ways in which we organize the social world, the ways we live together.

In this contribution, we explore how to understand the extensive use of algorithms and how their increasing significance plays out for a very specific form of the organization of the social world: the constitution. Our aim is to develop a perspective on the question of how this relationship can be addressed. How do algorithms relate to the idea and practice of the modern constitution? How might a constitutional perspective illuminate important aspects of the widespread adoption of algorithms in society? Crucially, the term "constitution" can also be used as a (substantive) verb, signaling activities that take on a distinct form or have a distinct effect. In this vein, the contribution's title should neither imply that algorithms and technologies of artificial intelligence (AI) have a constitution comparable to the domain of democratic politics and law. Nor should it be taken to mean, to borrow Lessig's famous formula, that "code is constitution," and that programming algorithms is the same as drafting a constitution. Instead, we want to investigate the ways in which the ubiquitous presence of algorithms has something to do with the role and function of what we usually think of as a constitution.

We argue that the logic of calculation and the logic of prediction, which are elementary features of (digital) algorithms, compete with the idea of the constitution. They do not replace, but provide an alternative model of the political-legal order. This is to say that the use of algorithms in the present and their increasingly broad field of application in the foreseeable future has a deep impact on the relationship between law and politics which lies at the core of the concept of the modern constitution – a concept that itself was always less uniform and robust than sometimes assumed. However, our analysis of this impact is not embedded in a history of loss and decline. Rather, we are concerned with developing a suitable perspective on the contemporary rise of algorithms in some distance to the more specific doctrinal issues and policy responses associated with the unique challenges posed by the emerging "algorithmic society"[3].

We proceed as follows. First, we discuss the constitutive features of algorithms and of algorithmic governance. Second, we show that algorithms are political by effecting the ways in which we perceive and imagine the future. They are thus contributing to the "political form of society" (Lefort). Algo-

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3 Hans-W. Micklitz et al. (eds.), *Constitutional Challenges in the Algorithmic Society* (CUP 2021).

rithms do so, as we argue in the third section, at least in part, through a new kind of legality – a legality that we understand as the *legality of the normal*. This legality of the normal is significantly different from the law's legality. Whereas legal norms are intrinsically connected to the possibilities of public deliberation and critique, algorithmic norms are regularities extracted from huge data sets to serve as standards for decision-making and as guidelines for the future organization of the social. By reconfiguring the relationship between law and politics, the widespread use of algorithms establishes a competing model to the modern constitution. In a fourth step and in lieu of a conclusion, we outline three of those challenges to illustrate what the rise of algorithms means for the structure of law and politics that underpins the democratic constitution.

B. Algorithms[4]

In a very general sense, algorithms are predetermined sequences of explicit steps for solving a problem or making a decision. These sequences of instructions need not be strictly formalized; a ritual, a baking recipe in a cookbook or a construction manual are also examples of algorithms. As such, algorithms are therefore nothing new or very exciting. They were common before they were used in computer software and have long been an integral part of almost every aspect of the social world. So why are we only now talking about the *algorithmization of the social* and discussing the effects of algorithmic governance for democratic societies?

There are two reasons for these newly awakened concerns. First, digital algorithms as we use them today are both more specific and more complex than other algorithms. They are strictly formalized and use code, i.e. they are written in programming languages, which mediate between the computer's binary code and human languages. Secondly, *algorithmization* is not a linear process that began at a certain point in history and has been steadily progressing ever since, but is rather a gradual, creeping change in the significance of (digital and abstract) algorithms for the social world. Over the past decades, various developments have been converging and reinforcing each other with remarkable simultaneity. Algorithms are increasingly becoming more complex as the capacity and speed of data-pro-

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4 Some ideas and arguments in this section draw upon and are developed in more detail in Sabine Müller-Mall, *Freiheit und Kalkül: Die Politik der Algorithmen* (Reclam 2020).

cessing increases while, at the same, the possibilities to interconnect the processed data are becoming ever more comprehensive. Crucially, machine learning technologies are becoming more and more sophisticated, so that digital algorithms are now often able to improve their capabilities to solve a problem or make a decision on their own. The more information such learning algorithms are provided with, the faster and more accurately they can deal with enormous sets of data in a coherent manner. It is mainly due to these capacities for autonomous learning that algorithms recently became closely associated with AI technologies. However, although such technologies almost always utilize algorithms, their diverse elements cannot fully be understood along those conceptual lines. Despite this, for the sake of simplicity, we use the term in this broader sense, which includes technologies of artificial intelligence.

