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**NATURAL AND TECHNOLOGICAL RATIOMORPHISM  
IN COMMUNICATION  
(IN THE CONTEXT OF SOME IDEAS BY  
KONRAD LORENZ AND STANISŁAW LEM)**

*ABSTRACT*

This article's leading argument is that the domination of today's intersubjective sphere by modern communication technology and media has given rise to certain phenomena in the human world, which were non-existent in the pre-internet era. One such phenomenon is technoratiomorphism. I use this term to define a hybrid onticity that is driven by biological ratiomorphic mechanisms overlapped by technological rationality. I also point to some of the effects the presence of technoratiomorphism in communication has on social and individual human life.

In these reflections I support myself with Konrad Lorenz's theory and the evolutionary epistemology, interwoven with a few ideas from the writings of Stanisław Lem.

**Keywords:** communication, ratiomorphism, technoratiomorphism, Internet, modern technology, evolution, epistemology, Stanisław Lem, Konrad Lorenz.

**INTRODUCTION**

In the human world we have known until now, communication has been a bond- and knowledge-generating cognitive relation. The processes and phenomena that make up communication help create interpersonal bonds, common and objective (in the Popperian sense) knowledge, scientific representations of the world and visions of its future. This view of communication requires certain ontological commitments—more precisely, acceptance of relational and processual ontology. The first ascribes ontic primacy to relations as that which defines what objects are, while the second accentuates the temporal and evolutionary aspects of the human world—

here, the world not so much “is,” as “is becoming,”<sup>1</sup> with communication playing a key role in the process.

Today communication is a dominating and determining social factor, and as such is becoming increasingly dependent on modern digital technology, and even evolving into “e-communication” on the internet. The “e” makes an enormous difference: the logic of face-to-face and mass communication is gradually making way for the logic of the new media, while the intersubjective sphere and the sphere of human activity are confronted by new, previously unknown phenomena. One of them is technoratiomorphism.

I will try to outline and explain the meanings I associate with the term in further sections of this article—most comprehensively in the last one. First, however, let me give a general picture of what technoratiomorphism is. The meaning of technoratiomorphism is rooted in a larger, dynamic, relational component, which embraces certain properties related to modern digital technology, some of its users’ reactions, behaviour modes and actions, and some of the effects these actions cause in the intersubjective sphere, as well as social and individual life. This component is bound by a variety of relations, key among which is communication. Technoratiomorphism appears in communication-related phenomena and processes.

Seen this way, technoratiomorphism is a realistic, hybrid ontic entity. After Karl Popper, I ascribe reality to all onticities that display causality.<sup>2</sup> The here-discussed component is, of course, a construct, but I justify its accentuation with the prime role technoratiomorphic mechanisms and effects play in the contemporary human world, a world ruled by digital technology, the internet and e-communication. It must also be kept in mind that the ontological furnishings of the human world, or that to which we more or less consciously ascribe the status of beings of a varying degree of abstraction, are always in some way a construct. Neither should the hybrid character of technoratiomorphism be an obstacle—hybridisation has always accompanied social change and the evolution of science, technology and communication, it also underlies heuristics understood as the entirety of the science-generating practices that serve the attainment of cognitive goals.

The mechanisms of technoratiomorphism are contained in the digital elements of modern technology. Here, I see some analogy to the biological

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<sup>1</sup> Cf. M. Heller, *Podróże z filozofią w tle* (Travels with philosophy in the background), Wydawnictwo Znak, Kraków 2006, p. 234; idem, *Filozofia i wszechświat* (Philosophy and the universe), Universitas, Kraków 2006, pp. 140, 141; idem, *Bóg i geometria. Gdy przestrzeń była bogiem* (God and geometry. When space was God), Copernicus Center Press, Kraków 2015, pp. 109, 110; J. Pleszczyński, *Epistemologia komunikacji medialnej. Perspektywa ewolucyjna* (Epistemology of Media Communication. Evolutionary Approach), Wydawnictwo UMCS, Lublin 2013, pp. 22–28.

