

## **i-call working paper**

No. 2016/01

# **The Future of Online Content Personalisation: Technology, Law and Digital Freedoms**

Christoph B. Graber\*

OCTOBER 2016

### ABSTRACT

As online information is increasingly tailored, or “personalised”, to the user, it has been praised by some as a pragmatic response to information overload, while criticised by others as creating an echo chamber that threatens deliberative democracy. The unsettling question is whether the latest wave of innovation in online content personalisation technologies has shifted decision-making power from humans to computers. The paper argues that a thorough understanding of personalisation technologies is necessary to critically evaluate their normative effect and impact on social values. It reflects on the differences between regulation by code and regulation by law, exploring how code affects individual and social autonomies, and considering whether meta-rules regulating code are appropriate. The aim of this paper is to detail the constitutive features of the digital world and elucidate how these create norms that regulate the Internet.

### KEY WORDS

Tracking, personalisation, algorithms, echo chambers, transnational legal theory, dispositive, regulation by code, societal constitutionalism.

\* Christoph B. Graber, PhD, is Professor of Law at the University of Zurich and Faculty Associate, Berkman Klein Center for Internet and Society, Harvard University. Comments are welcome at: [christoph.graber@rwi.uzh.ch](mailto:christoph.graber@rwi.uzh.ch)

---

I-CALL WORKING PAPERS are the result of research that takes place at the Chair for Legal Sociology and Media Law (Professor C.B. Graber) at the University of Zurich. The papers have been peer-reviewed.

SUGGESTED CITATION: Graber, Christoph B., ‘The Future of Online Content Personalisation: Technology, Law and Digital Freedoms’, *i-call Working Paper No. 01 (2016)*, Zurich, Switzerland: University of Zurich.

Published by:  
i-call, Information • Communication • Art • Law Lab at the University of Zurich  
Professor Christoph B. Graber, PhD  
Chair for Legal Sociology and Media Law  
University of Zurich, Faculty of Law  
Treichlerstrasse 10  
8032 Zurich  
Switzerland

ISSN 1664-0144  
© Information • Communication • Art • Law Lab, Switzerland

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, photocopying, recording or otherwise, without prior written permission of the publisher.

Permission to use this content must be obtained from the copyright owner.

---

**THE FUTURE OF ONLINE CONTENT PERSONALISATION:  
TECHNOLOGY, LAW AND DIGITAL FREEDOMS**

<b>1.</b>	<b>INTRODUCTION.....</b>	<b>4</b>
<b>2.</b>	<b>HOW CONTENT PERSONALISATION WORKS AND WHY IT IS CRITICISED.....</b>	<b>6</b>
2.1	HOW IT WORKS.....	6
2.2	WHAT IT IS USED FOR.....	7
<b>3.</b>	<b>DO PERSONALISATION TECHNOLOGIES REGULATE HUMAN BEHAVIOUR? .....</b>	<b>9</b>
3.1	OVERCOMING A STATE-CENTRED CONCEPT OF REGULATION.....	9
3.2	DISTINGUISHING LAW AND REGULATION.....	10
3.3	TECHNOLOGY AS A MODALITY OF REGULATION.....	11
<b>4.</b>	<b>REGULATION BY “CODE” V. REGULATION BY LAW .....</b>	<b>13</b>
4.1	THE “DISPOSITIVE” OF ONLINE CONTENT PERSONALISATION: CONCEPTUALISING THE RELATIONSHIP BETWEEN COMMUNICATION AND TECHNOLOGY .....	14
4.2	THE PERSONIFICATION OF COMPUTERS .....	17
4.3	THE CONCEPT OF LAW IN CYBERSPACE .....	19
<b>5.</b>	<b>SOCIETAL CONSTITUTIONALISM AND META-RULES FOR ONLINE CONTENT PERSONALISATION.....</b>	<b>21</b>
<b>6.</b>	<b>CONCLUSIONS.....</b>	<b>23</b>

Once we have surrendered our senses and nervous systems to the private manipulation of those who would try to benefit from taking a lease on our eyes and ears and nerves, we don't really have any rights left. Leasing our eyes and ears and nerves to commercial interests is like handing over the common speech to a private corporation, or like giving the earth's atmosphere to a company as a monopoly.

*Marshall McLuhan, Understanding Media (1964)*

## 1. INTRODUCTION

The quantity of information available on the Internet is beyond imagination and the amount of data that is added every day to the already existing “digital deluge” is enormous.<sup>1</sup> The overload of information is becoming a major problem for more and more people.<sup>2</sup> Under these circumstances, it does not come as a surprise that personalisation technologies are rapidly becoming a key tool in the administration of communication flows on the Internet. Online content personalisation technologies offer possibilities to customise news feeds to an individual’s wishes. They are thus a welcome method for tailoring information to the user and helping them him to organise the processing of information.

Bill Gates commended the advantages of customised information as early as 1995. Four years later, he said, “you’ll be able to just say what you are interested in, and have the screen help you pick out a video that you care about”.<sup>3</sup> While the Internet has allowed targeting and customising for the shopping of books, music, movies, games etc. for quite some time, the personalisation of news is a more recent phenomenon.<sup>4</sup> In 1995, the Internet pioneer Nicholas Negroponte envisioned the “Daily Me” as the future newspaper.<sup>5</sup> His vision was that every person would be

---

<sup>1</sup> According to Viktor Mayer-Schönberger and Kenneth Cukier, *Big Data: A Revolution That Will Transform How We Live, Work and Think*, Boston: Houghton Mifflin Harcourt, 2013 “in 2013 the amount of stored information in the world is estimated to be around 1,200 exabytes, of which less than two percent is non-digital”. One exabyte is a billion gigabytes. It would only take a little more than two years for this mass of digital data to double.

<sup>2</sup> See Cass R. Sunstein, *Republic.com 2.0*, Princeton: Princeton University Press, 2007, at p. 51.

<sup>3</sup> *Ibid.*, at p. 39.

<sup>4</sup> Joseph Turow, *The Daily You: How the New Advertising Industry is Defining Your Identity and Your World*, New Haven, Conn.: Yale University Press, 2011, at pp. 120-37.

<sup>5</sup> Nicholas Negroponte, *Being Digital*, 4th edn, New York: Vintage Books, 1995, at p. 153.

able to use technology to create a package of information customised to their personal interests.<sup>6</sup> What Negroponte did not predict is that today you do not need to create the “Daily Me” yourself.<sup>7</sup> Algorithms processing enormous quantities of data guess what a person wants to read and provide them with a personalised selection of news feeds. As Viktor Mayer-Schönberger and Kenneth Cukier write, “because of the data’s vast size, decisions may often be made not by humans but by machines”.<sup>8</sup> If computers rather than human beings are deciding on the news feeds that people are going to see on the Internet, this may create social costs. Cass Sunstein was the first to forcefully point out the impact of news customisation and targeting on deliberative democracy.<sup>9</sup> He warned that these technologies create “echo chambers” and a risk of fragmentation.<sup>10</sup> By selecting news that confirms already existing views and limiting the opportunities to encounter and relate to the views of others, content personalisation may endanger deliberative processes in democratic societies. Reactions to Sunstein, claiming that his view was too pessimistic, were not long in coming. Hosanagar et al. in 2012<sup>11</sup> and Benkler et al. in 2013<sup>12</sup> both refer to recent quantitative studies which, arguably, contradict Sunstein’s evaluation of the societal impact of online content personalisation technologies.

The discussion launched by Sunstein focused on the impact of online content personalisation on deliberative democracy.<sup>13</sup> The more radical question, however, as to whether computers have replaced humans in deciding what is relevant political information, has not been addressed. It is the purpose of this paper to study whether technologies can actually regulate human behaviour, while reflecting on the concept of regulation in the digital environment and the differences between regulation by code and regulation by law. The paper will then explore how code affects individual and social autonomies and, finally, will consider whether meta-rules regulating code are appropriate. Overall, the aim of the paper is to detail the constitutive features of the digital world and elucidate how these create norms that regulate the Internet.

Before entering the theoretical discussion, the next section will provide some factual information on the functioning of the technology and assess some of the criticism that has been raised against online content personalisation.

---

<sup>6</sup> Kartik Hosanagar et al., ‘Will the Global Village Fracture into Tribes: Recommender Systems and their Effects on Consumers’, *University of Pennsylvania*, NET Institute Working Papers, Working Paper No. 08-44 (2012), available at <http://ssrn.com/abstract=1321962>, at p. 6.

<sup>7</sup> See Turow, *supra* note 4, at p. 9.

<sup>8</sup> See Mayer-Schönberger and Cukier, *supra* note 1, at p. 16.

<sup>9</sup> See Sunstein, *supra* note 2, at pp. 43-45, 207.

<sup>10</sup> *Ibid.*, at p. 6.

