

# GAIA 2048—A ‘Glocal Agency in Anthropocene’: Cognitive and Institutional Change as ‘Legal Science Fiction’

Rostam J. Neuwirth

## Contents

1	Introduction .....	71
2	Dystopian Scenario: Specialization and ‘Fragmented We Fail’ .....	74
3	Utopian Scenario: Synaesthesia and ‘United We Sense’ .....	81
4	Conclusion: ‘Dystopian Utopia’ or Oxymora to Predict the Future by Creating It .....	85
	References .....	88

## 1 Introduction

Why do we remember the past and not the future?<sup>1</sup>

We are writing at the end of the year 2048, and marking a period of efforts towards the establishment of a new and comprehensive global governance mechanism, known, for short, as “GAIA 2048”. GAIA stands for “Glocal Agency in Anthropocene”, and describes a project for a novel institutional framework to be set up with the objective of tackling humanity’s most urgent problems and glocally governing and sustainably developing human affairs in the future.

The future is what matters the most right now, as the world is hoping to recover from the devastating effects of the time period known as the “Digital Dark Age”. This is the era from 2030 until 2045 when—as the result of an Internet blackout (outage)—all prior digital resources, including records and archives, became inaccessible and, because of the wide prevalence of the Internet of Things (IOT), the

---

Professor of Law, Head of the Department of Global Legal Studies, University of Macau.

---

<sup>1</sup>Rovelli (2018), p. 3.

---

R. J. Neuwirth (✉)  
University of Macau, Taipa, Macau, China  
e-mail: [rjn@um.edu.mo](mailto:rjn@um.edu.mo)

same happened to most related technical applications and utilities.<sup>2</sup> In short, this dark period wiped out all digitally or electronically stored data. As a consequence, it not only paralysed all technical facilities and caused millions of casualties, but also led to a collective loss of humanity's memory, which, furthermore, caused a loss of identity. Many still speculate about what triggered the meltdown of the former information society based on the Internet, with the suggested causes ranging from scientific, economic, and political to cognitive and, notably, legal reasons.

For instance, scientific explanations range from a cyberattack using malware to a nuclear blackout caused by the detonation of an atomic warhead in outer space, an accident at CERN creating a black hole in Geneva following a malfunction of the Large Hadron Collider II, or a failure of the 5G network in combination with a data overload on the World Wide Web caused by states' geopolitical struggles and the monopolistic tendencies of various tech giants. Other people invoke politico-economic explanations, simply citing the second global financial crisis of 2029, which was caused by trade and currency wars that, *inter alia*, eroded the finances needed for the maintenance of the Internet's sophisticated infrastructure. Environmental factors are also often named, such as floods and rising sea levels, increased volcanic activity and earthquakes, combined with heatwaves and global pandemics, which disrupted or paralysed the energy supply by damaging its essential facilities.

Politics also played a role, as populism and racism increased, further fragmenting society into ever smaller units, down to its most vulnerable minority, the individual. Constitutional democracies came under threat from changes that were, at first, undetectably small but that eventually combined and posed a serious threat. In legal circles, the fragmentation of international law, the rise of norm conflicts due to bad regulation, overregulation and the automation that took over several fields of law<sup>3</sup> are mentioned as the prime causes of the inability of humanity to halt the dangers of the conditions it had created for itself. It again became obvious that the rule of law needed not just legal texts but also stable institutional guarantors at both the national and the global levels.<sup>4</sup>

It is more likely that the blackout was due to a combination of interrelated factors in an environment characterized by an increasing complexity and ever faster pace of change. Since time immemorial, humanity has struggled with change or, notably, with its perception of change, since this perception may itself have been subject to change.<sup>5</sup> However, since the last millennium many observers have noted an apparent effect of an acceleration of change or so-called "time shrinking".<sup>6</sup> This trend for change to accelerate started to pose a major threat to lawmakers and policymakers and, in particular, to law, as it became more difficult to "preserve its integrity over time, while managing to address the newly emerging circumstances that continually

---

<sup>2</sup>Petersen (2014), p. 283.

<sup>3</sup>Ashley (2017).

<sup>4</sup>Bacchus (2003), pp. 533–550.

<sup>5</sup>Wittmann (2016), p. 124.

<sup>6</sup>Ten Hoopen (1995), p. 577.

arise throughout our history”.<sup>7</sup> Another threat to law came from unprecedented levels of technological innovation, which culminated in a situation in which the regulation of specific industries and technologies, such as those of artificial intelligence, nanotechnology, big data and genetics, failed to find a successful balance between their unknown risks and their expected benefits. In short, excessive levels of specialization, not met by an adequate general understanding, led technological progress to spin out of control.<sup>8</sup>

Thus, by the year 2020 the international legal order had witnessed the disastrous effects of a gradual loss of control caused by decades of neglecting first subtle and later obvious signs of multiple law and policy failures. These policy failures culminated in the failed attempts to reform the most important international institutions, the United Nations (UN) and the World Trade Organization (WTO), in a holistic and comprehensive manner. There was a failure to bridge the rift that was caused when the International Trade Organization (ITO) did not materialize; the ITO would have complemented the institutional balance between the three Bretton Woods sisters, the ITO, the IMF and the World Bank. In other words, the institutional failure of the ITO to materialize also meant that greater coherence, or to integrate trade and non-trade concerns, was renounced as an ideal for global governance. The separation between the UN on the one hand and the GATT on the other, can also be regarded as a further strong manifestation of a dualistic mode of thinking based on binary logic. Most of all, it was the beginning of a failure of cognitive modes of thinking to keep pace with technological changes in the context so as to provide a stable and coherent global institutional framework for the governance of global affairs.

Historically, the GATT 1947 was characterised as having found “itself without an inadequate legal and constitutional base and required to fill a vacuum created by the failure of the ITO”.<sup>9</sup> The situation also meant that attempts to reconcile trade and non-trade concerns in both substantive and institutional terms was postponed to a distant day. This delay later led to the emergence of the “trade linkage debate”, by which different pairs of “trade and . . .” problems were supposed to be reconciled. Lacking their reconciliation, criticism of the WTO also became louder and culminated in the protests accompanying the 1999 Seattle WTO Ministerial Conference.<sup>10</sup> Since then, the failure to address non-trade concerns and to achieve greater policy coherence continued and provided further momentum to the procedural crisis affecting the WTO Dispute Settlement Body. In sum, a lack of political will as much as outdated cognitive modes framed by dualistic thinking led to the law being inadequate to meet the institutional and substantive challenges.

To exemplify the impact of cognition on whether the law meets the demands put upon it, the present chapter divides the time between the year 2020 and 2048 into two opposite scenarios. First, Sect. 1 traces the lost years by drawing up a dystopian

---

<sup>7</sup>Johnson (2007), p. 845.

<sup>8</sup>Harari (2017), p. 51.

<sup>9</sup>Jackson (1969), p. 51.

<sup>10</sup>DiMatteo (2003), pp. 95 and 102.

scenario, in which cognition remained largely static and dualistic, such that changes did not keep pace with the speed of technological and scientific innovation. Section 2 is more utopian, in the sense that it relies on a newly acquired cognitive mode of thinking as exemplified by synaesthesia, which not only allows for the development of actions as causes of change but also includes a review and evaluation of the consequences. The conclusion finds that an entirely new mode of cognition, triggered by linguistic changes that are reflected in a recent rise of oxymora and paradoxes, opens a new perspective on how lawyers can help to both predict and shape the future.