<sup>2</sup> Cf. K.R. Popper, J.C. Eccles, *The Self and Its Brain*, Routledge & Kegan Paul, London–New York 1983, pp. 9–10.

ratiomorphic mechanisms present in all living organisms,<sup>3</sup> which is why I chose the term “technoratiomorphism” to describe this new phenomenon. There is, however, another reason—modern digital technologies, especially those applied in communication and the media, reinforce ratiomorphic reactions and actions in humans. I also describe these strengthened—but also surplus, hence, in a sense, new—reactions and actions, as well as their effects, as technoratiomorphic.

I believe that reference to ratiomorphism and technoratiomorphism could be of some value to communicology, i.e. philosophical theories related to communication and media, which usually ignore or marginalise the biological component of communication. In my view, tying the technological aspects of communication with biological mechanisms provides a better understanding, or at least a somewhat different perspective, of the revolutionary changes modern digital technology and e-communication have introduced to the intersubjective sphere, individual lives and the social world.

In this article I refer to the work of Konrad Lorenz, who proved empirically that biological ratiomorphism is an inalienable part of the animate world, and based the philosophical (epistemological, ontological and axiological) interpretation of his findings on the concept of life and evolution. Lorenz rejected physics as the science that organises ontology, and gave this role to biology. His research provided new knowledge about the processes that govern communication among animals—humans, as from the evolutionary perspective humans are animals. My references to Stanisław Lem, on the other hand, were dictated not so much by the commemorative character of this article, as by the importance and unceasing actuality of his reflections. Lem was an uncommonly keen observer and analyst of social behaviour, also in the communication sphere, and his predictions about the role of technology in the human world remain surprisingly accurate and extremely inspiring—also in the context of ratiomorphism and technoratiomorphism.

### **KONRAD LORENZ: BIOLOGY AND NATURAL RATIOMORPHISM**

The term “ratiomorphism” was popularised by the Austrian ethologist Konrad Lorenz, a Nobelist in physiology and medicine who co-authored and most actively propagated evolutionary epistemology, as well as those evolutionary epistemologists—among them numerous biologists and

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<sup>3</sup> I explain the meanings and senses associated with the term “ratiomorphism” in the next subsection.

physicists—who shared his views on cognition theory.<sup>4</sup> Today the term is rarely encountered in philosophical and scholarly literature, and has been replaced by concepts related to evolutionary psychology and neurobiology, like Daniel Kahneman’s “fast and slow thinking,”<sup>5</sup> or “competence without comprehension,” a term coined by the influential American philosopher and cognitivist Daniel Dennett.<sup>6</sup>

Such competence is typical for, e.g. a simple calculating machine that calculates precisely but does not understand what it is doing.<sup>7</sup> One of the reasons Dennett’s term became so widespread is that it can be applied not only to the animate world (as is the case with “ratiomorphism”), but a great many inanimate objects, including the algorithms, programmes and systems that make up artificial intelligence. Nonetheless, I believe “ratiomorphism” was laid to rest too soon and too hastily, as the term still carries a lot of potential. As I mentioned earlier, in this article I focus on the openings it brings to communicology.

Ratiomorphism is variously defined, usually fragmentarily and within a broader context. It can be seen as a kind of cognitive system based on genetically conditioned mechanisms, cognitive powers and actions teleonomically directed at furthering the survival of living organisms. These actions may appear purposeful and rational, but they are not. Nonetheless, ratiomorphism as an evolutionarily grounded, primary channel of cognition plays an immensely important role, also in the world of *homo sapiens socialis et communicans*. Ratiomorphism is a path complementary to that of rationality, the latter being associated with the calculating mind, which developed at a much later phase in human biological evolution.

The tools and mechanisms Lorenz described as world-view apparatus (*Weltbildapparat*), provide organisms with a variety of ratiomorphic cognitive “capacities” (*ratiomorphen Leistungen*), one of whose material effects is, for example, a honeycomb built from hexagonal cells. A honeycomb gives the impression of being a very premeditated construct, one that is optimally adjusted to storing honey. This, in turn, could mean that bees understand geometry and economics.