<sup>11</sup> See Hosanagar et al., *supra* note 6.

<sup>12</sup> Yochai Benkler et al., ‘Social Mobilization and the Networked Public Sphere: Mapping the SOPA-PIPA Debate’, *Harvard University*, Berkman Center for Internet & Society, Berkman Center Research Publication No. 2013-16 (2013), available at <http://ssrn.com/abstract=2295953>.

<sup>13</sup> Sunstein did not address the problem of online content personalisation from a privacy perspective. For an account of the privacy issues raised by the wholesale collection and use of behavioural user data online see Chris Hoofnagle et al., ‘Behavioral Advertising: The Offer You Cannot Refuse’ (2012) *Harvard Law & Policy Review*, 6, pp. 273-96.

## 2. HOW CONTENT PERSONALISATION WORKS AND WHY IT IS CRITICISED

### 2.1 HOW IT WORKS

Personalisation technologies essentially work as recommenders. They provide recommendations that are tailored to the user. In the literature, content-based recommenders are distinguished from recommenders based on collaborative filtering.<sup>14</sup> Content-based recommenders select information on the basis of some property of the content, including music styles or genres of books, films and games. Amazon, Netflix<sup>15</sup> and Apple's iTunes Store<sup>16</sup> are based on collaborative filtering. They provide recommendations "based on what other people like you liked",<sup>17</sup> as exemplified by Amazon's slogan "customers who bought this, also bought...". Still more sophisticated personalisation technologies are used by Google and Facebook. In his book "The Filter Bubble", Eli Pariser explains that since 2009 the Google search engine has been combining the PageRank algorithm with a system of personalisation that is able to make guesses about who you are and which sites you may want to see.<sup>18</sup> For this, Google uses 57 "signals" identifying where you log in, what browser you are using, your previous searches etc. This information, combined with the mining of data that stem from other sources,<sup>19</sup> allows the algorithm to create a profile of you.<sup>20</sup> Facebook uses the EdgeRank algorithm to select which postings of a user's friends will appear in their news feed. EdgeRank determines the projected relevance of the posted content according to criteria such as affinity (amount of time that a user spends interacting with this friend), the relative weight of the type of posted content (updates on the relationship, for instance, are given high weighting) and time (more recent posts are considered to be more relevant than older ones).<sup>21</sup> Has the computer become an actor in the process of online information selection?

Pariser caricatured the custom-tailored world that the computer is building for us as "a cozy place, populated by our favourite people and things and ideas. (...) We're never bored. We're never annoyed. Our media is a perfect reflection of our interests and desires."<sup>22</sup> Greg Linden, one of the developers of Amazon's recommender

---

<sup>14</sup> See Hosanagar et al., supra note 6, at p. 6; Sunstein, supra note 2, at pp. 20-21.

<sup>15</sup> Eli Pariser, *The Filter Bubble: What the Internet is Hiding from You*, New York: Penguin Press, 2011, at pp. 129-31.

<sup>16</sup> See Hosanagar et al., supra note 6, at p. 4.

<sup>17</sup> See Sunstein, supra note 2, at p. 20.

<sup>18</sup> See Pariser, supra note 15, at pp. 3, 177.

<sup>19</sup> On data mining, see Ira Rubinstein et al., 'Data Mining and Internet Profiling: Emerging Regulatory and Technological Approaches' (2008) *University of Chicago Law Review*, 75, pp. 261-85; Pariser, supra note 15, at pp. 42-46; Turow, supra note 4, at pp. 136, 151, 181. On the way that Gmail, Google's e-mail service, mines user data and the content of messages to sell ads that are related to certain keywords found therein, see Julie E. Cohen, *Configuring the Networked Self: Law, Code, and the Play of Everyday Practice*, New Haven, Conn.: Yale University Press, 2012, at p. 197.

<sup>20</sup> On profiling, see Mayer-Schönberger and Cukier, supra note 1, at pp. 160-61; Mireille Hildebrandt and Bert-Jaap Koops, 'The Challenges of Ambient Law and Legal Protection in the Profiling Era' (2010) *The Modern Law Review*, 73 (3), pp. 428-60, at pp. 431-33; Frederick F. Schauer, *Profiles, Probabilities, and Stereotypes*, Cambridge, Mass.: Belknap Press of Harvard University Press, 2003.

<sup>21</sup> See Pariser, supra note 15, at p. 38.

<sup>22</sup> *Ibid.*, at p. 12.

technology, dismissed Pariser's sarcastic critique, arguing that personalisation technology is something that "seeks to enhance discovery, to help you find novel and interesting things".<sup>23</sup> Pariser explains what worries him about personalisation technologies, with an experiment: Arguably, when you Google something at the same time as one of your friends in another city, the search results that you and your friend get will be quite different.<sup>24</sup> In class, two of my international students verified Pariser's findings. Both students, one female from Denmark and one male from Canada, simultaneously searched for "dolphin". Whereas the Danish student's screenshot showed numerous links about dolphins as animals, the Canadian student, who is a great football fan, got search results that exclusively related to the Miami Dolphins, a US football team.

## 2.2 WHAT IT IS USED FOR

In "Republic.com 2.0" Sunstein emphasised the negative effects of online content personalisation on deliberative democracy. He identified three main difficulties:

1) Fragmentation: Online personalisation technologies arguably facilitate the creation of "enclaves of like-minded" people on the Internet.<sup>25</sup> If technologies make it easy for people to wall off dissenting views, then extremism and group polarisation thrive.<sup>26</sup> Cascade or snowball effects are facilitated by the technologies of the Internet.<sup>27</sup> The spread of hate speech and terrorism may become a danger "through the mechanisms of persuasive arguments, social comparisons, and corroboration", particularly in groups that require a high degree of group solidarity.<sup>28</sup>

2) Absence of the solidarity effects of general-interest intermediaries: While mass-media offer shared experiences and create social glue, this is not the case for personalised news feeds.<sup>29</sup>

3) Commercialisation of freedom: Personalisation blurs the distinction between citizens and consumers and swaps free opinion formation for free choice of commodities. For Sunstein, freedom in a democratic society presupposes the "ability to have preferences formed after exposure to a sufficient amount of information".<sup>30</sup>

Sunstein is concerned that personalisation reduces freedom to the satisfaction of private preferences at the expense of common welfare.<sup>31</sup> With respect to ordinary consumer products, he concedes that the possibility for people to "individuate their preferred products" may be advantageous.<sup>32</sup> However, for a system of free expression to function properly, diversity in the offer of information and the availability of high quality information is preferable. For Sunstein, a well-functioning

---

<sup>23</sup> Greg Linden, 'Eli Pariser is Wrong' (2011), available at <http://glinden.blogspot.com/2011/05/eli-pariser-is-wrong.html> (all online sources were accessed 27 October 2015).

<sup>24</sup> See Pariser, *supra* note 15, at pp. 2-3.

<sup>25</sup> See Sunstein, *supra* note 2, at p. 74.

<sup>26</sup> *Ibid.*, at p. 69.

<sup>27</sup> *Ibid.*, at p. 90.

<sup>28</sup> *Ibid.*, at p. 78.

<sup>29</sup> *Ibid.*, at pp. 103-04.

<sup>30</sup> *Ibid.*, at p. 45.

<sup>31</sup> See Sunstein, *supra* note 2, at pp. 43-45.

<sup>32</sup> *Ibid.*, at p. 216.

system of free expression “might well be compromised when individuals personalise their own communications packages”.<sup>33</sup> What is at stake is information diversity and democratic deliberation.<sup>34</sup>

Sunstein’s thesis, that there is not much deliberation beyond “echo chambers” or other forms of self-insulation of the “Daily Me” or polarised groups, has been challenged by recent empirical studies. In the first data-driven research on recommender systems, Hosanagar et al. argue that “the antecedent, that recommenders create fragmentation, is ultimately an assumption”.<sup>35</sup> More recently Yochai Benkler and his colleagues at the Harvard Berkman Klein Center authored an empirical analysis of the SOPA-PIPA debate<sup>36</sup> that would also seem to contradict Sunstein’s thesis.<sup>37</sup> These authors argue that their study provides a perspective “on the dynamics of the networked public sphere that tends to support the more optimistic view of the potential of networked democratic participation”.<sup>38</sup> In defence of Sunstein, one might argue that the SOPA-PIPA debate was very technology-centred and thus particularly capable of mobilising masses of tech-interested people in the US. Therefore, it may not be representative. Indeed, a new book by Ethan Zuckerman seems to confirm Sunstein’s thesis.<sup>39</sup>

At the time Sunstein published his book, he identified Internet dynamics such as groupism<sup>40</sup> or group polarisation<sup>41</sup> as primary dangers (for deliberate democracy). Since then technological development has made important progress. Today, algorithms such as those used by Google and Facebook make assumptions on what you like and what you would choose. Users are not in a position to relate to those machines’ “computational bias”. If the latest wave of technological development in online content personalisation has indeed shifted the power of making decisions from humans to computers, as Mayer-Schönberger and Cukier argue,<sup>42</sup> the problem appears in a new light. Such a scenario implies an agency of computers as artefacts and must be quite unsettling for any theoretical thinking that builds on the premise that only humans can be legal or political actors.