## 2 Dystopian Scenario: Specialization and ‘Fragmented We Fail’

In the world of theory, there are many dichotomies. In the real world, there are many divisions and divides. In the world of power, all too often, these divisions, divides, and dichotomies serve to maintain and reinforce existing imbalanced and skewed power relations between individuals, communities, governments, and nation-states. In the world of power, it is indeed divide and rule.<sup>11</sup>

In attempts to describe the evolution of the multilateral trading regime from 1995 until 2048, so-called “digital historians” have argued that 11 December 2019 marked the decisive moment and unofficial date of the decline of the World Trade Organization. Although aggressive regionalism, unilateral measures and resulting trade wars as well as inertia in addressing the trade linkage debate and interinstitutional linkages between the WTO and the UN had been eroding the multilateral trading regime for some time before, it was on that day that the WTO’s dispute settlement system became dysfunctional following the expiration of the terms of two of the three remaining members of the Appellate Body (AB).<sup>12</sup> This left the AB with fewer than the three members required by Art. 17.1 DSU to serve on appeal cases.

As with many international organizations, nation states and other legal constructs before it, the official decline of the WTO and the multilateral trading regime as a whole started slowly and then ended abruptly. The decline was probably the result of a chain of missed opportunities for the reform and adaptation of the relevant system to changes in the context, which notably saw a strong trend towards greater convergence of various industries, technologies and products.<sup>13</sup> This convergence further increased the need for the consideration of non-trade concerns and greater policy coherence. For some time, the system lingered on and ministerial conferences were merely held without achieving tangible results, continuing the deplorable tradition that began with the launch of the Doha Development Round in 2001. Most WTO

---

<sup>11</sup>Dias (2007), p. 278.

<sup>12</sup>Lo et al. (2020).

<sup>13</sup>Neuwirth (2015), p. 31.

members engaged in either a relapse into unilateral measures adopted at the domestic level or a rat race to join numerous regional trade agreements. However, in both cases, the most important challenges faced at that time, in the form of institutional gaps, regulatory fragmentation and overregulation, were not tackled, either nationally or regionally, let alone globally. Numerous calls and suggestions for institutional reform to achieve greater policy coherence, under the aegis of the so-called “trade linkage debate” discussing various “trade and . . . problems” or how to better link trade with non-trade issues, were ignored.<sup>14</sup> In this regard, more importantly, the cognitive and conceptual dimension of trade policy was not duly considered, as “transformational change in the institutions and politics of international trade” were found to go “hand in hand with *cognitive* change” as Andrew T. F. Lang wrote.<sup>15</sup> He also found a nexus between cognitive change and institutional reform being linked to the criticism of the WTO and notably the failure to address the trade linkage debate.<sup>16</sup>

As a result, from this time on, the international system, or, more accurately, the remaining “international systemic chaos”,<sup>17</sup> was described as having moved “away from an assembly of distinct, territorial, sovereign, legally equal states toward different, more hierarchical, and in many ways more complicated structures”.<sup>18</sup> Even though an attempt was launched in 2006 to reform the United Nations Organization in order to streamline the coordination of its many specialized organizations and to enhance the coherence of global policymaking by “delivering as one”,<sup>19</sup> the management of this reform eventually proved to be an oxymoron before it failed altogether.<sup>20</sup> For a long time, the UN’s work in its core areas, from development to the environment, was described as fragmented, and its inefficient governance structure contributed to “policy incoherence, duplication and operational ineffectiveness across the system”.<sup>21</sup>

What could be framed as a “trade and technology” problem, the earlier US–China trade disputes (2017–2020), also caused frictions in the innovation of new technologies and especially in the realm of telecommunication and information technologies.<sup>22</sup> These frictions led to a further fragmentation of the Internet and the market for information and communication technologies (ICT). Russia initiated the creation of an alternate web, which was later also used by the remaining BRICS countries,

---

<sup>14</sup>Pauwelyn (2005), pp. 329–346.

<sup>15</sup>Lang (2007), p. 529.

<sup>16</sup>Lang (2007), p. 523.

<sup>17</sup>Hopkins and Wallerstein (1996), p. 226.

<sup>18</sup>Van Creveld (1999), p. vii.

<sup>19</sup>United Nations High Level Panel on Coherence (2006) Delivering as One. G.A. A/61/583 (9 November 2006).

<sup>20</sup>Baumann (2016), pp. 461–472.

<sup>21</sup>United Nations High Level Panel on Coherence (2006) Delivering as One. G.A. A/61/583 (9 November 2006), p. 10.

<sup>22</sup>Lawrence (2018), pp. 62–82.

with other countries following suit. Moreover, it was common for the governance gaps and frequent legal inconsistencies between the various fragments of laws governing international trade and commerce to be abused by artificial intelligence and unregulated algorithms, those lacking a kind of *lex algorithmica*, meaning that global business generally operated in a “black box” inaccessible to consumers and lawmakers.<sup>23</sup>

From a commercial perspective, the “world wide web” (*www*), which was intended to become a “wireless world wide web” (*www*) by virtue of the transition to the 5G network, became further fragmented by national and regional firewalls as well as restrictive measures known as geolocation measures.<sup>24</sup> Other conflicts, in the form of regulatory paradoxes framed as dichotomies, such as those of “goods versus services”,<sup>25</sup> “free trade in data versus data localization”,<sup>26</sup> or “regulatory fragmentation versus technological convergence”,<sup>27</sup> were also ignored.

In the same way, in other sectors covered by the GATT, GATS and TRIPS agreements, the multilateral trading rules were further eroded by trade disputes in which different claims were met by defences made on the basis of national security concerns.<sup>28</sup> Known as the “trade and security” problem, questions about the self-judging nature of the security exceptions widened the institutional gap opened by the split between the UN system and the GATT/WTO system caused by the failure of the International Trade Organization (ITO) to materialize. This institutional rift had, since 1948, left the world with a conflict of norms in the form of a “catch XXI” or “trade and security” dilemma.<sup>29</sup> After the WTO ruling in *Russia – Measures in Transit* in 2019, in which the panel held that it had jurisdiction to determine whether the requirements of Article XXI of the GATT 1994 were satisfied,<sup>30</sup> other countries simply refused to respond to requests for consultations and boycotted the relevant meetings.<sup>31</sup> In the end, the invocation of the security exceptions further eroded belief in the WTO and accelerated its demise.

The broader conditions in the global economy also grew dimmer and were closely related to the “trade and energy” problem. From as early as 2005, the tipping point in the production of oil was reached, meaning that conventional crude oil production

---

<sup>23</sup>Pasquale (2015).

<sup>24</sup>Yu (2019), pp. 503–529.

<sup>25</sup>Smith and Woods (2005), pp. 463–510.

<sup>26</sup>Burri (2017), pp. 65–132.

<sup>27</sup>Neuwirth (2015), pp. 21–50.

<sup>28</sup>Request for the Establishment of a Panel by Qatar, *United Arab Emirates – Measures Relating to Trade in Goods and Services, and Trade-Related Aspects of Intellectual Property Rights*, para. 1, WT/DS526/2 (12 Oct. 2017).