The term “ratiomorphism” can be somewhat misleading, as it can suggest some kind of derivation from rationality—whereas in fact the opposite is true: it is rationality that derives from ratiomorphism. Here we also see the

<sup>4</sup> The term “ratiomorphism” was coined by the Hungarian-descended American psychologist Egon Brunswik. It should also be remembered that Lorenz’s evolutionary cognition theory is one of many epistemological theories that see close ties between human cognition and the biological evolution theory. Cf. M. Czarnočka, *Podmiot poznania a nauka* (The cognitive subject and science), WN UMK, Toruń 2012, pp. 75–116.

<sup>5</sup> D. Kahneman, *Thinking, Fast and Slow*, Farrar, Straus and Giroux, New York.

<sup>6</sup> Cf. D. C. Dennett, *Intuition Pumps and Other Tools for Thinking*, W. W. Norton & Company 2013; idem, *From Bacteria to Bach and Back: The Evolution of Minds*, W. W. Norton & Company 2017, especially Chapter 5 of Part 1.

<sup>7</sup> D. C. Dennett, *Intuition Pumps ...*, op. cit.

closeness between the ratiomorphic “capacities” and “competence without comprehension.” As Dennett shows, it is wrong to assume that skills or competencies practiced without comprehension preceded comprehension. Dennett notes that comprehension is neither the source nor an active component of competencies, but *consists of them*.<sup>8</sup>

Lorenz, the discoverer of high-ranking ratiomorphism not just in cognitive processes but also in the process of life, wrote (perhaps somewhat exaggeratedly):

“The analogy of rational thought processes—which even the most radical believers in and practitioners of scientism recognise as scientifically legitimate—with the ratiomorphic capacities of perception is a very pressing argument for the contention that these cognitive capacities, although certainly not of a rational nature, must still be recognised as being, as well, legitimate sources of scientific knowledge. Rational processes and ratiomorphic processes combine to form yet another example of the proclivity that our perceiving apparatus often evinces for training and qualifying two different, independently functioning organs for mastering the same task”.<sup>9</sup>

This analogy finds its explanation in genealogy. “Everything we know about the material world in which we live derives from our phylogenetically evolved mechanisms for acquiring information,” Lorenz explained.<sup>10</sup> In his cognition theory Lorenz was inspired by Kant, but laced the Kantian transcendental aesthetic with Darwin’s theory of evolution. World-view apparatus, or ratiomorphic mechanisms and capacities, are inborn, hence *a priori*, but—and this is Lorenz’s huge contribution to epistemology—they are *a priori* only in the ontogenetic sense, whereas phylogenetically they are *a posteriori*.<sup>11</sup> This is why they are species-typical. One of the most prominent contemporary supporters and propagators of Lorenz’s evolutionary cognition theory, physicist, philosopher and linguist Gerhard Vollmer, even called Lorenz’s connection of epistemology to the biological evolution theory “a Copernican revolution in philosophy.”<sup>12</sup>

<sup>8</sup> Cf. D.C. Dennett, *From Bacteria ...*, op. cit. It is worth adding, though, that despite the existence of many analogies, the concepts of ratiomorphism and competence without comprehension also differ in quite a few ways. Dennett makes no mention of Lorenz’s theories in the books I refer to here.

<sup>9</sup> K. Lorenz, *The Waning of Humaneness*, transl. Robert Warren Kickert, Little, Brown and Company, Boston, Toronto 1987, p. 82.

<sup>10</sup> K. Lorenz, *Behind the Mirror*, transl. Ronald Taylor, Methuen & Co Ltd 1977, pp. 6–7.

<sup>11</sup> Cf. K. Lorenz, *Kants Lehre vom Apriorischen im Lichte gegenwärtiger Biologie* (Kant’s Theory of A Priori in Light of Contemporary Biology), in: *Die Evolution des Denkes* (The Evolution of Thinking), K. Lorenz, F. M. Wuketits (ed.), Piper Verlag, München–Zürich 1983. (First published in 1941 in *Blätter für Deutsche Philosophie*).