While Sunstein’s critique of content personalisation’s effects on deliberative democracy has been debated in the academic literature (although with ambiguous results), the more radical thesis of the shift of decision-making power from humans to computers has not been addressed. If it were true that technology is regulating the

---

<sup>33</sup> Ibid., at p. 218.

<sup>34</sup> On Benkler’s theory on the blogosphere and the networked public sphere see Sunstein, *supra* note 2, at pp. 114-17.

<sup>35</sup> Hosanagar et al., *supra* note 6, at p. 6. This study had a very limited scope and did not extend to the effects of personalisation on news programming.

<sup>36</sup> SOPA (Stop Online Piracy Act) and PIPA (Protect IP Act) were proposed by US Congress as new IP enforcement bills in 2011. They were stalled as a consequence of massive Internet protests including a 24-hour Wikipedia blackout on 18/19 January 2012, millions of e-mails and thousands of phone calls addressed to members of US Congress to raise awareness of the harm that the planned laws would mean for Internet freedom.

<sup>37</sup> Benkler et al., *supra* note 12.

<sup>38</sup> Ibid., at pp. 9-10.

<sup>39</sup> Ethan Zuckerman, *Rewire: Digital Cosmopolitans in the Age of Connection*, New York: W.W. Norton & Company, 2013.

<sup>40</sup> See Sunstein, *supra* note 2, at p. 52.

<sup>41</sup> Ibid., at p. 55.

<sup>42</sup> See also Hildebrandt and Koops, *supra* note 20, at pp. 431-35.



behaviour of human beings then this would require important adaptations within the legal system. However, the validity of this point cannot be discussed without a prior analysis of the regulatory effects of digital technology and the impact they may have on individual and social autonomies.

### 3. DO PERSONALISATION TECHNOLOGIES REGULATE HUMAN BEHAVIOUR?

In 1980, Langdon Winner famously wrote that “technological innovations are similar to legislative acts or political foundations that establish a framework for public order that will endure over many generations.” From this Winner concluded that “the same careful attention one would give to the rules, roles, and relationships of politics must also be given to such things as the building of highways, the creation of television networks, and the tailoring of seemingly insignificant features on new machines.”<sup>43</sup> As the tailoring and personalisation of content online depends on technologies, the question is whether these technologies regulate human behaviour. Is “code” a regulator?

#### 3.1 OVERCOMING A STATE-CENTRED CONCEPT OF REGULATION

The question of whether technology and, more specifically, “code”, should be viewed as a regulator would certainly be answered in the negative by any theory understanding “regulation” as some form of state intervention that is backed by (penal) sanctions. According to Julia Black, such a “command and control” based concept of regulation is state-centred, since it “posits a particular role for the state”.<sup>44</sup> State-centred concepts dominate the definitions of regulation proposed by leading textbooks as well as those used in government publications.<sup>45</sup> In her research, Black has provided a detailed critique of a state-centred understanding of regulation, arguing that a number of notions call for decentring the concept of regulation, including complexity (both causal and with interactions between actors in society), fragmentation of knowledge and power, autonomy and ungovernability of actors or systems, interactions and interdependencies between social actors and the collapse of the public/private distinction.<sup>46</sup> Black convincingly shows that decentred concepts of regulation have similarities with pluralistic concepts of law.<sup>47</sup> Legal pluralism is indeed similar to a decentred concept of regulation insofar as it rejects state-centred concepts of the law. Legal pluralists such as Eugen Ehrlich, Niklas Luhmann and Gunther Teubner argue that “living law” and other private forms of social ordering

---

<sup>43</sup> Langdon Winner, ‘Do Artifacts Have Politics?’ (1980) *Daedalus*, 109 (1), pp. 121-36, at pp. 121, 128.

<sup>44</sup> Julia Black, ‘Critical Reflections on Regulation’ (2002) *Australian Journal of Legal Philosophy*, 27 (1), pp. 1-35, at p. 3.

<sup>45</sup> *Ibid.*, at p. 11.

<sup>46</sup> *Ibid.*, at pp. 4-8.

<sup>47</sup> *Ibid.*, at p. 29.

should not be excluded a priori from a definition of law.<sup>48</sup> Similarly, as legal pluralism views law as being more encompassing than state law, a decentred concept of regulation is not limited to state intervention backed by sanctions.

### 3.2 DISTINGUISHING LAW AND REGULATION

The question, however, is how law and regulation differ in a non-state-centred paradigm. Arguments that regulation would be “less than law” (i.e. that the species “regulation” is a component of the genus “law”) are rightly rejected by Black.<sup>49</sup> Although Black is rather irresolute with regard to fully embracing the alternative that “regulation is more than law”, she seems to conceptualise the law as a technique or an instrument employed by regulation.<sup>50</sup> In my view, Black’s terminology “more than law/less than law” is not really helpful; while regulation is generally the broader term (and law the narrower) overlaps are possible in the case of legal rules which do not regulate (dispute settlement, enabling clauses, programmatic provisions etc.). Consequently, I suggest conceiving law as a modality of regulation.

Black develops a definition of regulation that, while being decentred, retains an element of intentionality and thus explicitly excludes technology, market forces or social norms from the definition.<sup>51</sup> In my view, the clear-cut exclusion of technology from her concept of regulation needs to be questioned.<sup>52</sup> I agree with her that technology is not a regulator. It is neutral and can be used for a number of purposes.<sup>53</sup> Within the setting of her analysis, it is thus only consequent to conclude that technology is not a regulator. However, this setting appears to be too narrow for the needs of the digital environment. Although technology has no intentions and is thus itself not a regulator, it can be used as a tool to execute somebody else’s intentions. Often, these are intentions to regulate, that is, in the definition of Philip Selznick, to exercise “sustained and focused control” of others’ behaviour.<sup>54</sup> Technology is indeed a very important means of regulation, as I would like to argue in the following.

<sup>48</sup> Eugen Ehrlich, *Fundamental Principles of the Sociology of Law*, translation by Walter L. Moll, New Brunswick: Transaction Publishers, 2002 (first published 1913 in German, 1936 in English), at pp. 486-98.

<sup>49</sup> See Black, *supra* note 44, at pp. 31-33.

<sup>50</sup> *Ibid.*, at p. 33.

<sup>51</sup> *Ibid.*, at p. 26, defines regulation as “the sustained and focused attempt to alter the behaviour of others according to defined standards or purposes with the intention of producing a broadly identified outcome or outcomes, which may involve mechanisms of standard-setting, information-gathering and behaviour-modification.”

<sup>52</sup> Economic theory approaches to regulation generally presuppose that there is a choice. For a discussion of the problems that such approaches pose in the realm of digital technology, see Niva Elkin-Koren and Eli M. Salzberger, *Law, Economics and Cyberspace: The Effects of Cyberspace on the Economic Analysis of Law*, Cheltenham: Edward Elgar, 2004, at pp. 127-28.

<sup>53</sup> Alain Pottage, ‘Biotechnology as Environmental Regulation’, in Andreas Philippopoulos-Mihalopoulos (ed.), *Law and Ecology: New Environmental Foundations*, New York: Routledge, 2012, pp. 106-08, at p. 105.

<sup>54</sup> Philip Selznick, ‘Focusing Organizational Research on Regulation’, in Roger G. Noll (ed.), *Regulatory Policy and the Social Sciences*, New York: Routledge, 1985, pp. 363-64, at p. 363.

### 3.3 TECHNOLOGY AS A MODALITY OF REGULATION

The first element of my chain of argument is Lawrence Lessig's distinction of four modalities of regulation, including law, social norms, markets and physical architectures.<sup>55</sup> Langdon Winner claimed that there was a regulatory role of physical architecture back in 1980. In "Do artifacts have politics?" he explained his thesis with the story of Robert Moses' architectural politics. Moses, the master builder of many public works during the first half of the 20th century in New York, designed overpasses on the roads to Long Island to be extremely low-hanging in order to prevent poor and black people travelling in tall buses from accessing the beautiful public parks on Long Island.<sup>56</sup> Lessig uses the architecture metaphor more broadly to include "the architecture of the Net – or its 'code'".<sup>57</sup>

I would agree with Lessig that understanding law as a modality of regulation grasps the relationship between the two concepts well. In light of the above discussion, I would however disagree with Lessig insofar as his concept of law is obviously state-centred. This is (indirectly) revealed by the fact that he distinguishes law from markets. Above, I have emphasised the similarities between a decentred concept of regulation and a pluralist concept of law. Legal pluralism claims that law is not limited to state law but also encompasses forms of law that emanate from private actors. Ehrlich argues that "living law" is more important than state law or judge-made law since the main source of law has always been and still is society.<sup>58</sup> For Luhmann and Teubner market-specific interpretations of general regulations or "lex mercatoria" are prime examples demonstrating the proliferation of privately produced law.<sup>59</sup> Consequently, under a pluralist concept of law, private processes of norm-generation in markets would be considered as "law" and thus become obsolete as a distinct modality of regulation.