Importantly, algorithms derive from and embody a *logic of calculation*. Not only are they essentially made up of sequences of detailed instructions. They also establish a distinct idea of how to address and think about the future, namely as a calculable goal that can be achieved via such formalized and stubbornly applied procedures. As the historian Lorraine Daston notes, the machine-based use of algorithms in the 19th and 20th century eventually "cultivated the ability to analyse complex tasks and problems into step-by-step sequences."[5] In case we are unable to create new algorithms or adapt existing ones in order to solve a problem or reach a decision, contemporary AI technologies can step in. They are able to optimize existing algorithms or even find them in the first place. In doing so, they draw (again algorithmically) on large sets of data. These data sets are then sorted and classified with the help of algorithms, which, for their part, are improved by these calculations.

Often, algorithms are made use of not only to identify patterns, to classify data or to carry out regression analyses. They are also valued for making predictions about future developments, attitudes or behaviours. The analysis and classification of data is regularly accompanied by a prognosis of how things will be developing in the near or distant future. Algorithms follow a *logic of prediction*, which processes the aggregated data for the specific purpose of charting future behavior. This probabilistic dimension, the interest in what is most likely to happen, is particularly acute in the case of learning algorithms. These kinds of algorithms are capable of guiding

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5 Lorraine Daston, *Rules: A Short History of What We Live By* (Princeton University Press 2019), 148.

themselves in making predictions. They can even autonomously filter out the criteria that are relevant for a good prognosis. At the same time, it is almost impossible to investigate these criteria and make them transparent in retrospect, and thus to somehow "explain" how AI works.

C. Algorithms and the Political Form of Society

It is, of course, rather obvious that the spread of new technologies reshapes experiences of the social and interferes with the established ways in which societies organize themselves with a view to the future. As the cultural theorist Cornelia Vismann explains, all cultural technologies (and all technologies are a product of culture in the broader sense) are connected to the society's "symbolic order".[6] In order to investigate the differences between them, to understand and evaluate the diverse effects of their respective deployment, the task is "to deduce the script from the action, the rules of operation from the concrete operation."[7] They are technologies precisely in the sense that a certain schema or certain characteristics are intrinsic to them. These characteristics or "rules of operation" should take centre stage when asking about the consequences of a technology's manifold use for the constitution of societies.

Algorithms foster a logic of calculation and are often determined by a logic of prediction, which have the potential to alter the possibilities of the political and thereby also the conditions of the law's legality. Within democratic societies, *the political* goes beyond formal procedures and institutions of decision-making. Rather, it refers to what Claude Lefort describes as the "form of society",[8] that is the symbolic order which encompasses the entirety of social facts, experiences and relationships. The political thus includes anything concerned with how the social is arranged and formed, how spaces of action are designed and how the future is addressed.[9] In this regard, it is closely associated with the collective construction of meaning.[10] Normative evaluations and (implicit as well as explicit) agreements are a

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6 Cornelia Vismann, 'Kulturtechniken und Souveränität', in *Das Recht und seine Mittel* (Fischer 2012), 459 (own translation).
7 Ibid., 451 (own translation).
8 Claude Lefort, 'The Question of Democracy', in: *Democracy and Political Theory* (Polity 1998).
9 Müller-Mall, *Freiheit und Kalkül*, 12-13.
10 Lefort, 'The Question of Democracy', 18.

constitutive feature of the social form, with unrestricted public deliberation and contestation being essential to the institution of democratic societies in particular. Those deliberations also complement the authority of the law and legal discourse, because the elementary distinction between "right and wrong" presupposes this kind of jointly constructed meaning. The political, in short, concerns the ways in which we perceive and imagine the social world.

Against this background, the extensive use of algorithms is political in the sense that it modifies the established ways in which democratic societies and their members imagine themselves. It is not that algorithms simply restrict procedures and processes of public deliberation that were once "free". Rather, they establish an alternative kind of political normativity. At stake is a different form of engaging with societal facts and especially the ways in which we think about and shape the future of living together: how we organize normative and institutional orders, how we distribute rights and freedoms and how we relate to one another as equals.

At the centre of this transformation lies the numerical, the pronounced role of the number and of a governance of statistics. Of course, the term as well as the widespread use of statistics is deeply linked to the development of modern statehood and what has been called *Staatswissenschaft* in German. A detailed knowledge about the state's population and economy, that is a numerical representation of society in the form of tables and graphs was (and still is) considered to be an essential precondition of successful government. However, the new political significance of the numerical can hardly be compared to that earlier rise of statistics as a means of state power. Therefore, Antoine Garapon and Jean Lassègue characterize the extensive use of algorithms as a "numerical revolution".[11] In particular, the introduction and omnipresence of the (mobile) computer in almost every area of life marks a fundamental change. Numbers, processed by digital technologies, create a different form of writing centred around information, not meaning. This allows for describing the entire social world – images as well as texts, values as well personalities – in one single language. Using the binary code 0/1, the world, dis-connected from any physical space, is perceived and processed numerically.