<sup>12</sup> G. Vollmer, *Die Evolutionäre Erkenntnistheorie* (Evolutionary cognition theory), Hirzel Verlag, Stuttgart 1975, pp. 170–172. It must be said, however, that this approach has also been seriously criticised. Cf. G. Roth, *Wahrnehmung und Erkenntnis: Grundzüge einer neurobiologisch*

The ratiomorphic mechanisms and capacities with which all living organisms are equipped have been verified over hundreds of millions, and even billions of years of evolution, whose very late product is the calculating mind. For this reason, messages relayed by the ratiomorphic cognitive apparatus should not be ignored as allegedly irrational. The fact that ratiomorphic cognitive capacities “are quite certainly not of a rational character,” as Lorenz observes in the cited fragment, does not make them irrational. The conceptual pair rationality/irrationality belongs to the epistemological order, and the rationality/ratiomorphism diad to ontoepistemology. For this reason I propose that technoratiomorphism, a new phenomenon in the human world in which I see much similarity to ratiomorphism, be treated as an ontoepistemological component.

Ratiomorphism is much more than perceptions, emotions, instincts, intuition or subconsciousness. It is a constitutive and inalienable component of the animate world. It is also always present in communication processes and communication phenomena. Controlled and suppressed to varying degrees by culture in the human world, in certain circumstances it manifests itself with great force: nature is a much older and stronger force than culture.

Lorenz was primarily an ethologist, therefore his epistemological conceptions were strongly rooted in empirism. Thanks to Lorenz we know that ratiomorphism is not only irremovable from the animate world, but also that its disappearance would be fatal, also for *homo sapiens*. As an example, he named the inter-special aggression present in ratiomorphism, which only appears harmful in the world of non-human animals, but in fact serves the good of both species and individuals. Lorenz called this aggression “so-called evil.”<sup>13</sup> Whereas inter-special aggression generated by technoratiomorphism, expressed, for example, by hatred, is by all means truly evil.

Indeed, Lorenz rarely mentioned human communication directly, but his long-year empirical studies showed that inter-special communication is a precondition of the cohesion, durability and survival of both species and individuals. The conclusion that ratiomorphism is universally present in and a common denominator of the animate world led Lorenz to discover empathic and behavioural inter-special communication: he showed the important role of gestures and other non-verbal behaviour in direct relations. Thus, in the context of communication phenomena and

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*fundierten Erkenntnistheorie* (Perception and cognition: the basics of a neurobiologically-grounded cognition theory), in: *Wirklichkeit oder Konstruktion? Sprachtheoretische und interdisziplinäre Aspekte einer brisanten Alternative* (Reality or construction? The linguistic and interdisciplinary aspects of a controversial alternative), E. Felder, A. Gardt (eds), De Gruyter, Berlin–Boston, 2018, pp. 194–219.

<sup>13</sup> K. Lorenz, *On Aggression*, Routledge, London 1967.

communication processes, the right question is not if they should contain ratiomorphism at all, but how much.

In the internet era, these discoveries are worth recalling in communicology and empirical studies of social communication and the media. As Zuzanna Stromenger writes, their major practical aspect comes to light in determining “which human behaviour models are inborn (conditioned by heredity), and which acquired in the course of cultural evolution.”<sup>14</sup> And in today’s world it is the internet and its mechanisms that decide about what is culture.

In the context of today’s digitalised communication, it is worth recalling Lorenz’s fears related to the directions he saw technology evolve in during the final two decades of his life. Seen from today’s perspective, many of these fears may seem trivial, exaggerated or even unfounded, but it should be noted that Lorenz formulated them in the pre-internet era, at a time when the collective subject that filtered individual experiences could still be identified with culture. Lorenz watched these trends in technological development with great unease. He believed they led to a “technocratic system,” and saw technology itself as a potential “tyrant over humanity”. In Lorenz’s view, technology, as an emanation of the human mind, promised humans better adjustment and a safer existence, but had in fact become and end in itself instead of a means towards an end.<sup>15</sup> In our day, the most evident and tangible emanation of the human mind is the internet, which for people born in the 21<sup>st</sup> century is a “natural” and hardly noticeable element of their environment. The internet is no longer an “affordance” that that can be used or not according to will.<sup>16</sup>

Lorenz died in 1989, but in the internet era his fears would assumedly have only mounted (and, possibly, found much stronger grounding). Perhaps he would have noticed a new regulating force in a human world dominated by artificial intelligence, digital technology and, first and foremost, the internet and e-communication. One whose functioning and effectiveness showed many similarities to ratiomorphism, but which was not directed towards securing life, existence and survival. In other words, technoratiomorphism.