Admittedly, in the context of this paper, the conceptualisation of markets within regulatory theory is less important than the question of whether physical architectures, Lessig's fourth category, should be conceived as a modality of regulation. Lessig defines code as a form of co-action between software and hardware on the Internet.<sup>60</sup> He analogises code with architecture because, like physical architecture in the real world,<sup>61</sup> code delimits where one can go and what one can do in the virtual world. James Grimmelmann criticises the spatial analogy

<sup>55</sup> Lawrence Lessig, *Code and Other Laws of Cyberspace*, New York: Basic Books, 1999, at p. 235.

<sup>56</sup> See Winner, *supra* note 43, at pp. 123-24.

<sup>57</sup> Lawrence Lessig, *Code: Version 2.0*, 2nd edn, New York: Basic Books, 2006, at p. 81.

<sup>58</sup> See Ehrlich, *supra* note 48, at pp. 159-64. For Ehrlich, the psychological reaction to the breach of a norm would decide whether one was concerned with law or a social norm. *Ibid.*, at pp. 164-65.

<sup>59</sup> Niklas Luhmann, *Law as a Social System*, translation by Klaus A. Ziegert, Oxford: Oxford University Press, 2004 (first published 1993 in German, 2004 in English), at p. 293; Gunther Teubner, 'Global Bukowina: Legal Pluralism in the World Society', in Gunther Teubner (ed.), *Global Law Without a State*, Aldershot, Brookfield, USA: Dartmouth, 1997, pp. 3-28, at pp. 6-7; see also Gunther Teubner, 'Autopoiesis and Steering: How Politics Profits from the Normative Surplus of Capital', in Roeland In't Veld et al. (eds), *Autopoiesis and Configuration Theory: New Approaches to Societal Steering*, Dordrecht, Boston: Kluwer Academic Publishers, 1991, pp. 127-41, at p. 127.

<sup>60</sup> See Lessig, *supra* note 55, at p. 121.

<sup>61</sup> Karen Yeung, 'Towards an Understanding of Regulation by Design', in Roger Brownsword and Karen Yeung (eds), *Regulating Technologies: Legal Futures, Regulatory Frames and Technological Fixes*, Oxford: Hart, 2008, pp. 79-107, at pp. 81-82.

evoked by the architecture metaphor as misleading.<sup>62</sup> Without discussing Lessig's first three modalities in detail, Grimmelmann argues that software, rather than physical architecture, should be considered as the fourth modality of regulation. He finds software more persuasive than physical architecture because of programmers' ability to articulate in detail comprehensive and complex systems of regulation, something that physical architects are not able to do.<sup>63</sup> Grimmelmann is right in his assertion that a physical architecture suggests rather simple causalities – something that does not fit software programmes. Indeed, software is not only automated, immediate and “plastic”,<sup>64</sup> it is a complex technology that may be programmed with a wide range of attributes “to behave”.<sup>65</sup>

If we were to follow Grimmelmann's suggestion<sup>66</sup> and swap computer software for physical architectures as a distinct modality of regulation, we would face the question of why only software and not hardware, as Lessig's definition of code would imply. Indeed, important developments in the digital environment – such as trusted computing, digital rights management (DRM) and integrated proprietary systems<sup>67</sup> – require software and hardware to dovetail and, thus, singling out one at the expense of the other is disputable.<sup>68</sup> In my view “technology” would be a better term to denote what is really at issue while avoiding both the shortcomings of Lessig's spatial imagery and Grimmelmann's exclusiveness.

Conceptualising technology as a means or mode of regulation does not imply that technology operates in total independence from influences of human beings. I reject an instrumentalist approach to technology that would presuppose a relationship of linear causality between the technology and its regulatory “mission”. As a knife may be used for multiple purposes (as a tool to prepare food or as a weapon), DRM technologies, for example, do not just serve to enforce copyright. In a review of US court cases that have been decided under the anti-circumvention rules of the Digital Millennium Copyright Act (DMCA), Dan Burk has forcefully shown how the use of DRM technologies shifted their function from enforcing copyright protection towards controlling markets through the exclusion of products that do not correspond to a certain standard of technical interoperability.<sup>69</sup> Such “mission creep” has also been observed with regard to the regulatory functions of other technologies,

---

<sup>62</sup> James Grimmelmann, ‘Regulation by Software’ (2005) *Yale Law Journal*, 114, pp. 1719-58, at pp. 1727-28.

<sup>63</sup> *Ibid.*, at p. 1728.

<sup>64</sup> *Ibid.*, at p. 1723.

<sup>65</sup> Dan L. Burk, ‘Legal and Technical Standards in Digital Rights Management Technology’ (2005) *Fordham Law Review*, 74, pp. 537-73, at p. 546, quoting Pamela Samuelson et al., ‘A Manifesto Concerning the Legal Protection of Computer Programs’ (1994) *Columbia Law Review*, 94, pp. 2308-56, at p. 2316.

<sup>66</sup> See Grimmelmann, *supra* note 62, at p. 1723.

<sup>67</sup> Apple apps, for example, link users to the Internet, provided they are employing both hardware and software that is produced or licensed by Apple Inc. Apps are attractive to users as they provide applications of software that require just a few finger taps to book a hotel, see the latest weather forecast or find the nearest bus stop and so on. However, they have the considerable disadvantage of locking the user into an iron cage of a proprietary digital system of integrated software and hardware.

<sup>68</sup> Michael Madison, ‘Law as Design: Objects, Concepts, and Digital Things’ (2005-2006) *Case Western Law Review*, 56 (2), pp. 381-478, at p. 402.

<sup>69</sup> See Burk, *supra* note 65, at pp. 561-68.

including genetic use restriction technologies (GURTs).<sup>70</sup> Similarly, the function of the technology employed for online personalisation depends on how it is interpreted by an observer. Whereas users of the Google search engine may interpret the function of the PageRank algorithm as a means for tackling information overload, the possibility to target consumers for advertising purposes is more important for Google. The technology itself is neutral but it can be employed for a number of purposes. The function that a technology fulfils is always a social construct and depends on interpretation.<sup>71</sup> It is the observer of the technology (a corporate actor, a user, a defender of deliberative democracy etc.) who sees those features of the technology that are obvious to them, and the regulator (a government, a corporation) employs those functions of the technology that best serve its interests.

Consequently, I favour a broad concept of regulation that allows the conceptualisation of both law (in a pluralist sense, as set out above) and technology as distinct modalities of regulation.

#### 4. REGULATION BY “CODE” V. REGULATION BY LAW

So far, I have found that technology, including personalisation technology, is a mode of regulation. An instrumentalist view of code was rejected with the argument that the function a technology fulfils is not a constant but is dependent on interpretation, and may vary according to the specific discourse within which it is articulated. With regard to both DRM systems and online content personalisation, I have shown that the discourse can shift depending on multiple legal, economic, political or other influences. In many cases, the primary function of digital technologies online is to enforce IP rights or other types of public or private rules. Importantly, a rule (e.g. a complex mathematical formula) that is programmed in code does not depend on something outside the technological thing for its enforcement; it is self-executing. This is different from legal regulation, where execution is generally the result of close cooperation between the legal system and the political system. According to Luhmann, the legal system is responsible for the production of decisions determining the conditions under which physical force can be applied (e.g. the force that is applied when a convict is imprisoned).<sup>72</sup> Practically, these decisions are taken by the courts, a sub-system of the law. The political system (the state), in turn, provides the possibilities to actually enforce the legal decisions. The potential availability of the means of enforcement is the premise for the law being obeyed. With regard to the technologies of the Internet, the potential availability of physical force as a means of rule enforcement is of little importance. Since digital technology is self-executing, there is no need for the political system to

---

<sup>70</sup> As Alain Pottage has shown, GURTs have changed their mission three times: from protecting IP, to becoming a tool for biosafety protection, to becoming an incentive for co-existence policies. See Pottage, *supra* note 53, at pp. 105-25.

<sup>71</sup> “Materiality is sociality” as Bruno Latour would say. See Bruno Latour and Vincent A. Lépinay, *L'économie, science des intérêts passionnés*, Paris: La Découverte, 2008, at p. 107. See also Helen Nissenbaum, ‘From Preemption to Circumvention: If Technology Regulates, Why Do We Need Regulation (and Vice Versa)?’ (2011) *Berkeley Technology Law Journal*, 26, pp. 1367-86, at pp. 1376-77, quoting Bryan Pfaffenberger, ‘Technological Dramas’ (1992) *Science, Technology, & Human Values*, 17 (3), pp. 282-312, at p. 283.