Computer algorithms infuse this numerical revolution with their logics of calculation and prediction. For one thing, they enable us to sort and

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11 Antoine Garapon and Jean Lassègue, *Le numérique contre le politique: Crise de l'espace et reconfiguration des médiations sociales* (PUF 2021).

arrange these numerical sets of data with a view to possible linkages and shared characteristics. And because everything is potentially connected, these linkages – one could also say: these perceptions of the social world – are almost infinite (and thus almost random). For another thing, and even more importantly, algorithms draw a conclusion about the future development of such random linkages and their various variables. The predictions they make and the probabilities they delineate, however, are completely deprived of meaning, if we take the creation of meaning to refer to a collective process in which controversial demands, conflicting judgments and contested ideas come to bear. Algorithms are political in this sense, insofar as they re-constitute the ways we perceive, imagine and eventually shape the world around us.

This constitution of the social through algorithmic governance is by no means neutral or objective, but contains normative aspects. As already mentioned, many algorithms are premised upon the idea that the data sets documenting the past behavior of a large number of people can be used to make an accurate prediction about the future behavior of individuals. The success of online advertisement based upon the shopping data of a large number of other consumers from a specific region or socio-economic class is a testament to this power of prediction. The (contested) assumption is that we are more likely to behave in the future in a similar way to how we did in the past and that we are more likely to behave in a manner similar to our social environment: What we and our peers want today, is probably what we will want tomorrow. Whether or not this assumption is true, by building on it, the widespread use of algorithms brings about a new type of societal organization, a new form of perceiving and shaping collective life. This new type of organization can be described as "normalization", as the alignment of social action or values with what is the statistical norm. Whereas a legal norm or a moral demand is in some way external to social practice, guidelines and principles for action are now based on what is (algorithmically) deemed to be normal. In contexts of "normalization in the strict sense"[12], Foucault highlights, the relationship between the norm and the normal is reversed. Instead of a specific, pre-existing norm that serves as a standard according to which certain future behavior is judged, with technologies of normalization, the normal is prior to the norm and,

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12 Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France 1977-1978* (Palgrave 2007) 63.

in a certain sense, the material from which the norm is build: "the normal comes first, and the norm is deduced from it."[13] Through the use of algorithms, this type of organizing and steering social life, once intrinsically linked to the technologies of the modern (liberal) state, is now widely disseminated. In the "empire of algorithms",[14] shopping preferences, but also scientific knowledge, traffic navigation or communicative behavior on social media-platforms are converging based on data about which sneakers are usually bought, which papers are often quoted, which routes are regularly chosen and which videos are most of interest.

One could, of course, object that algorithms merely document what is going on around and in-between us. And indeed, in some respects, the statistically processed data sets may indeed simply depict "real" social behavior. The convergence of consumer preferences or a shared understanding of what is a valuable piece of scholarship can very well pre-date the use of algorithms. However, this representation of social facts is deeply normative. Algorithms do not carry out these procedures for the sake of translating a complex and confusing social world in the precise language of numbers, but for the purpose of generating an output that is intrinsically prognostic. The analysis of pixel arrangements is supposed to allow to determine how new images are to be attributed correctly; the sorting through of social media should make it possible to identify consumer interests for the aim of targeted advertising in the future. In other words, the data analysis is carried out with a view to the goal of predicting something as accurately as possible. Algorithms do not simply depict existing patterns, distributions or correlations, but they evaluate these patterns or distributions in terms of their probabilistic value. Thereby, they prioritize one particular future action over another because the former is more likely to become reality under certain conditions than the latter. Since the designated future action is by no means inevitable, this selection is a normative operation. Or, to put it another way: algorithms knit the analysis and the evaluation of data together.

Therefore, algorithms can effectively help to solve a problem and to reach a decision without having to rely on (a collective process of) constructing meaning. This supposed neutrality, together with their wide range of application, is what is so often cherished. Algorithms can sort and link together huge sets of data in almost any dimension, without ever having to

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13 Ibid.
14 Daston, *Rules*, 7.

attribute any meaning to this link. At the same time, they forecast a specific future, a particular world of likeliness, by prioritizing one possible course of action over a different one. In this way, the extensive use of algorithms is *political*. It reshapes how we imagine the future, how we create normative orders and how we challenge them.