## LEM: TECHNOLOGY AND TECHNOLOGICAL RATIOMORPHISM

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<sup>14</sup> Z. Stromenger, foreword to Polish edition of *On Aggression*, transl. A. D. Tauszyńska, PIW, Warsaw 1996, p. 6.

<sup>15</sup> Cf. K. Lorenz, *The Waning of Humanity*, op. cit.

<sup>16</sup> The term “affordance” was coined by the American psychologist James J. Gibson. Cf. D. C. Dennett, *From Bacteria ...*, op. cit.

The internet is a new kind of being, an onticity unknown in the earlier development phases of communication and media. The internet broke into the human world aggressively, and in only two decades put the intersubjective sphere under the domination of digital media and e-communication. In effect, culture is gradually transforming into technoculture, forcing *homo sapiens socialis et communicans* to seek new adaptation strategies. Media based on modern digital technology have produced new phenomena like hate-speech, fake- and deep fake news and post-truth, and the cultural *a priori*, which throughout the entire history of civilisation confronted itself with the biological *a priori*, sometimes collaborating and sometimes conflicting with it, has been supplemented and is gradually becoming dominated by a technological *a priori* with its multifarious logic and axiological deficit.

The meaning and effects of the unavoidable spreading and domination of digital technology in the human world was ingeniously foreseen and diagnosed by Stanisław Lem in his 1964-published *Summa Technologiae*.<sup>17</sup> Already the satirical-ironic drawing by Szymon Kobyliński on the inside of the cover signalled the imminent advancement of an exciting but dangerous moment, a singularity thanks to which the human mind will gain full autonomy, with the material body as no more than a vehicle for it. Over a decade later a similar idea was propagated by Richard Dawkins in his conception of the “selfish gene” for which living organisms are merely carriers.

The drawing shows a fragment of the evolutionary tree. Growing out from the trunk is a big, but gradually wilting branch. Sitting on the end of the branch is a bespectacled man in a jacket, lightly befuddled by the altitude to which evolution has elevated him, and worried about his future as the living tree of evolution transforms into a technological tree: a cold construct rooted in the bespectacled man’s mind and consisting of nothing but technology; the biological evolution of *homo sapiens* has thus reached its end. In the tree’s successive bifurcations we see screens, computers, programmes and data banks—that in which humanity’s common and most refined rational thought has been placed. Simultaneously present here is technoratiomorphism, because the mechanisms that control these tools display many similarities with those of ratiomorphism.

Metaphorically, this can be said to mean that humanity has ceded reason and rationality to digital technology and artificial intelligence, leaving for itself the material body and ratiomorphism. Ratiomorphic automatisms allow humans to make use of modern technology, but they do not and will never understand it, remaining forever on the “competence without

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<sup>17</sup> S. Lem, *Summa Technologiae*, trans. J. Żylińska, University of Minnesota Press, Minneapolis, London 2013.



comprehension” level. Humans have ceased to evolve, while modern technology learns and perfects itself with increasing speed, gaining more and more subjectivity and self-agency. Thus, modern technology is gradually freeing itself from human control, and at the same time makes humans increasingly dependent on it. A good example is modern-day communication technology: people communicate in the environment of the new media, with their help and with their active participation, but do not comprehend the laws that govern digital technology. We know at least since Plato that the media are not neutral, thus, if communication is the key bonding and cognitive relation in the human world, then humans suddenly deprived of access to digital technology will often feel not just helpless, but in some sense “incomplete.”

If we accept this interpretation, the internet and artificial intelligence era appears to confirm Lorenz’s fears: the price we pay for this unprecedented evolution of new technology—which undoubtedly constitutes one of the greatest benefits mankind has experienced throughout its entire history—is the dictate and tyranny of technology. Of course, this revolutionary change also carries important consequences of an anthropological, psychological, epistemological, ontological—the list can be extended indefinitely—nature.