<sup>72</sup> Niklas Luhmann, *Ausdifferenzierung des Rechts*, Frankfurt am Main: Suhrkamp, 1999, at pp. 163-70.

guarantee the enforcement of its underlying rules. How should we conceive this peculiar interdependency between the technology and the regulations that it helps to implement?

Code appears to engineer the form that the regulation can take to navigate social behaviour in cyberspace. The specificities of the digital environment seemingly affect the “competition” between law and technology as modes of regulation and their employment by legislators or private actors, respectively. In the case of online content personalisation, the question is therefore: how exactly does regulation by code relate to regulation by law? Does the former substitute for the latter? If yes, would this affect individual and social autonomies? In order to respond to these questions we first need to analyse more closely the difficult relationship between the social (communicative processes) and the technology, and study how online personalisation technologies affect individual and social autonomies, before clarifying the concept of law in cyberspace.

#### 4.1 THE “DISPOSITIVE” OF ONLINE CONTENT PERSONALISATION: CONCEPTUALISING THE RELATIONSHIP BETWEEN COMMUNICATION AND TECHNOLOGY

For socio-legal studies the relationship between the social and technology is difficult to conceptualise. Niklas Luhmann’s sociological systems theory provides for one of the most sophisticated analyses of modern society and its legal system. In the Internet context, however, the weakness of Luhmann’s theory is that its radical focus on communication implies the marginalisation of technological media.<sup>73</sup> For Luhmann, only communications are able to communicate: human beings, brains and computers do not communicate. Although he concedes that computers will often produce a structural coupling between consciousness and communication, he insists that their effect must remain indiscernible for both human consciousness and social communication.<sup>74</sup> For Luhmann, treating technological media as a mere auxiliary means of communication was ultimately a question of theory design that allowed him to tackle the enormous complexities arising from his project of a general theory of modern society. However, suppressing the important influences that technological media have on individual and social autonomies turns out to be a considerable drawback for social theorising in the 21st century.

In order to cope with the enhanced importance of technological media in the digital environment, I suggest a refinement of Luhmann’s approach by adding a material link to systems theory. As I explain in the following, my ideas are inspired by Michel Foucault’s concept of the “dispositive”. Foucault introduced the dispositive in the mid-1970s and assigned it a central place in his philosophy, at the moment of a methodological transition from “archaeology” to “genealogy”.<sup>75</sup> As

<sup>73</sup> For a similar critique see Vagias Karavas, *Digitale Grundrechte: Elemente einer Verfassung des Informationsflusses*, Baden-Baden: Nomos, 2007, at pp. 146-50.

<sup>74</sup> Niklas Luhmann, *Theory of Society*, vol. I, translated by Rhodes Barret, Stanford, CA: Stanford University Press, 2012, at pp. 65-66.

<sup>75</sup> Jürgen Link, ‘Dispositiv und Interdiskurs. Mit Überlegungen zum “Dreieck” Foucault – Bourdieu – Luhmann’, in Clemens Rammler and Rolf Parr (eds), *Foucault in den Kulturwissenschaften: eine Bestandesaufnahme*, Söchtenau: Synchron, 2007, pp. 219-38, at p. 219.

Foucault's writings are often difficult to decipher, it is not surprising that various scholars have interpreted the concept in different ways. The most extensive definition of the *dispositivo* that Foucault himself offered can be found in an interview that he gave to the psychologist Jacques-Alain Miller and his colleagues from the University of Paris VIII in 1977.<sup>76</sup> According to Jürgen Link's analysis of the interview, the methodological function of the *dispositivo* for Foucault is to capture a complex strategic assemblage including a horizontal and a vertical dimension.<sup>77</sup> Horizontally, the *dispositivo* consists of discourses and non-discursive elements; vertically, elements of power are identified to create hierarchical relationships between those who dispose power and the addressees of such disposal. Importantly, the *dispositivo* is dynamic in time, and the horizontal and vertical dimensions are interwoven.<sup>78</sup>

Horizontally, the discursive elements of the *dispositivo* are combined with each other (inter-discursive relationship) and with non-discursive, material elements (trans-discursive relationship).<sup>79</sup> In a Luhmannian reading, one could think of the systems of law, politics and economics as examples of the *dispositivo*'s discursive elements. Furthermore the discursive elements would combine with non-discursive elements, including technology and other material things, to constitute the trans-discursive relationship. In this way the *dispositivo* establishes the link between the social and technology, which was missing in Luhmann.<sup>80</sup> The vertical dimension of the *dispositivo* reflects an asymmetrical power relationship between hegemony and subjection, or between "master and servant", if expressed in Marxist terms.<sup>81</sup> The disposability of power establishes the distinction between those who make the decisions and the subjects of such decisions. Both dimensions are mutually interwoven and affect each other. Together they contribute to the dynamic evolution of the *dispositivo*.<sup>82</sup>

Although Foucault always refused to think about general categories, this does not mean, as Giorgio Agamben emphasises, "that there are no concepts of a general character" in his thinking. It is indeed the *dispositivo*, Agamben continues, which takes the place, within a Foucauldian strategy, of a "general category ... of rationality".<sup>83</sup> Consequently, the *dispositivo* has a potentially broad area of application, which goes beyond the specific semantic contexts (such as sexuality, madhouse, prison etc.) in which Foucault himself applied the concept.

Hence, I suggest using the conceptual elements, outlined above, to describe online content personalisation as a *dispositivo*. When doing so, in the horizontal

<sup>76</sup> Michel Foucault, 'Le jeu de Michel Foucault', in Daniel Defert and François Ewald (eds), *Michel Foucault. Dits et Ecrits*, Paris: Gallimard, 1994, at pp. 298-329.

<sup>77</sup> See Link, *supra* note 75, at pp. 223-25.

<sup>78</sup> For an interpretation of Foucault's *dispositivo* that does not emphasise the vertical dimension see Alain Pottage, 'The Materiality of What?' (2012) *Journal of Law and Society*, 39 (1), pp. 167-83, at p. 182.

<sup>79</sup> See Jürgen Link, 'Dispositiv', in Clemens Kammler, et al. (eds), *Foucault-Handbuch: Leben - Werk - Wirkung*, Stuttgart: J.B. Metzler, 2008, pp. 237-242, at p. 239.

<sup>80</sup> In Luhmannian terms this could be conceptualised as a structural coupling between communication and consciousness through a technical medium, requiring a further specification of the interplay between semantic processes and technical-physical causalities.

<sup>81</sup> See Link, *supra* note 75, at pp. 220, 227.

<sup>82</sup> See Foucault, *supra* note 76, at p. 299. See also Link, *supra* note 75, at pp. 222-23.

<sup>83</sup> Giorgio Agamben, *Che cos'è un dispositivo?*, Roma: Nottetempo, 2006, at p. 13.

dimension of the dispositive the most relevant discursive elements are the economic sub-topics of selling big data, targeted advertising or tackling information overload, the legal sub-topics of free speech, access rights, consumer and privacy protection, and the political sub-topics of information diversity or deliberative democracy etc. These discursive elements interrelate with each other in the sphere of communication as relationships between the systems of economics, law and politics. At the same time they are in a trans-discursive relationship with material elements, including the algorithms as well as the mechanisms of data mining as employed by personalisation technologies. The horizontal dimension is interwoven with the vertical one where an asymmetry of power (and knowledge) exists in the relationship between Internet companies (Facebook, Google, Amazon etc.) and consumers/users/citizens. The vertical dimension impinges upon the horizontal since the majority of users may not be aware that their online behaviour is being tracked by a certain web page.<sup>84</sup> Those users who know about online content personalisation will rarely be able to circumvent the technology.<sup>85</sup> The corporation owning a social network or other Internet platform generally enjoys hegemony of power and knowledge whereas the user (consumer or citizen) is in a situation of subjection and will often not be aware of the rules that are embodied in the technology's functionality.<sup>86</sup> It is the corporation (specifically the programmers acting as its extended arm) that knows best how the code works and it is the corporation that has the power to change the code. The user in general is relatively powerless – his influence ends at the interface level and he has no possibility of perceiving let alone influencing the conditions of the computer's operations.<sup>87</sup> In all likelihood, there will be some vertical counter-pressure coming from hackers and other tech-savvy users who are able to opt out from content personalisation or understand its functioning. While they will be able to subvert the hegemon's total control of the code on rare occasions, hackers will seldom (if ever) be powerful enough to annihilate the general asymmetry. What is more, the capabilities of hackers are not widely distributed in society and even those tech-savvy users who manage to circumvent or turn off personalisation will find switching to alternative social networking sites difficult because of the technology's lock-in effects.<sup>88</sup>

<sup>84</sup> Hildebrandt and Koops, *supra* note 20, at p. 444. Some users may accept an intrusion into their privacy sphere in exchange for free applications. See Elkin-Koren and Salzberger, *supra* note 52, at p. 116.