D. A New Legality of the Normal[15]

This (new) political significance of algorithms competes with the idea and possibilities of the democratic constitution in two-fold manner. First, and starting from the assumption that the constitution is a distinct relationship between law and politics, the use of algorithms establishes a different kind of legality. Algorithms advance a *legality of the normal* as opposed to the *legality of the law.* They call into question the crucial distinction between legal rules on the one hand and the (statistical) representation of past behavior on the other hand by substituting the logic of the law for the logic of regularities. Second, the power of algorithms to "form" society and their corresponding legality of the normal fundamentally challenges the democratic constitution as a specific model of the political-legal order.

Following Luhmann, the constitution describes a structural coupling of law and politics: the juridification of politics and the simultaneous politicization of law.[16] In modern constitutional democracies, public deliberation and procedures of collective decision-making complement the rule of law. At the same time, the law's legality contributes crucially to the institution of these fora and procedures. A pressing problem which stems from this specific coupling of law and politics is the temporality of the constitution. On the one hand, the constitution provides a normative framework for the exercise of rule. It is therefore *static.* On the other hand, the constitution is itself subject to political processes and practices. It is, in that sense, *dynamic.* The constitution as a development or a process – a process of re-constituting the constitution – thwarts the metaphor of a framework and is often discussed under the headline of "constitutionalization". It is, however, not restricted to the extension of constitutional norms to a hitherto non-constitutional area of law, but a crucial component of the

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15 Some ideas and examples in this section are already put forth in Müller-Mall, *Freiheit und Kalkül.*

16 Niklas Luhmann, 'Verfassung als evolutionäre Errungenschaft' (1990) 9 *Rechtshistorisches Journal* 176.

structural coupling of law and politics itself. In view of this problem of intersecting temporalities, we argue that both dimensions, that is processes of (re-)constitution as well as the idea of a consolidated normative framework must be included in the concept of the constitution. A constitution is both something that is stable and robust and something that is continuously re-created.

Characteristic of the legality of the law and the legality of the normal are their contrasting modes of application. We outlined above that, whereas legal norms are linked to diverse fora and procedures of public deliberation, algorithmic norms result from the analysis of data on past behavior. Both types of norms are directed towards the future, i.e. they are intended to solve future problems by means of their application. In the case of the legality of the law, the norm is applied through judgement. To judge is to link the individual case to the norm and to relate *this* case to *that* norm in the first place.[17] In the case of algorithms, the norm is applied without judgement, which is to say that the individual case is attributed to the relevant (statistical) norm. The relationship between the case and the norm is thus the prerequisite of the decision or outcome, not its result (as in the case of a judgement). Accordingly, the legal judgement is subject to a potential critique that asks for the relationship between the individual case and the norm to be a comprehensible one – the judgement must somehow show how the norm and the case are interrelated. The algorithmic decision, by contrast, cannot be criticized, since the relevant norm or standard is not accessible as such. Sociologically speaking, there is no "legitimation by procedure",[18] because there is not really a procedure as such. What we are left with is only the result of a case that has been attributed to a particular norm as a matter of fact.

The differences between the legality of the law and the legality of the normal, however, are more subtle than the contrast between regulation *de jure* and *de facto* suggests. Rather, algorithmic norms are advancing a new form or principle of legality compared to the legality of the law. Notwithstanding the question of legitimacy, the respective principles of legality embody a different conception of what constitutes a norm and how said norm is applied. These differences can account for the "smoothness" of algorithms and algorithmic governance. The legality of the normal is neither dependent

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17 Cf. Sabine Müller-Mall, *Verfassende Urteile: Eine Theorie des Rechts* (Berlin 2023), 143-150.
18 Niklas Luhmann, *Legitimation durch Verfahren* (Luchterhand 1969).

on public deliberation and collective processes of generating meaning nor subject to a critique targeting the injustices of a concrete decision. In both respects, algorithms operate in what is often perceived to be a frictionless manner of regulating the social.

The extensive use of algorithms establishes a different kind of political normativity as well as a different kind of legality. By simultaneously changing the ways we perceive and imagine the social world, and by establishing a distinct mode of regulating behavior and decision-making, algorithms create new links between the sphere of politics and the domain of legality. This does not directly attack the structural coupling of law and politics characteristic of the modern democratic constitution. What is at stake is a competing model of the political-legal order. Similar in a way to the democratic model, this competing model also connects concrete outcomes to a principle of legality. The algorithmically discovered laws are applied to an individual case. Predictive policing, for example, is making use of huge data sets on the past behavior of many people in order draw to a conclusion on the likely future of a particular criminal, while operating within the bounds of official law. Or, to provide another example, when tax authorities use software to filter out tax cases that are then subject to closer scrutiny, executive bodies base their decision-making on algorithmic norms. This can be done in full compliance with the applicable legal provisions and yet create a situation of competition.