<sup>29</sup>Neuwirth and Svetlicinii (2015b), p. 892.

<sup>30</sup>WTO Panel Report, *Russia – Measures Concerning Traffic in Transit*, WT/DS512/R (5 April 2019).

<sup>31</sup>Requests for consultations and establishment of a panel by Qatar, *Saudi Arabia – Measures concerning the Protection of Intellectual Property Rights*, WT/DS567/1 (4 October 2018) and WT/DS567/3 (19 November 2018).

was not rising to match increasing demand.<sup>32</sup> The “all-oil peak” meant that, after decades of controversy over its arrival, there was a drastic dampening in economic growth and, actually, the inauguration of an era of global depression.<sup>33</sup> Notably, for oil-producing and other resource-rich countries, the so-called “paradox of plenty” aggravated, and the ensuing economic disaster also led to, the collapse of their constitutional system, and also triggered new waves of political violence. Since human civilization was a sensitive “complex adaptive system”, other countries too, and the globe as a whole, also were drawn into a downward spiral of economic recession and political instability.<sup>34</sup> Institutionally, the proliferation and fragmentation of energy organizations and the failure to address the “global energy governance gap” by reforming existing energy agencies or creating a global energy agency, further contributed to the resulting disaster.<sup>35</sup>

The complexity of the global economy could also be seen in the connection between trade, the environment and energy. In parallel, numerous efforts towards achieving greater sustainability in economic development based on renewable energies were also unable to offset the devastating effects of the disruptive consequences of the “all-oil peak” and the ensuing global energy crisis on economies and societies around the world. The result was a global energy crisis in 2033 that disrupted most global trade in both goods and services and caused stock crashes through inflationary pressures, and later accelerated the eventual collapse of the international monetary system as it had done during the 1973 oil crisis. Renewable energies were also incapable of averting the crisis, even though the impact of the 2015 Paris Agreement, adopted with the objective of responding to the threat of climate change, had no negative effect on the global economy or on countries’ welfare gains. Because of the absence of a coherent global regulatory framework, renewable energies remained expensive and investments often did not materialize. In this context, it was also a failure when the WTO membership addressed the “trade and environment” problem by, *inter alia*, reforming the WTO subsidies agreement, which resulted in various trade disputes challenging green policies.<sup>36</sup>

The lack of global competition rules, as a result of the abandonment of a project in 2004 that was one of four “Singapore issues”,<sup>37</sup> led to the emergence of various multinational tech giants, which widely abused their dominant positions, explored tax loopholes, and competed unfairly in courts, patent offices and markets. They were also crucial in meddling in elections and were accused of undermining democratic institutions.<sup>38</sup> No efficient dispute settlement system under the multilateral trading regime, and a lack of legal standing for private parties, both natural and legal

---

<sup>32</sup>Murray and King (2012), pp. 433–435.

<sup>33</sup>Hall and Klitgaard (2018), p. 109.

<sup>34</sup>Ahmed (2017).

<sup>35</sup>Downie (2015), p. 475.

<sup>36</sup>Cosbey and Mavroidis (2014), pp. 11–47.

<sup>37</sup>Demedts (2015), pp. 415–416.

<sup>38</sup>Ginsburg and Huq (2018), p. 198.

persons, in domestic or supranational courts caused further havoc and greater inequality among global citizens. As early as 2017, inequality was reported to be standing at unprecedented levels, and it was claimed that “just eight men own the same wealth as the poorest half of the world”.<sup>39</sup> These inequalities, dividing societies around the world, not only perpetuated themselves but even increased, with devastating effects on the global economy and the environment.

Another aspect of inequality was found in the “trade and development” link, another complex and cross-cutting “trade and . . .” problem. Cutting a long story short, the development discourse continued along the “developing versus developed country” dichotomy, despite calls to the contrary and even its abandonment by the World Bank in 2016.<sup>40</sup> Even though the definition of “official development assistance” (ODA) evolved, it continued to be understood as resource flows from developed to developing countries.<sup>41</sup> With the mindset unchanged, the language use of “developed-developing countries” also remained the same. As a result, the US and the EU continued, on the one hand, to subsidize their agricultural producers and to reap excessive benefits from royalties on various patented and copyrighted products, while on the other, they kept granting support through official development assistance programs to a large number of developing countries. This practice continued to impede the development of local industries in the targeted countries.<sup>42</sup> Moreover, the uncertainty surrounding the meaning of “development status” further eroded the WTO’s status after the US began to challenge it in 2019.<sup>43</sup>

At the same time, the trade and development problem was closely tied to the “trade and finance” problem.<sup>44</sup> Generally, the trade and finance link suffered from the failure of the ITO mentioned above, and the absence of a coherent framework for both trade and finance became manifest in the problem of so-called “currency manipulation”, that is, the depreciation of a country’s currency relative to other currencies so as to develop a large global and bilateral trade surplus.<sup>45</sup> Despite the three organizations, the WTO, the IMF and the World Bank, having pledged to enhance their policy coherence, their inter-institutional dialogues did not yield tangible results and the use of policy coherence was criticized instead as a way to introduce policy conformance.<sup>46</sup>

---

<sup>39</sup>An Economy for the 99%. OXFAM Briefing Paper, January 2017. [https://www-cdn.oxfam.org/s3fs-public/file\\_attachments/bp-economy-for-99-percent-160117-en.pdf](https://www-cdn.oxfam.org/s3fs-public/file_attachments/bp-economy-for-99-percent-160117-en.pdf).

<sup>40</sup>Neuwirth (2016), pp. 911–925.

<sup>41</sup>Hynes and Scott (2013).

<sup>42</sup>Moyo (2009), pp. 52–53.

<sup>43</sup>WTO General Council, *An Undifferentiated WTO: Self-Declared Development Status Risks Institutional Irrelevance (Communication from the United States)*, WT/GC/W/757 (16 January 2019).

<sup>44</sup>Thomas (2000), pp. 1249–1278.

<sup>45</sup>Staiger and Sykes (2010), pp. 583–627.

<sup>46</sup>Grabel (2007), pp. 335–341.



Put briefly, the “trade and finance issue” also remained unsolved, and the two respective regulatory regimes of trade and of finance continued to evolve side by side in dramatically different directions in spite of being mutually interdependent systems.<sup>47</sup> This had a serious impact on the world as the regulatory gap between them grew even more intense while the technological reality saw them increasingly converge notably with the emergence of the blockchain technology that underlies cryptocurrencies. Cryptocurrencies, from Bitcoin to Altcoin, proliferated and gradually disrupted business and financial services as well as the global economy.<sup>48</sup> This meant that, in parallel to the third currency war between the world currencies (the dollar, the euro and the yuan), which began in 2010,<sup>49</sup> a digital currency war also began to be waged. In this digital currency war, the traditional world currencies fought against emerging digital currencies backed both by state and non-state actors. The ensuing chaos of currency wars brought about a loss of state control over financial markets and a rise of a global underground economy thriving on tax evasion and criminal activities.<sup>50</sup> It all culminated in a collapse of global trade and finance and ended with the second global financial crisis of the twenty-first century, which began on “black Wednesday” of 24 October 2029.