<sup>85</sup> For an account of the practical difficulties users face when they want to find out about a web page's targeting and tracking activities or if they decide to opt out from online content personalisation, see Turow, *supra* note 4, at pp. 180-82.

<sup>86</sup> Elkin-Koren and Salzberger, *supra* note 52, at p. 123.

<sup>87</sup> Friedrich A. Kittler, 'Protected Mode', in John Johnston (ed.), *Literature, Media, Information Systems: Essays*, Amsterdam: GB Arts International, 1997, pp. 156-68, at p. 158: "The higher and more effortless the programming languages, the more insurmountable the gap between those languages and a hardware that still continues to do all of the work. ... While on the one hand it remains possible in principle to write user-software or cryptograms with a knowledge of codes or algorithms, on the other and user-friendly concealed hand it is by now impossible to decipher the product specifications of the finished product or even to change these specifications." Quoted in Cornelia Vismann and Markus Krajewski, 'Computer Juridisms' (2007) *Grey Room*, 29, pp. 90-109, at p. 96.

<sup>88</sup> Lock-in is the dark side of network effects. "Network effect" is a term used in the economic literature to describe the effects that make the value of a network increase to the user as the number of participants of the network grows. Prime examples are telephone networks and the Internet. See Michael L. Katz and Carl Shapiro, 'Systems Competition and Network Effects' (1994) *Journal of Economic Perspectives*, 8 (2), pp. 93-115. As leaving the advantages of the network would create costs, lock-in is the consequence. See Burk, *supra* note 65, at pp. 552-53.



## 4.2 THE PERSONIFICATION OF COMPUTERS

By drawing our attention to the “materiality” of law the dispositive allows us to examine more closely how code impacts the law.<sup>89</sup> This brings us back to our initial question of whether the latest wave of technological developments in online content personalisation have indeed established computers as decision-makers or actors in law and politics. Michel Callon, Bruno Latour and John Law have advanced a sociology of an actor-network (ANT) that includes both human and non-human actors.<sup>90</sup> Latour’s ANT has an “old kinship”<sup>91</sup> with Foucault’s dispositive since the actor-network is dynamic and heterogeneous and its nodes include both material and semantic elements.<sup>92</sup> In “Politics of Nature” Latour attributes action to new types of “actants” that are not human actors.<sup>93</sup> Teubner has shown that, in the case of electronic contracting, the law already attributes elements of legal personality to non-humans in certain cases.<sup>94</sup> Arguably, personification of electronic agents has, ultimately, turned out to be a successful strategy to cope with the risk of uncertainty in electronic contracting.<sup>95</sup> Rather than discussing failures in automated data processing in terms of causalities, the law is here considering contracting between humans and machines.<sup>96</sup> The focus is now on mutual expectations in contractual or liability relationships. By treating electronic agents (including computers exhibiting artificial intelligence) as actants, the law is socialising materiality. According to Teubner, it is not necessary to endow machines with the full status of a legal personality – the recognition of a limited capacity to act will be sufficient.<sup>97</sup> To this end, the law may, for instance, hypothesise a standardised behaviour of computers in typical situations and thus stabilise normative expectations. As a consequence, the legal personification of computers turns out to be a strategy of society to defend itself against the new actants.

In a second step, Latour introduces “hybrids” as the personification of associations between human actors and actants.<sup>98</sup> Hybrids are particularly important in the Internet environment as the computer and the user interweave into a mutual dependency.<sup>99</sup> Rather than perceiving the computer merely as a passive tool of the

<sup>89</sup> See Pottage, *supra* note 78, at pp. 168-69.

<sup>90</sup> Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory*, Oxford: Oxford University Press, 2005; Michel Callon, ‘The Sociology of an Actor-Network’, in Michel Callon et al. (eds), *Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World*, Basingstoke: Macmillan, 1986, pp. 19-34; John Law, ‘Technology and Heterogeneous Engineering: The Case of Portuguese Expansion’, in Wiebe E. Bijker et al. (eds), *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, Cambridge, Mass.: MIT Press, 1987, pp. 111-34, at p. 111.

<sup>91</sup> See Pottage, *supra* note 78, at p. 180.

<sup>92</sup> See Latour, *supra* note 90, at pp. 128-29.

<sup>93</sup> Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy*, Cambridge, Mass.: Harvard University Press, 2004, at pp. 62-70.

<sup>94</sup> Gunther Teubner, ‘Rights of Non-Humans? Electronic Agents and Animals as New Actors in Politics and Law’ (2006) *Journal of Law and Society*, 33 (4), pp. 497-521, at pp. 505-08.

<sup>95</sup> *Ibid.*, at p. 503.

<sup>96</sup> *Ibid.*, at p. 511.

<sup>97</sup> *Ibid.*, at p. 515.

<sup>98</sup> See Latour, *supra* note 93, at pp. 75-82.

<sup>99</sup> Vagias Karavas, ‘Das Computer-Grundrecht: Persönlichkeitsschutz unter informationstechnischen Bedingungen’ (2010) *WestEnd: Neue Zeitschrift für Sozialforschung*, 7 (2), pp. 95-108, at p. 99.

user, ANT encourages one to understand it as a thing that is able to influence and actually transform the communication process. According to Mayer-Schönberger, “user-created content, peer-production, blogging, media and knowledge sharing, and online social networks ... created the language that enabled the podcasting wave, much like the actor-network approach would suggest.”<sup>100</sup> When the user/computer dichotomy is substituted by hybrids, the methodological focus shifts to the quality of the relationship between the humans and actants. Teubner has pointed to the problems of alienation and reification of social relations that have accompanied the proliferation of computer- and Internet-based communication.<sup>101</sup> Alienation was palpable in the reactions of large segments of society when the National Security Agency’s (NSA) all-embracing Internet surveillance was discovered and Google, Facebook, Twitter, Apple, Microsoft and their like were suspected of clandestine cooperation.<sup>102</sup> Suddenly, millions of Internet users around the globe became aware of how vulnerable their association with the computer was. In the lobbying initiative with the US Government that the major Internet companies launched as a reaction to this, the frequent use of the word “trust” was telling. Microsoft put it in a nutshell: “People won’t use technology they don’t trust.”<sup>103</sup> Reification may be a problem when legal rules are expressed in the medium of code. Indeed, the embedding of rules in code rather than text will affect the performance of the rules.<sup>104</sup> Classically, legal rules are enacted in the form of a statute, or act, and written down in the medium of text. Legal texts need to be interpreted in order to unfold the rule’s meaning and take effect on third persons. Generally speaking, the interpretation of legal rules that are formalised in a printed document is a semantic exercise that involves a person inferring a certain claim from a postulated rule and one or several claimed addressees of that rule. If there is a dispute on the right interpretation of the text and the rule enshrined therein, it is ultimately the task of a judge to make an authoritative decision. Conversely, when rules are expressed in the medium of code, the scope for interpretation is minimal. Code, as mentioned above, is largely self-executing. The addressee of code (the user of the Google search engine, for instance) will not have the ability to influence the outcome of the interpretation of the rule (the

<sup>100</sup> Viktor Mayer-Schönberger, ‘Demystifying Lessig’ (2008) *Wisconsin Law Review*, 4, pp. 713-46, at p. 745.

<sup>101</sup> See Teubner, *supra* note 94, at p. 521.

<sup>102</sup> Although Google, Apple, Yahoo, Microsoft, Facebook and AOL have denied having given NSA consumer data for surveillance purposes, Rajesh De, the NSA general counsel, testified in a hearing of the Privacy and Civil Liberties Oversight Board (an independent agency within the US Government) on 19 March 2014 that “all communications content and associated metadata harvested by the NSA under a 2008 surveillance law occurred with the knowledge of the companies – both for the internet collection program known as Prism and for the so-called ‘upstream’ collection of communications moving across the internet.” ‘US Tech giants knew of NSA data collection, agency’s top lawyer insists’, *The Guardian* (19 March 2014).

<sup>103</sup> Available at <http://reformgovernmentsurveillance.com>; the lobbying campaign went online on 10 December 2013.