The “place” where the evolutionary tree transforms into a technological tree can be regarded as a certain kind of “singularity” which eradicates the graduality of evolution, i.e. the step-by-step introduction of contingent evolutionary novelties and their verification by natural selection. Unlike the “inventions” of biological evolution, technological novelties are implemented in whole and immediately. Stanisław Lem called this a “technological trap”: the introduction of breakthrough technological solutions is an irreversible process, one cannot “withdraw” them, “close them in a bottle” or “send them into oblivion.”<sup>18</sup>

At the point of the singularity, the continuity of evolution which had gradually led *homo* to *sapiens* is interrupted by something like a huge leap into the unknown, which in turn serves two less popular evolution theories—punctualism and saltationism. In the terminology proposed in the 1940s by the geneticist Richard Goldschmidt, one can say that modern technology and artificial intelligence have put *homo sapiens* in the role of a “hopeful monster” or “a monster full of future.”<sup>19</sup>

What kind of future this will be will be mainly decided by communication, because communication is the key relation in the human world. Its forms and effects will be shaped by technology.

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<sup>18</sup> S. Lem, *Moloch* (Behemoth), Biblioteka Gazety Wyborczej [Gazeta Wyborcza Library], Warsaw 2010, p. 118.

<sup>19</sup> Cf. S. J. Gould, *Ever Since Darwin*, W. W. Norton, New York 1977.

Lem often admonished that technology is an independent variable in our civilisation: its speeding vehicles can be stopped by nothing short of global annihilation, and its progress does not really rely on our efforts. It is rooted in the very nature of the world, and it is not the world's "fault" that what we most like to draw from the ripe fruit of the Tree of Technology is venom with which to poison ourselves and others.<sup>20</sup> Today, technology's fastest-moving vehicle is artificial intelligence, but viewed from the perspective of daily human life it is the internet.<sup>21</sup> The production of venom, e.g. hate-speech, is enhanced by mechanisms which, because of their similarity to ratiomorphic mechanisms, I call technoratiomorphic. They are a component of a bigger unit which I call technoratiomorphism or technological ratiomorphism.<sup>22</sup>

These mechanisms have many common features. Indeed, Lem repeatedly stressed that technology patterned itself on and copied biological solutions. Ratiomorphic mechanisms convey clear instructions and leave no room for hesitation or doubt: come closer—run, similar—different, familiar—alien, attractive—repulsive, nutritious—poisonous. Modern digital technology possesses similar mechanisms based on a binary code, which force immediate, blind, unreflective and non-negotiable reactions (click, proceed, press keys, go back) and also help eliminate hesitation and doubt.

The communication analyst Michael Fleischer cites an influential Google executive, who already in 2005 said that most people do not want Google to answer their questions, but to tell them what to do.<sup>23</sup> This way, cyber- and techno-culture take over the role of the collective subject. The collective subject of the pre-internet era—culture—possessed some kind of distinctive centre, a core containing that what was important, valuable and worth preserving, and its dictates—the cultural *a priori*—controlled and restricted biological impulses. The structure of the Internet, which imitates culture and is progressively replacing it, is different: there is no centre, and everything is equally important or unimportant. In fact, we cannot even speak about a common internet, because every user has his/her own. There are as many internets as there are internauts, and this has become a matter of course in the contemporary human world.

<sup>20</sup> Cf. S. Lem, *Behemoth*, op. cit.

<sup>21</sup> A pioneering and still often cited monograph on artificial intelligence mentions "the age of the Internet" in its subtitle. Cf. K. Goldberg (ed.), *The Robot in the Garden. Telerobotics and Telepistemology in the Age of the Internet*, MIT Press, Cambridge, MA, London 2000.

<sup>22</sup> It is worth noting that Lem, who was sure to have known about Lorenz's discoveries in ethology and his epistemological ideas, did not use the term "ratiomorphism" at all. I can only presume that he considered it too vague and more a verbal hybrid that still awaited theoretical analysis (necessary because of its biological, social and communicational importance). I have to say that I found no references to Lorenz by Dennett either, although I cannot exclude their existence in his other publications.