Together with military conflicts, global health pandemics, like the large-scale outbreak of the novel coronavirus (nCoV) infectious disease, and various natural disasters, like large scales rainforest wildfires and bushfires, caused by climate change and other anthropogenic factors,<sup>51</sup> the total disruption of the global economy created a dangerous dynamic, causing a severe migratory wave<sup>52</sup> that increased the number of forcibly displaced people from about 70 million people in 2018 to 1.4 billion less than 15 years later.<sup>53</sup> The crisis of migratory flows was aggravated by national governments and courts, who denied the affected persons the status of climate refugees.<sup>54</sup> At the same time, after an erosion of the rule of law in the majority of countries around the world, ever more restrictive national policies regarding citizenship in general, and dual citizenship in particular, also increased the number of stateless persons, who were thus deprived of all fundamental rights within and across state borders.<sup>55</sup>

The European Union, paralysed by endless Brexit debates and the United Kingdom’s final exit from the EU on 31 January 2020, made little progress in reforming

---

<sup>47</sup>Gadbaw (2010), p. 552.

<sup>48</sup>Tapscott and Tapscott (2018).

<sup>49</sup>Rickards (2011), p. 98.

<sup>50</sup>Rogoff K (2019) The High Stakes of the Coming Digital Currency War. Project Syndicate. <https://www.project-syndicate.org/commentary/global-battle-for-digital-currency-supremacy-by-kenneth-rogoff-2019-11>.

<sup>51</sup>Reuveny (2007), pp. 656–673.

<sup>52</sup>Beets and Willekens (2009).

<sup>53</sup>UNHCR (2019).

<sup>54</sup>Berchin et al. (2017), pp. 147–150.

<sup>55</sup>Weissbrodt and Collins (2006), pp. 245–276.

its institutions, the single market, the single currency or its taxation system. On the contrary, past achievements in the four freedoms were scaled down as the result of nationalist policies in many member states. The EU's so-called "Luxembourg Treaty", negotiated under the 2029 EU Presidency of Luxembourg, added nothing that substantively remedied the lost opportunity of creating a constitution for Europe in 2001. The EU's failure to become the world's most competitive market (the Lisbon Strategy) extended the lost decade of the EU, which began in 2000, when, to a lost near-half century.<sup>56</sup>

Many more regional integration projects worldwide also stagnated. For instance, the BRICS, representing 42% of the world's population in 2014 and initially set up as a "cooperation and dialogue forum" between Brazil, Russia, India, China and South Africa in order to defy differences and make a difference in global governance, saw no progress, such as by seeking greater policy coherence based on more closely coordinating institutionalizing their cooperation.<sup>57</sup> Similarly, the positive effects on infrastructure development based on the Belt and Road Initiative (BRI), initiated by the Chinese government in 2013, were largely neutralized by opposition from the US and several European countries. The African Union also failed to prevent the food security crisis that hit the African continent in 2030<sup>58</sup> and that pushed the achievement of the objectives enshrined in Agenda 2063 into an even more distant future.<sup>59</sup>

In sum, despite the emergence of a creative economy, which was initially fostered by the potential of new and innovative technologies, the 2015 Sustainable Development Goals were still not realized by 2030. Across the globe, political disagreements prevented action for greater regulatory harmonization, while centrifugal forces and fragmentation intensified. Legally, a patchwork of isolated areas of law continued to grow, as did the number of regional trade agreements, which were violated or withdrawn from faster than they were negotiated. Put simply, the so-called "global governance paradox", or the logical loop that a global platform was needed in order to create a global platform, proved a problem that was too difficult to tackle in conceptual and cognitive terms. With no consistent global legal order, fragmentation prevailed and led to the aggravation of the negative effects of "trade and ..." problems on global peace and welfare.

---

<sup>56</sup>Neuwirth (2020), p. 51.

<sup>57</sup>Neuwirth et al. (2017) and Neuwirth and Svetlicinii (2019).

<sup>58</sup>Onyutha (2018), pp. 1203–1219.

<sup>59</sup>African Union (2017) Progress Report on the Implementation of Agenda 2063 First Ten-Year Implementation Plan. Available at: <https://archives.au.int/handle/123456789/2618>.

### 3 Utopian Scenario: Synaesthesia and ‘United We Sense’

The limits of my language mean the limits of my world.<sup>60</sup>

In 2048, historians are still pondering the reasons for the collapse of the WTO. Some attribute it to isolationist US trade policies and the political turmoil around Brexit, while others tend to focus on the rise of first Asian and subsequently African countries. However, a different view identifies this failure as the beginning of the end of “end of . . . stories”<sup>61</sup> or a drastic paradigm shift in cognition. Cognition had reached a tipping point in human evolution following two centuries of rapid technological innovations, which “shaped consciousness directly”.<sup>62</sup>

Linguistic changes also confirmed this cognitive shift, mostly through the rise of essentially oxymoronic concepts.<sup>63</sup> As a result of these external factors, epigeneticists found biological and cognitive changes occurring in parallel. New organs of cognition hence emerged, as humans were evolving biologically and consciously. As a visible result, even by 2025 97% of new-born children displayed conditions of synaesthesia, i.e. the ability to better connect stimuli received from different sensory organs, which improved the skills to foresee developments and solve complex problems as well as enhanced their abilities of abstract thought.<sup>64</sup>

Related changes in educational policies were implemented, with the goal of creating a “world brain”, or “an enhanced educational system through the whole body of mankind”, designed to “replace our multitude of uncoordinated ganglia, our powerless miscellany of universities, research institutions, literatures with a purpose, national educational systems and the like”.<sup>65</sup> This goal was to be achieved by fostering oxymoronic learning methods and giving training in both bivalent and polyvalent logic, complemented by training in multilingualism and oxymoronic thinking.

For the trade and health link, the novel coronavirus (nCoV) pandemic underscored once more the strong links between international trade, public healthcare and the global economy. As a result, the global healthcare system was integrated with a future trading system and backed by a consistent set of global innovation rules consisting of competition rules, intellectual property laws and fiscal incentives, which prevented price discrimination in pharmaceutical products and secured global access to affordable medicines. Additionally, universal healthcare was provided freely by a combination of measures that combined both traditional and conventional medicines.<sup>66</sup> Based on further changes in perception, such as

<sup>60</sup>Wittgenstein (1960), p. 149 (5.6).

<sup>61</sup>Neuwirth (2019b), p. 15.

<sup>62</sup>Kern (1983), p. 1.

<sup>63</sup>Neuwirth (2018a), pp. 23, 52 and 243.

<sup>64</sup>Deroy and Spence (2013), pp. 1240–1253.

<sup>65</sup>Wells (1938), p. xvi.