<sup>104</sup> John Law and Vicky Singleton, ‘Performing Technology’s Stories: On Social Constructivism, Performance, and Performativity’ (2000) *Technology and Culture*, 41 (4), pp. 765-75, at p. 767; for a philosophical account of the performative force of law: Jacques Derrida, ‘Force of Law: The “Mystical Foundation of Authority”’ (1990) *Cardozo Law Review*, pp. 919-1045, at pp. 941-73; Jürgen Habermas, *Between Facts and Norms: Contributions to a Discourse Theory of Law and Democracy*, translation by William Rehg, Cambridge, Mass.: MIT Press, 1996, for whom the law is a system of knowledge and a system of action at the same time; the founding text for the speech act theory is John L. Austin, *How To Do Things With Words*, 2nd edn, Cambridge, Mass.: Harvard University Press, 1975.

algorithm). She will either have to accept the code's performance (for instance the computations made on the basis of the 57 "signals" input) and content herself with the search results displayed on her computer screen or, alternatively, she will have to exit from the service, although this might incur transaction costs.<sup>105</sup> Technology enlists users into particular roles and this may mean a curtailing of individual or social autonomies. Do we need meta-rules to protect essential freedoms on the Internet and to counteract the code's effects of alienation and reification?

### 4.3 THE CONCEPT OF LAW IN CYBERSPACE

The question about meta-rules for cyberspace requires a deeper reflection on the structural relationship between code and law from a normative perspective. Hence, we need to elucidate the essential features of the concept of law in the digital networked environment. For this, H.L.A. Hart's distinction between primary rules and secondary rules is helpful.

For Hart, primary rules are rules that impose obligations (e.g. obligations not to use violence, theft or deception).<sup>106</sup> The obligations imposed by primary rules require serious social pressure against deviation.<sup>107</sup> Secondary rules are rules that determine the operation of primary rules (determining which rules are actually primary rules, how primary rules are changed and how breaches thereof are adjudicated). Secondary rules are rules of validation, they reflect on the validity of primary rules. Whereas primary rules are operations of orders, secondary rules are "parasitic" upon the first and function as second order observations.<sup>108</sup> Rules of the first type "concern actions involving physical movement or changes"; secondary rules lead "to the creation or variation of duties or obligations".<sup>109</sup> There is clearly a hierarchical relationship between the two types of rules in a similar way to the hierarchy between constitutional norms and norms of ordinary law. Constitutional rules are of a higher hierarchical order than rules of ordinary law because they determine the conditions of the law's self-production, including the procedures of legitimation that must be respected when producing law.

Could one translate this distinction between primary and secondary rules into the digital environment? Seconding Teubner, I would like to argue that this is indeed possible. Code has the effect of controlling conduct and is thus analogous to Hart's concept of primary rules.<sup>110</sup> The fact that on the Internet the enforcement of primary rules is caused by technical constraints rather than social pressure does not make the analogy invalid. For Hart, societies with only primary rules of obligation suffer from considerable defects, including 1) uncertainty as to what the rules are, 2) the static character of the rules and 3) inefficiency (of the diffuse social pressure by which the

---

<sup>105</sup> See Burk, *supra* note 65, at pp. 552-53.

<sup>106</sup> H. L. A. Hart, *The Concept of Law*, London: Oxford University Press, 1961, at p. 89.

<sup>107</sup> *Ibid.*, at p. 84.

<sup>108</sup> *Ibid.*, at p. 79.

<sup>109</sup> *Ibid.*, at p. 79.

<sup>110</sup> Gunther Teubner, 'Societal Constitutionalism: Alternatives to State-Centred Constitutional Theory?', in Christian Joerges et al. (eds), *Transnational Governance and Constitutionalism*, Oxford, Portland, Or.: Hart Publishing, 2004, pp. 3-28, at p. 23.

rules are maintained).<sup>111</sup> Similarly, rules embodied in code resemble the static quality of primary rules, since for the persons affected it is hard to change them. In the realm of personalisation technologies, for instance, users of the Google search engine have no possibility of changing the rules underlying the PageRank algorithm.<sup>112</sup> Moreover, there may often be uncertainty as to the existence of a rule underlying certain operations of code or the rule's scope.<sup>113</sup> This is clearly the case with online personalisation, since users are either not aware that the search result they are getting is personalised or do not know exactly how the algorithm works.<sup>114</sup> Finally, rules of code correspond to the inefficiency feature of primary rules since there is often no special independent agency ruling on the validity of rules of code, including the rules that are embedded in content personalisation algorithms.<sup>115</sup>

As mentioned, uncertainty, the static character and the inefficiency of primary rules are their main defects. According to Hart, more advanced societies have developed secondary rules that provide remedies for these major defects of primary rules. In the Internet context, secondary rules would accordingly be rules that provide remedies for the defects of rules that are enshrined in the medium of code. For Teubner such rules are "constitutional rules".

When using the term constitutional rules in the Internet context, Teubner argues that the traditional concept of the "constitution" should be used very broadly, to also encompass global phenomena beyond the constitution of the nation state.<sup>116</sup> While arguing that a functional equivalent of the national constitution exists at the global level, he cautions that it would be wrong to simply transfer "nation-state circumstances to world society".<sup>117</sup> Similarly, one needs to be careful when extending constitutional thinking to cyberspace.

For Teubner, the weak point in Hart's theory is that the proposed remedies for the three deficiencies of primary rules all finally converge in an ultimate rule of recognition. This rule of recognition raises the problem of the infinite regress of metameta-norms. It is thus not able to overcome the validity paradox of law that is self-created.<sup>118</sup> As a solution, Teubner suggests acknowledging the distinction between the formal constitutions that exist in most countries in the Western world and civil constitutions as products of civil society. He recommends identifying secondary rules emerging from civil constitutional frameworks and reformulating them within the highly formalised context of the "official" constitution.<sup>119</sup> I would like to further elaborate on Teubner's ideas and relate these to online content personalisation in the next section.

---

<sup>111</sup> See Hart, *supra* note 106, at pp. 90-91.

<sup>112</sup> See Pariser, *supra* note 15, at pp. 30-35.

<sup>113</sup> See Hart, *supra* note 106, at p. 90.

<sup>114</sup> See Pariser, *supra* note 15, at p.10, arguing that the "filter bubble is invisible".

<sup>115</sup> See Hart, *supra* note 106, at p. 91.

<sup>116</sup> See Teubner, *supra* note 110, at pp. 20.

<sup>117</sup> *Ibid.*, at p. 5.

<sup>118</sup> *Ibid.*, at p. 23.

<sup>119</sup> *Ibid.*, at p. 24.

## 5. SOCIETAL CONSTITUTIONALISM AND META-RULES FOR ONLINE CONTENT PERSONALISATION

The concept of “civil constitution” or “societal constitution” has played a central role in Teubner’s most recent work. Teubner’s use of “constitution” differs significantly from the way legal practitioners would define the concept. Rather than referring to the formalised text that is known as the constitution of a nation state, he understands “constitution” in a very broad sense, amounting to a kind of “constitutional pluralism”. As a starting point, Teubner refers to the internal differentiation of social systems into an organised-professional sphere and a spontaneous sphere.<sup>120</sup> This has similarities with Jürgen Habermas’ distinction between the political public sphere, which is organised, and civil society, which is spontaneous and chaotic.<sup>121</sup> According to Habermas the two concepts “are not mere normative postulates but have empirical relevance”.<sup>122</sup> While Habermas made this observation in the realm of the political system,<sup>123</sup> Teubner stresses that the distinction is manifest in all sub-systems of society. It is particularly evident not only in the political system but also in the economic system where corporations build the organised-professional sphere and consumers populate the spontaneous sphere.<sup>124</sup> The distinction of spontaneous/organised is essential to an understanding of the interrelation between formal and civil constitutional arenas. For Teubner, this distinction “is the starting point for societal constitutionalism, as reflexive politics is realised in different ways in each of the two spheres. The democratic quality of each social sector depends on their mutual interplay.”<sup>125</sup> The organised sphere does not receive direct input from the spontaneous sphere. In the economic system, for instance, it is often only after a decision has been taken in the organised sphere of corporations that a reaction is triggered in the spontaneous sphere of consumers.

The main driving force in the spontaneous sphere are NGOs, labour unions, consumer organisations, environmentalism, social movements, networks of Internet activism and other manifestations of protest. “Bottom-up constitutionalisation” is the denomination for liberalising thrusts that emerge from civil society – often in transnational contexts – and seek to politicise private consumer preferences as a tool to build up pressure against transnational corporations (TNCs). Teubner is optimistic that globalisation offers the chance for a better distribution of power in the relationship between the spontaneous and organised spheres. A structural challenge is posed by the fact that global regimes are detached from the close structural coupling between the systems of law and politics that is the typical paradigm of the

---

<sup>120</sup> Gunther Teubner, *Constitutional Fragments: Societal Constitutionalism and Globalization*, Oxford: Oxford University Press, 2012, at pp. 88-89.

<sup>121</sup> See Habermas, *supra* note 104, at pp. 373-79.

<sup>122</sup> *Ibid.*, at p. 373.