Again, this is not to say that the legality of the normal simply replaces the legality of the law. Algorithms do not supplant the democratic model of constitutional ordering, and they certainly do not bring about a "new constitution". Rather, basic propositions of the constitutional relationship between politics and law are confronted with a different set of – diametrically opposed – assumptions regarding both the constitution as a normative framework and the dynamic processes of constitutionalization. Modern democratic constitutionalism starts from the idea that the creation of legal norms is linked to or is, at least, the potential object of public deliberation. Such deliberation is absent in the case of algorithms and their norm-generative operations, since they effectively solve problems and decide issues, but do not disclose the criteria (or, to be more precise, the patterns and regularities) on which the respective decision is based. While the application of legal norms always depends on a judgement and juridical decision-making can therefore be adjusted to the peculiarities of each individual case, the algorithmic decision requires no judgement at all. Finally, the normative structures established through the use of algorithms circumvent the notion

of both collective and individual autonomy, i.e. the assumption that the individual person as well as particular communities both can and must be able to act on their own. By contrast, algorithms presuppose that action is essentially pattern-driven. It can be determined by behavioural data and be regulated by "smooth" rules.

E. Three Challenges in Lieu of a Conclusion

The challenges posed by the algorithmic model to the established perspectives and premises of the modern constitution are of a fundamental nature. They are both conceptual and concrete. The extensive use of algorithms is giving rise to a competing model of relating politics to law – to a different conception of both the structure of politics and of law as well as the ways in which they are interconnected. This competition is becoming manifest in a number of concrete challenges and issues, which can provoke processes of (re-)constituting the modern constitution as described above. In what follows, we sketch three of those challenges concerned with the notion of autonomy, the idea of political freedom and the form and procedures of decision-making. They show the enormous pressure on the democratic constitution to adapt to the competing model of algorithmic governance.

The *notion of autonomy* entails the assumption that every individual is capable of acting freely and in a self-determined manner, and that these capabilities should be protected through the guarantee of fundamental rights (regardless of whether or not there is empirically such a thing as a free will). This basic assumption underlies not only the constitutional protection of human dignity, but also the various individual freedoms and personal rights. Recent discussions about the liability of self-driving cars, data protection in the domain of AI-assisted medicine or the recognition of digital persons as legal entities express these fundamental challenges to the principle of autonomy. The legal and political responses to these issues, for example with regard to the nature of data protection and the scope of the relevant laws, are intrinsically linked to this distinct understanding of autonomy and therefore also the normative framework of the modern constitution, even though they are often portrayed as problems of dogmatic innovation alone. Intimately linked to the notion of autonomy is the *idea of political freedom*. It comprises, inter alia, the freedom to form opinions, to choose representatives and to engage in politics without being subject to any prior constraints of justification. Political freedom links individual to

collective autonomy and is thus the foundation of democratic self-determination. As with autonomy, the exercise of political freedom is challenged by algorithmic norms, especially with regard to the continuing transformation of the public sphere as a result of the numerical revolution. Whenever, for example, the digitalization of mass communication raises the question of how freedom of expression and its limits should be understood, this represents not only a case-specific conflict about what constitutes proper online content or a doctrinal dispute over the adequate balance of fundamental rights – but it just as much concerns the changing conditions and possibilities of the constitutional guarantees of political freedom. A further challenge are the *forms and procedures of decision-making* within democratic societies. The role of social bots in election campaigns, the use of "legal tech" in the legal profession or the prediction of court decisions with the help of AI signify developments which are not restricted to the effective guarantee of individual rights to due process and effective participation. These developments and the discussions that accompany them are also always about the complicated relationship between legitimacy and legality, about how a distinct decision can be traced back to the collective autonomy of the people in light of the forecasted future of algorithmic governance.

These different, but interconnected challenges show that the disruptive potential of the constitution of algorithms is not restricted to single issues of policy design and legal discourse. The extensive use of algorithms is of political significance and advances a specific kind of legality. At the same time, they can become subject to public deliberation and adequate legal and judicial control, although "algorithms are unleashed from territories"[19] and state jurisdictions. This requires, however, a more holistic understanding of the ways in which the rise of algorithmic governance and the logics of calculation and prediction disrupt as well as reconfigure the multi-dimensional relationship between law and politics. For this, the constitutional perspective provides a suitable starting point.

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19 Mariavittoria Catanzariti, 'Algorithmic Law: Law Production by Data or Data Production by Law?', in Hans-W. Micklitz et al. (eds.), *Constitutional Challenges in the Algorithmic Society* (CUP 2021), 89.