<sup>66</sup>Neuwirth and Svetlicinii (2015a), pp. 330–366.

through the development of technologies for the visualization of auras,<sup>67</sup> medical diagnosis improved and conventional, traditional and alternative medicines as well as mental health strategies were all integrated into a coherent set of laws and policies. Further changes in healthcare were influenced by discoveries in so-called “life after life studies”, which transcended the life–death dichotomy as the result of a greater awareness of the missing link in a globally coherent health policy.<sup>68</sup> Research on near-death experiences scientifically confirmed popular and religious beliefs about life after life.<sup>69</sup>

Overall, a new cognitive mindset emerged in parallel with technical tools, leading to a new conception of the areas of economics, politics and law. For instance, the global economy became more sustainable, based on the spirit of “degrowth”, which rejected the illusion of endless economic growth by advocating for a “democratically-led shrinking of production and consumption with the aim of achieving social justice and ecological sustainability”.<sup>70</sup> At the same time, new and cleaner energy resources were derived from nuclear fusion developed by the ITER project, helping to decarbonize the world’s energy system.<sup>71</sup> Various new and renewable energies complemented this.<sup>72</sup>

Since a G20 initiative formulated in 2019, the global community embraced an ambitious tax agenda to improve cooperation and transparency on the basis of a strategy for a global taxation system.<sup>73</sup> This initiative originally included a global financial transaction tax to fund the new global governance system.<sup>74</sup> It later included a digital tax on the world’s tech giants, which levied taxes in the places where the goods and services were sold rather than the places where the company was based. It also introduced a global minimum tax rate to prevent a company from shifting its sales to a country with lower taxes. Finally, a robotic tax, aided by the creation of a single global cryptocurrency (SGCC),<sup>75</sup> covered all activities based on automation to compensate for the disruptive effects of automation on the global labour market.<sup>76</sup> Together, these measures helped to contain the outbreak of currency wars and related trade/finance disputes.<sup>77</sup> On the other hand, the changes in the taxation system also helped to reverse the former trend of higher income taxes as opposed to lower corporate taxes. The new system achieved an optimal balance, with

---

<sup>67</sup>See also Milán et al. (2012), pp. 258–268.

<sup>68</sup>Neuwirth (2018b), pp. 3–26.

<sup>69</sup>Flannelly et al. (2012), pp. 651–662.

<sup>70</sup>D’Alisa et al. (2015).

<sup>71</sup>Fiore (2006), pp. 3334–3341.

<sup>72</sup>Ongena (2018), pp. 114–432.

<sup>73</sup>G20 (2019) Ministerial Statement on Trade and Digital Economy. [http://trade.ec.europa.eu/doclib/docs/2019/june/tradoc\\_157920.pdf](http://trade.ec.europa.eu/doclib/docs/2019/june/tradoc_157920.pdf).

<sup>74</sup>Tobin (1978), pp. 153–159.

<sup>75</sup>Ahmed (2018), pp. 697–740.

<sup>76</sup>Abbott and Bogenschneider (2018), pp. 145–175.

<sup>77</sup>Yi-Lin-Forrest et al. (2018), p. 567.

around 5% income tax, 25% corporate tax (including on digital activities) and 35% robotic tax, as measures towards greater global tax justice.<sup>78</sup> These and other fiscal policies were introduced in coherence with other incentives to end the poverty trap.<sup>79</sup>

The cognitive shift also remodelled the international multilevel governance system towards a “glocal” and holarchic system in which local, largely self-governing, entities were complemented by various regional regimes often organized into mega-regional blocks, with those of an inclusive global system enshrined in the GAIA Charter of 2048. Holarchy here means a system in which various self-regulating entities function as autonomous wholes in supra-ordination to their parts but, at the same time, also as dependent parts in subordination to controls on higher levels their local environment.<sup>80</sup> The foundation is a polyvalent logic by which the links between stakeholders at different levels are supported by a dynamic system of subsidiarity and an open method of coordination.<sup>81</sup> It is based on a set of different criteria that the best possible level of regulation is determined without any prior bias towards either the local or the global level of governance. The same method is also applied to territorial questions, such as national sovereignty is no longer fixed but where territorial boundaries are drawn based on a similar set of criteria. Thus, like in the quantum world, different political entities, and even national governments’ competences, can overlap and even be superimposed without being perceived in conflict.

Changes in cognition facilitated the adoption of the GAIA 2048 Charter, as the global community finally found the “common language”<sup>82</sup> to tackle the “global governance paradox” successfully. The paradox was that, in order to create a global legal order, the world community needed a global governance platform that had not previously existed, confirming that linguistic and cognitive changes are quintessential to institutional change.

Structurally, the GAIA 2048 was based on an institutional setting in which every “trade and ...” problem was coordinated by a “coherence committee”, with the competence to avoid conflict between different policy goals. The functioning of the institutional framework was aided by an e-governance system, which used intelligent algorithms to consolidate redundant norms and detect incoherent measures. However, artificial intelligence was considered not only to be hype but also to be an oxymoron, and, in relation to law and policy, artificial intelligence measures were strictly bound by the requirement inherited from the former EU General Data Protection Regulation that they could not be implemented and enforced “without any human intervention”.<sup>83</sup>

<sup>78</sup>Brock and Pogge (2014), pp. 1–15.

<sup>79</sup>Thang Dao and Edenhofer (2018), pp. 253–273.

<sup>80</sup>Koestler (1967), pp. 102–103.

<sup>81</sup>Neuwirth (2020), p. 51.

<sup>82</sup>Halpin and Roeben (2009), p. 6.

<sup>83</sup>Art. 22 Regulation (EU) 2016/679, O.J. L 119/1 (4 May 2016).

In substantive terms, existing sources of global law were codified into a single legal document, the GAIA Code, a global constitutional text that reduced the previous disarray of international laws. In this way, former conflicts between norms that arose because of dichotomies that were too simplistic to account for real complexity, be it between electronic and traditional modes of consumption of goods (GATT) and services (GATS), between IP law and competition law, or between international trade law and various subfields of general public international law in the name of “self-contained regimes”, were no longer unavoidable and irresolvable.<sup>84</sup> In this context, global competition rules were integrated and enhanced so as to not only guarantee the sustainable economic development of the global market but also “solve social problems ranging from unemployment to income inequality and indeed to improve the functioning of democracy itself”.<sup>85</sup>

Other necessary changes simply came with changes in cognition and understanding, and did not require a change in language as they occurred earlier when a higher court reconsidered its established case law. For instance, in the field of global economic law, the national treatment provisions of GATT Article III, GATS Article XVII and Article 3 of TRIPS were now no longer merely interpreted as prohibiting discrimination between domestic and imported goods or services but also as encompassing “all measures having an equivalent effect on consumers in covered markets”.<sup>86</sup> This became necessary to cover personalized price discrimination made possible by the data economy.<sup>87</sup> These cognitive changes, plus a seamless global wireless web, also ended the western failure of the territorial national state.<sup>88</sup> As a result, the “four freedoms” related to the free movement of goods, services, persons and capital, became recognized as ubiquitous civil right and a global reality.<sup>89</sup>

The various systemic changes resulting from cognitive changes were supported by, and helped to establish, an effective and inclusive global dispute settlement mechanism, which recognized the right to bring an action and to be heard in court (*locus standi*) of not only international organizations, states and multinational corporations but also natural persons.<sup>90</sup> It effectively aligned the former WTO Dispute Settlement system with investor–state arbitration.<sup>91</sup> Both systems were elevated to a “world trade court” embedded within a fully-fledged global judicial body, the GAIA Tribunal, that was vested with various constitutional powers to sanction and enforce the rulings it issued.<sup>92</sup> Overall, the new institutional design based on these cognitive changes was said to have helped to “improve and

---

<sup>84</sup>Jeutner (2017).

<sup>85</sup>Wright et al. (2019), p. 294.

<sup>86</sup>Neuwirth (2015), pp. 21–50.