<sup>123</sup> Indeed, Habermas uses the distinction of system/lifeworld generally to describe the effects of functional differentiation in all areas of society. Whereas a “system” emerges from a process of formalisation and rationalisation in society, “lifeworld” describes a sphere of informal living together that contrasts with the reality of systems and leaves room for spontaneity and chaos. See Jürgen Habermas, *The Theory of Communicative Action. Lifeworld and System: A Critique of Functionalist Reason*, translation by Thomas MacCarthy, Boston: Beacon Press, 2007.

<sup>124</sup> See Teubner, *supra* note 120, at p. 89.

<sup>125</sup> *Ibid.*, at pp. 89-90.

nation state.<sup>126</sup> The question is how constitutional guarantees could be legally institutionalised in a way that would allow the spontaneous sphere to increasingly exert checks on and controls over the organised sphere.<sup>127</sup>

The organised-professional sphere of social sub-systems is the second aspect of Teubner's societal constitutionalism. Considering the transnational and global reach of most systems, the challenge consists in convincing not only national constitutional frameworks but also internal constitutions of formal organisations to respond to irritations coming from the spontaneous sector. Concerning the economic system, the main problem is what Teubner calls the "motivation-competency dilemma".<sup>128</sup> Whereas actors outside the organised sector are usually highly motivated to strengthen limitations within the economy, they will often lack the competence to do so effectively. Corporations, for their part, would have the competence to implement changes but often lack the motivation to do so. Since direct interventions are not available in the organised sphere at the transnational and global levels, indirect *learning pressures* are required. Pressure on TNCs to engage in learning to adapt would mainly come from "consumers on whose purchasing behaviour the corporations depend".<sup>129</sup>

If we relate these thoughts to the dispositive of online content personalisation, we have to return to Hart and acknowledge that a communicative process would be necessary to reflect on appropriate secondary rules for the Internet environment. Such an exercise would need to start in the specific sub-system of society and observe the system's self-foundation and the emergence of normative expectations out of an internal reflexive process. In a second step, constitutionalisation would require a juridification of the self-founded normative expectations within a legal process that is in itself reflexive.<sup>130</sup> As a means of constitutionalisation, the two reflexive processes serve to externalise the founding paradox of law to different social sub-systems and, hence, replace infinite regress, Hart's method of deparadoxification. In the case of online content personalisation, the specific social system would mainly be the economy, with the transnational Internet companies in the organised-professional sphere and the billions of Internet users in the spontaneous sphere. Considering the extreme complexities of Internet technologies and the one-sided distribution of power and knowledge between corporations and Internet users, the motivation-competency dilemma is particularly pronounced. As outlined above, this dispositive would call for two types of meta-rules: first, rules that regulate the personification of electronic agents and intelligent actants where this is needed to defend individual and social autonomies. The focus here should be on stabilising mutual expectations in contractual or liability relationships between users and networked computers. Second, would be rules that protect the relationship of trust between the user and the networked computer. In this regard the famous "Computer-Grundrecht", the constitutional right granting the confidentiality and integrity of information

---

<sup>126</sup> See Luhmann, *supra* note 74, at pp. 83-95; Niklas Luhmann, *Theory of Society*, vol. II, translated by Rhodes Barret, Stanford, CA: Stanford University Press, 2013, at pp. 124-31; see also Luhmann, *supra* note 59, at p. 404.

<sup>127</sup> See Teubner, *supra* note 120, at p. 91.

<sup>128</sup> *Ibid.*, at p. 92.

<sup>129</sup> *Ibid.*, at p. 95.

<sup>130</sup> *Ibid.*, at pp. 104-06.

technology (IT) systems comes to mind. This constitutional right, created by the German Constitutional Court in a landmark decision of 2008,<sup>131</sup> has been interpreted as specifically protecting the association between the user and the IT system in addition to issues of privacy.<sup>132</sup>

## 6. CONCLUSIONS

The above analysis has shown that personalisation technologies may increase users' capacities to deal with the enormous amount of information that is available on the Internet and reduce complexity.<sup>133</sup> However, algorithms and automated processes used for the personalisation of information may sometimes affect societal values in critical ways. A thorough understanding of the interrelationship between technology, regulation and law is necessary to assess how online content personalisation affects individual and social autonomies and where meta-rules would be required as safeguards. An analysis informed by Luhmann's sociological systems theory needs to be complemented with insights stemming from a free interpretation of Foucault's concept of the *dispositif*. The Internet is a hybrid techno-social network where human intelligence is required to make sure that algorithms work for the benefit of humanity and do not interfere with key societal values. Finally, Teubner's theory of civil constitutionalism allowed outlining how the law can respond to threats to individual and social autonomies caused by online personalisation technologies.

Although the provision of concrete solutions is beyond the scope of this paper, I would like to conclude on a more practical note. To effectively protect endangered autonomies in a context of personalisation technologies, constitutional rights would need to (positively) unfold protection at both an individual level and an institutional level.<sup>134</sup> Such an understanding of constitutional rights obviously does not limit their effects to the relationship individual/state.

At the individual rights level, the protection of a data subject's privacy and personal data is crucial.<sup>135</sup> These rights are preconditions for individual autonomy and the formation of the "self", which is vital for any natural person. Data protection is also necessary for individuals' opinion-building and their ability to express

---

<sup>131</sup> Bundesverfassungsgericht [BverfG] [Federal Constitutional Court], BverfGE 120, 274 (2008), paras 201, 203, 207.

<sup>132</sup> See Karavas, *supra* note 99, at p. 101.

<sup>133</sup> Cass R. Sunstein, *Impersonal Default Rules vs. Active Choices vs. Personalized Default Rules: A Triptych*, 2013, available at [https://dash.harvard.edu/bitstream/handle/1/9876090/Decidingbydefault11\\_5.pdf?sequence=1](https://dash.harvard.edu/bitstream/handle/1/9876090/Decidingbydefault11_5.pdf?sequence=1).

<sup>134</sup> According to sociological systems theory, basic rights of the constitution do not only protect the autonomous sphere of the individual, but rather the autonomous spheres of all functionally differentiated systems of modern society. See Christoph B. Graber, 'Internet Creativity, Communicative Freedom and a Constitutional Rights Theory Response to 'Code is Law'', in Sean Pager and Adam Candeup (eds), *Transnational Culture in the Internet Age*, Cheltenham, UK: Edward Elgar, 2012, pp. 135–164, at p. 157.

<sup>135</sup> See Hildebrandt and Koops, *supra* note 20, at p. 436.

themselves freely.<sup>136</sup> It would therefore not be sufficient to interpret privacy and data protection as a purely negative right “to be left alone”.<sup>137</sup> Rather, some positive action involving public and private actors may be required as, for example, the new General Data Protection Regulation of the European Union demonstrates.<sup>138</sup> The regulation is a directly applicable instrument,<sup>139</sup> requiring data controllers (public and private) to properly protect personal data at the time of their collection and during the whole duration of the processing. The regulation is sensitive to tracking and data processing techniques, particularly those which consist in profiling a natural person. The data subject should be informed of the existence of the profiling, the logic involved in such automatic personal data processing and the consequences thereof. According to Articles 21 and 22, the data subject shall have the right to object to automated data processing and profiling. Finally, data controllers may only use data collected for the purposes for which the data subjects have given their consent.

At the institutional rights level, threats to the autonomy of the political discourse are in the foreground. It will be necessary in the future to keep a close eye on interactions between automated processes of online content personalisation and decision-making in democratic societies. If the predicted development towards echo chambers and discourse fragmentation were to be confirmed, remedial measures would need to be considered. For the proper functioning of a democratic society, the availability of independent, diverse and objective information is key. Although the blogosphere is greatly enriching the political discourse, it does not always provide reliable information, and bloggers often do not work according to quality standards of journalism that are comparable to those of renowned newspapers and public service broadcasters. As advertising money is being diverted towards Internet platforms, commercial journalism has come under economic pressure. For the sake of working democratic order, governments may thus need to think about ways to enhance public service journalism on the Internet, without unjustifiably distorting competition between subsidised and commercial mass media.

---

<sup>136</sup> UN HRC, ‘Report of the Special Rapporteur on the Promotion and Protection of the Right to Freedom of Opinion and Expression, Frank La Rue’, 17th Session (UN Doc. A/HRC/17/27, 2011), at para. 53; Council of the European Union, ‘EU Human Rights Guidelines on Freedom of Expression Online and Offline’, *Foreign Affairs Council Meeting* (12 May 2014), at p. 18.

<sup>137</sup> Alan F. Westin, *Privacy and Freedom*, New York: Atheneum, 1967.

<sup>138</sup> Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), OJ L 119/1, 4.5.2016.

<sup>139</sup> According to Chapter VIII of the Regulation, data subjects shall have both administrative and judicial remedies against data controllers, to be lodged with Member States’ authorities.