<sup>87</sup>Townley et al. (2017), pp. 683–748.

<sup>88</sup>Strange (1999), p. 345.

<sup>89</sup>Nett (1971), pp. 212–227.

<sup>90</sup>Schwartzmann (2005).

<sup>91</sup>Li (2018), pp. 189–232.

<sup>92</sup>Cottier (2015), pp. 12–14.

eventually overcome the perceived lack of legitimacy of international courts and tribunals in the eyes of the governments, the legal community and civil society”.<sup>93</sup>

#### 4 Conclusion: ‘Dystopian Utopia’ or Oxymora to Predict the Future by Creating It

My project was retarded by laws of nature. The world was not prepared for it. It was too far ahead of time. But the same laws will prevail in the end and make it a triumphal success.<sup>94</sup>

A dystopian or a utopian future, does it matter? After all, from the “perspective of the brain, there’s a thin line between a good decision and a bad decision”.<sup>95</sup> It seems, though, that what matters to everyone is the future, because the future is “where we are all going to spend the rest of our lives”.<sup>96</sup> However, perhaps this must also not be the case as, paradoxically, most (or all) dichotomies have a limitation in that they not only trade accuracy for simplicity,<sup>97</sup> but also provide an invisible barrier to a vision of the bigger picture. This is where subtle linguistic changes may gradually trigger cognitive changes and eventually bring in legal and institutional changes, in the same way as dripping water hollows out stone, even though the cognitive habits of binary or dualistic thinking are said to die hard.<sup>98</sup> Easy or difficult, it is a source of encouragement for everyone, as we may, *à la longue*, be able to bring about the change we desire, given that institutional change is possible once a cognitive change has occurred.<sup>99</sup>

The recent rise in the number of oxymora and paradoxes, however, seems to indicate this “creative” possibility. For instance, various concepts implicitly reflecting the tensions between prediction and destiny within the confines of past and present, such as science fiction<sup>100</sup> or free will,<sup>101</sup> have been qualified as oxymora. In their context (and possibly in the context of all paradoxes), time therefore appears as the clue, or the key we need to find to unlock the limitations inherent in our current linear perception of time. The fact is that the grammar of many modern languages, conjugating verbs in the “present,” “past,” and “future” tenses, was said to not be “well-adapted for speaking about the real temporal structure of reality, which is more complex”.<sup>102</sup> Various “nostalgic visionaries”,

<sup>93</sup>Dimitropoulos (2018), p. 569.

<sup>94</sup>Tesla (2016), p. 46.

<sup>95</sup>Lehrer (2009), p. xiv.

<sup>96</sup>Rescher (1998), p. 1.

<sup>97</sup>Kosko (1993), p. 21.

<sup>98</sup>Segal (2008), p. 101.

<sup>99</sup>Lang (2007), p. 529.

<sup>100</sup>Csicsery-Ronay Jr. (2008), p. 8 (“As its name implies, science fiction is an oxymoron.”).

<sup>101</sup>Crewe (2008), p. 23.

<sup>102</sup>Rovelli (2018), p. 111.

like Herbert G. Wells or Jules Verne, however, transcended the past–future dichotomy in their writings, thereby anticipating many future inventions.<sup>103</sup> Lawyers, too, can act in this way, as their work is often similar to that of science fiction authors, given that they can help in translating fiction into legal fact<sup>104</sup> or turning dreams into reality by combining “the law as it is” (*lex lata*) with “the law as it should be” (*de lege ferenda*) perspectives.<sup>105</sup>

For lawyers to achieve this creative goal and to synthesize the two competing scenarios of the future beyond the WTO outlined in this chapter, it will be necessary, first, to work actively towards a cognitive change. Applied to legal reasoning, it means to transcend an exclusively dualistic mode of reasoning, which means to solely rely on the “law of the excluded middle” (i.e. “Everything must either be or not be.”).<sup>106</sup> Applied to the regulation of global trade, this kind of “either/or thinking” or that something either belongs to the sphere of trade or is classified as a “non-trade concern” must be complemented by the law of the included middle. The law of the included middle can be achieved through oxymoronic thinking by way of which, for instance, trade and non-trade concerns are not opposed to each other but where their apparent contradiction can be resolved at a higher level of reality or complexity.<sup>107</sup>

More concretely, lawyers must be able cognitively to transcend the iron law of binary logic by also being versatile in reasoning based on polyvalent logic—a kind of multivalued logic in which there can be more than two truth values.<sup>108</sup> A good way to remind ourselves of this is given in the following quote: “laws may differ but they do not conflict: the only possible conflict is in the mind of the judge”.<sup>109</sup> In this regard, legal education seems the best place to begin.<sup>110</sup> Thus, addressing problems by legally expressing them solely using dichotomies is no longer apt to deal with their underlying complexity. It also means that a purely static approach should be complemented with a more dynamic one to ensure that laws are adopted in a way that embraces change *ex ante* and makes them fit for the future. In institutional terms, a more dynamic approach is also needed, as otherwise we merely observe their initial rise and subsequent demise.<sup>111</sup> In this respect, discursive institutionalism provides an excellent complement, as it regards norms as “dynamic, intersubjective constructs rather than static structures”.<sup>112</sup> Ultimately, it is submitted here that, based on this cognitive change, novel models of global institutions, like GAIA 2048, can emerge.

---

<sup>103</sup>Unwin (2000), pp. 18 and 31.

<sup>104</sup>Fuller (1967), p. 1.

<sup>105</sup>Virally (1981), p. 519.

<sup>106</sup>Russell (1912), p. 113.

<sup>107</sup>Brenner (2008), p. 4; Neuwirth (2018a), pp. 180–181.

<sup>108</sup>Jeutner (2017), p. 151; Neuwirth (2018a), pp. 234 and 255.

<sup>109</sup>Glenn (2017), p. 162.

<sup>110</sup>Neuwirth (2019a), p. 45.

<sup>111</sup>Chase-Dunn and Hall (1997).

<sup>112</sup>Schmidt (2008), p. 303.



Second, the cognitive changes of polyvalent or oxymoronic thinking, when combined with new organs of perception as symbolized by synaesthesia, will enable another important insight, which lies in the realization that *the best way to predict the future is by creating (and regulating) it*. This insight puts the theory of a self-fulfilling prophecy into a new light, one which proves that theory and practice are intimately linked and that sociological predictions are “products of an era, co-determinants of what they assert”.<sup>113</sup>

When applied to humanity as a whole, *predicting the future by creating it (and regulating it accordingly)* means that if we plan something and act upon it coherently and persistently, it is more likely to happen, eventually. This, however, first requires a cognitive change in the understanding of humanity as a divided amalgam of different peoples or nations instead of an organic whole united in its diversity. Only then can an adequate global governance mechanism capable of putting the necessary global legal order into place be expected to be brought forth. In short, the global governance paradox and other apparent contradictions can only be successfully addressed by expanding our reasoning from bivalent to polyvalent modes of thinking, as reflected in synaesthesia or in new optimized ways to receive and channel information through our different senses or, in legal terms, different institutions.

Applied to the dichotomy of the past versus the future, a new cognitive mode may one day enable humans to recall the fundamental importance of the present, that is, the magical power of the present to rewrite both the world of yesterday and the world of tomorrow. By the same token, humans can then eventually use the same magic to control the outcome between the two apparently opposite scenarios, the dystopian and the utopian one. For now, the two scenarios outlined in this chapter cannot answer the questions of whether or not, in our perception, linear time exists, or whether or not we have free will or all fate (including the fate of the WTO) is already written in a comprehensive book of destiny. This chapter is equally unable to say whether a post-WTO legal order will be able to avoid global disaster and humanity’s as well as nature’s demise. However, the hope is that the chapter shows that the many “scientifically fictitious” developments described in both the dystopian and the utopian scenarios concur in essence or are—if at all—divided by a very thin line, one merely drawn in our minds. Nevertheless, this thin line determines how we will deal with the most urgent challenges in the Anthropocene, or at any given point in time (when no longer understood as the linear process from the past to the future), because it clearly proves that today we humans cannot say that “*we did not know (about the dangers and inherent consequences of our actions)*”. On the contrary, we can only say “*we knew but did not care*”.

---

<sup>113</sup>Neurath (1973), pp. 405–406.

## References

- Abbott R, Bogenschneider B (2018) Should robots pay taxes? Tax policy in the age of automation. *Harv Law Policy Rev* 12(1):145–175
- Ahmed NM (2017) Failing states, collapsing systems: biophysical triggers of political violence. Springer, Cham
- Ahmed S (2018) Cryptocurrency & robots: how to tax and pay tax on them. *S C Law Rev* 69:697–740
- Ashley KD (2017) Artificial intelligence and legal analytics: new tools for law practice in the digital age. Cambridge University Press, Cambridge
- Bacchus J (2003) Groping toward Grotius: the WTO and the international rule of law. *Harv Int Law J* 44(2):533–550
- Baumann F (2016) United Nations management – an oxymoron? *Glob Gov* 22(4):461–472
- Beets G, Willekens F (2009) The global economic crisis and international migration: an uncertain outlook. Netherlands Interdisciplinary Demographic Institute, The Hague
- Berchin II et al (2017) Climate change and forced migrations: an effort towards recognizing climate refugees. *Geoforum* 84:147–150
- Brenner JE (2008) Logic in reality. Springer Science+Business Media, New York, p 4
- Brock G, Pogge T (2014) Global tax justice and global justice. *Moral Philos Polit* 1(1):1–15
- Burri M (2017) The governance of data and data flows in trade agreements: the pitfalls of legal adaptation. *Univ Calif Davis Law Rev* 51(1):65–132
- Chase-Dunn C, Hall TD (1997) Rise and demise: comparing world-systems. Westview Press, Boulder
- Cosbey A, Mavroidis PC (2014) A turquoise mess: green subsidies, blue industrial policy and renewable energy: the case for redrafting the subsidies agreement of the WTO. *J Int Econ Law* 17(1):11–47
- Cottier T (2015) The Common Law of International Trade and the future of the World Trade Organization. *J Int Econ Law* 18(1):3–20
- Crewe D (2008) Will to self-consummation, and will to crime: a study in criminal motivation. In: Lippens R, Crewe D (eds) *Existentialist criminology*. Routledge-Cavendish, London, p 23
- Csicsery-Ronay I Jr (2008) The seven beauties of science fiction. Wesleyan University Press, Middletown, p 8
- D’Alisa G, Demaria F, Kallis G (eds) (2015) *Degrowth: a vocabulary for a new era*. Routledge, Oxon
- Demedts V (2015) Which future for competition in the global trade system: competition chapters in FTAs. *J World Trade* 49(3):407–436
- Deroy O, Spence C (2013) Are we all born synaesthetic? Examining the neonatal synaesthesia hypothesis. *Neurosci Biobehav Rev* 37:1240–1253
- Dias CJ (2007) International relations and international law: from competition to complementarity. In: Biersteker TJ et al (eds) *International relations and international law: bridging theory and practice*. Routledge, Oxon, p 278
- DiMatteo LA et al (2003) The Doha Declaration and Beyond: giving a voice to non-trade concerns within the WTO trade regime. *Vanderbilt J Transnatl Law* 36(1):95–160
- Dimitropoulos G (2018) Investor–state dispute settlement reform and theory of institutional design. *J Int Dispute Settlement* 9(4):535–569
- Downie C (2015) Global energy governance in the G-20: states, coalitions, and crises. *Glob Gov* 21(3):475–492
- Fiore K (2006) Nuclear energy and sustainability: understanding ITER. *Energy Policy* 34:3334–3341
- Flannelly KJ et al (2012) Belief in life-after-death, beliefs about the world, and psychiatric symptoms. *J Relig Health* 51(3):651–662
- Fuller LL (1967) *Legal fictions*. Stanford University Press, Stanford, p 1

- Gadbaw RM (2010) Systemic regulation of global trade and finance: a tale of two systems. *J Int Econ Law* 13(3):551–574
- Ginsburg T, Huq AZ (2018) How to save a constitutional democracy. The University of Chicago Press, Chicago, p 198
- Glenn HP (2017) Choice of logic and choice of law. In: Glenn HP, Smith LD (eds) *Law and the new logics*. Cambridge University Press, Cambridge, p 162
- Grabel I (2007) Policy coherence or conformance? The New World Bank–International Monetary Fund–World Trade Organization Rhetoric on trade and investment in developing countries. *Rev Radic Polit Econ* 39(3):335–341
- Hall CAS, Klitgaard K (2018) *Energy and the wealth of nations: an introduction to biophysical economics*, 2nd edn. Springer, Cham, p 109
- Halpin A, Roeben V (eds) (2009) *Theorising the global legal order*. Hart, Oxford, p 6
- Harari YN (2017) *Homo Deus: a brief history of tomorrow*. Harper, New York, p 51
- Hopkins TK, Wallerstein I (1996) *The age of transition: trajectory of the world-system, 1945–2025*. Pluto Press, Leichhardt, p 226
- Hynes W, Scott S (2013) The evolution of official development assistance: achievements, criticisms and a way forward. OECD Development Co-operation Working Papers, No. 12. OECD Publishing, Paris. <https://doi.org/10.1787/5k3v1dv3f024-en>
- Jackson JH (1969) *World trade and the law of GATT*. The Bobbs Merrill Company, Indianapolis, p 51
- Jeutner V (2017) *Irresolvable norm conflicts in international law: the concept of a legal dilemma*. Oxford University Press, Oxford
- Johnson ML (2007) Mind, metaphor, law. *Mercer Law Rev* 58(3):845–868
- Kern S (1983) *The culture of time and space 1880–1918*. Harvard University Press, Cambridge, p 1
- Koestler A (1967) *The ghost in the machine*. Arkana, London, pp 102–103
- Kosko B (1993) *Fuzzy thinking: the new science of fuzzy logic*. Hyperion, New York, p 21
- Lang ATF (2007) Reflecting on ‘linkage’: cognitive and institutional change in the international trading system. *Mod Law Rev* 70(4):523–549
- Lawrence RZ (2018) Can the trading system survive US–China trade friction? *China World Econ* 26(5):62–82
- Lehrer J (2009) *How we decide*. Houghton Mifflin Harcourt, Boston, p xiv
- Li S (2018) Convergence of WTO dispute settlement and investor-state arbitration: a closer look at umbrella clauses. *Chic J Int Law* 19(1):189–232
- Lo C-F, Nakagawa J, Chen T-F (eds) (2020) *The appellate body of the WTO and its reform*. Springer, Singapore
- Milán EG et al (2012) Auras in mysticism and synaesthesia: a comparison. *Conscious Cogn* 21:258–268
- Moyo D (2009) *Dead aid: why aid is not working and how there is another way for Africa*. Allen Lane, London, pp 52–53
- Murray J, King D (2012) Oil’s tipping point has passed. *Nature* 481:433–435
- Nett R (1971) The civil right we are not ready for: the right of free movement of people on the face of the earth. *Ethics* 81(3):212–227
- Neurath O (1973) *Empiricism and sociology*. D. Reidel, Dordrecht, pp 405–406
- Neuwirth RJ (2015) Global market integration and the creative economy: the paradox of industry convergence and regulatory divergence. *J Int Econ Law* 18(1):21–50
- Neuwirth RJ (2016) Global law and sustainable development: change and the “developing-developed country” terminology. *Eur J Dev Res* 29(4):911–925
- Neuwirth RJ (2018a) *Law in the time of oxymora: a synaesthesia of language, logic and law*. Routledge, New York
- Neuwirth RJ (2018b) The quest for the “missing link” in a coherent global health policy. *Med Law* 37(1):3–26

- Neuwirth RJ (2019a) On the origin of legal diversity by means of comparative law, or the role of legal education in the solution of legal conflicts. In: Singh MP, Kumar N (eds) *Indian yearbook of comparative law*. Springer, Berlin, p 45
- Neuwirth RJ (2019b) The end of 'development assistance' and the BRICS. In: Puppim de Oliveira JA, Jing Y (eds) *International development assistance, China and the BRICS*. Palgrave, New York, p 15
- Neuwirth RJ (2020) The European Union as an oxymoron: from contest via contradiction to constitution? In: Chaisse J (ed) *60 years of European Integration: perceptions, interactions and lessons*. Hart, Oxford, p 51
- Neuwirth RJ, Svetlicinii A (2015a) Law as a social medicine: enhancing international inter-regime regulatory cooperation as a means for the establishment of a global health governance framework. *J Leg Med* 36(3–4):330–366
- Neuwirth RJ, Svetlicinii A (2015b) The economic sanctions over the Ukraine conflict and the WTO: "Catch XXI" and the revival of the debate on security exceptions. *J World Trade* 49(5):891–914
- Neuwirth RJ, Svetlicinii A (2019) *The BRICS-Lawyers' guide to BRICS texts and materials*. The BRICS-Lawyer, Macau
- Neuwirth RJ, Svetlicinii A, De Castro Halis D (eds) (2017) *The BRICS-Lawyers' guide to global cooperation*. Cambridge University Press, Cambridge
- Ongena J (2018) Nuclear fusion and its large potential for the future world energy supply. *Comput Nanotechnol* 2018(1):114–432
- Onyutha C (2018) African crop production trends are insufficient to guarantee food security in the sub-Saharan region by 2050 owing to persistent poverty. *Food Sec* 10:1203–1219
- Pasquale F (2015) *The black box society: the secret algorithms that control money and information*. Harvard University Press, Cambridge
- Pauwelyn J (2005) The Sutherland Report: a missed opportunity for genuine debate on trade, globalization and reforming the WTO. *J Int Econ Law* 8(2):329–346
- Petersen H et al (2014) The role of the internet of things in network resilience. In: Giaffreda R et al (eds) *Internet of things. IoT infrastructures*. Springer, Cham, p 283
- Rescher N (1998) *Predicting the future: an introduction to the theory of forecasting*. State University of New York Press, Albany, p 1
- Reuveny R (2007) Climate change-induced migration and violent conflict. *Polit Geogr* 26:656–673
- Rickards J (2011) *Currency wars: the making of the next global crisis*. Penguin, London, p 98
- Rovelli C (2018) *The order of time*. Riverhead Books, New York
- Russell B (1912) *The problems of philosophy*. Williams & Norgate, London, p 113
- Schmidt VA (2008) Discursive institutionalism: the explanatory power of ideas and discourse. *Annu Rev Polit Sci* 11:303–326
- Schwartmann R (2005) *Private im Wirtschaftsvölkerrecht*. Mohr Siebeck, Tübingen
- Segal G (2008) Poverty of stimulus arguments concerning language and folk psychology. In: Carruthers P, Laurence S, Stich S (eds) *The innate mind: foundations and the future*, vol 3. Oxford University Press, Oxford, p 101
- Smith F, Woods L (2005) A distinction without a difference: exploring the boundary between goods and services in the World Trade Organization and the European Union. *Yearb Eur Law* 24 (1):463–510
- Staiger RW, Sykes AO (2010) Currency manipulation' and world trade. *World Trade Rev* 9 (4):583–627
- Strange S (1999) The westfailure system. *Rev Int Stud* 25(3):345–354
- Tapscoff D, Tapscoff A (2018) *Blockchain revolution: how the technology behind bitcoin and other cryptocurrencies is changing the world*. Penguin, New York
- Ten Hoopen G et al (1995) Auditory isochrony: time shrinking and temporal patterns. *Perception* 24:577–593
- Tesla N (2016) *My inventions and other writings*. Dover, Mineola, p 46
- Thang Dao N, Edenhofer O (2018) On the fiscal strategies of escaping poverty-environment traps towards sustainable growth. *J Macroecon* 55:253–273

- Thomas C (2000) Balance-of-payments crises in the developing world: balancing trade, finance and development in the new economic order. *Am Univ Int Law Rev* 15(6):1249–1278
- Tobin J (1978) A proposal for international monetary reform. *East Econ J* 4(3–4):153–159
- Townley C, Morrison E, Yeung K (2017) Big data and personalized price discrimination in EU competition law. *Yearb Eur Law* 36(1):683–748
- UNHCR (2019) Global trends: forced displacement 2018. UNHCR, Geneva
- Unwin T (2000) Technology and progress in Jules Verne, or anticipation in reverse. *J Australas Univ Lang Lit Assoc* 93(1):17–35
- Van Creveld M (1999) *The rise and decline of the state*. Cambridge University Press, Cambridge, p vii
- Virally M (1981) A propos de la *lex ferenda*. In: Reuter P (ed) *Mélanges offerts à Paul Reuter: le droit international, unité et diversité*. A. Pedone, Paris, p 519
- Weissbrodt D, Collins C (2006) The human rights of stateless persons. *Hum Rights Q* 28(1):245–276
- Wells HG (1938) *World brain*. Doubleday, Doran & Co., Garden City, p xvi
- Wittgenstein L (1960) *Tractatus Logico-Philosophicus*. Routledge, London, p 149
- Wittmann M (2016) *Felt time: the psychology of how we perceive time*. The MIT Press, Cambridge, p 124
- Wright JD et al (2019) Requiem for a paradox: the dubious rise and inevitable fall of hipster antitrust. *Ariz State Law J* 51(1):293–369
- Yi-Lin-Forrest J, Ying Y, Gong Z (2018) *Currency wars: offense and defense through systemic thinking*. Springer, Cham, p 567
- Yu PK (2019) A Hater’s guide to geoblocking. *Boston Univ J Sci Technol Law* 25(2):503–529