<sup>23</sup> M. Fleischer, *Design informacji i jej algorytmy* (The design of information and its algorithms), AT Wydawnictwo (publisher), Kraków 2019, p. 10.

Digital mechanisms and digital objects become natural by way of environmental determinations. More and more people support the view that our distinction between physical and virtual reality is merely habit, and at most acceptable for analytical purposes, whereas in fact both realities form an intertwined, hybrid structure. Digital dualism—as the media theorist Nathan Jurgenson calls the division of social practices into online and offline—is passé. Jurgenson says that we live in a mixed, extended reality, where the material and physical intertwines with the digital—body with technology, atoms with bytes, offline with online. The internet is real life and all “offline” and “logout” fetishes are false, he argues, adding that the reality we experience is the effect of the continuous mutual interplay between offline and online reality. The web does not differ from reality at all—it contains real people with real bodies, histories, coals and action modes.<sup>24</sup>

It should be recalled here that Stanisław Lem already foresaw this 60 years ago. In *A Lampon of Evolution*, the eighth chapter of *Summa Technologiae*, he wrote about the creation of worlds “so sovereign and independent from Nature that they replace its worlds in every respect. The difference between ‘the artificial’ and ‘the natural’ thus begins to blur because ‘the artificial’ is capable of exceeding ‘the natural’ within any range of parameters.”<sup>25</sup> In the vein of the earlier-cited metaphor of humans ceding reason and rationality to digital technology and artificial intelligence, one can say that technological ratiomorphism has already “exceeded” natural ratiomorphism. The strength of its mechanisms, which imitate the mechanisms of biology, has been enhanced by the most sophisticated rationality.

### **DIGITAL LOGICS: TECHNORATIOMORPHISM AND THE RATIOMORPHIC SURPLUS**

The rank of digital communication and media technology in today’s world is primarily determined by two aspects of the internet. First, the internet is a new phenomenon and a new being, which has acquired subjectivity, is increasingly taking on the role of a collective subject, and has its own variants of logic, where technical rules suppress the rules of culture which dominated the pre-internet era.<sup>26</sup> Secondly, the internet is an environment to which humans must adapt. We are living in a breakthrough

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<sup>24</sup> Cf. N. Jurgenson, *The Social Photo. On Photography and Social Media*, Verso 2019.

<sup>25</sup> S. Lem, *Summa technologiae*, op. cit., p. 296.

<sup>26</sup> Today contemporary media researchers openly speak about the different “logics” that govern the media, instead of one “logic.” Cf. C. Thimm, M. Anastasiadis, J. Einspänner-Pflock (eds), *Media Logic(s) Revisited. Modelling the Interplay between Media Institutions, Media Technology and Societal Change*, Palgrave Macmillan, Cham 2018.

period, where the web is a perfectly natural—and the most immediate—environment for the generations that are currently approaching adulthood, but to varying degrees a new one for the older generations.

A comprehensive interpretation of the logics of the new media—today held for classical—was presented in 2001 by Lev Manovich in his still often quoted book *The Language of New Media*. Manovich examined the differences between traditional and new media and pointed to “the general tendencies of a culture undergoing computerisation,” predicting that “as the computerization affects deeper and deeper layers of culture, these tendencies will manifest themselves more and more.”<sup>27</sup>

Manovich compiled a list of these differences according to a logical order, whose those further down the list remained in logical relationships to those higher up: “This is not dissimilar to axiomatic logic where certain axioms are taken as starting points and further theorems are proved on their basis.”<sup>28</sup> The difference listed as first is also the most important in the context of ratiomorphism and technoratiomorphism: numerical representation. This means that all objects in the new media are registered digitally. Digitisation determines the various logics of the new media, and, combined with the modularity that is appropriate to these logics, leads to automation and the restriction of intentional activity.<sup>29</sup> This characteristic corresponds well with biological ratiomorphism, its automatism, unreflectiveness and teleonomy.

The digital and modular character of modern media technology, together with automation and the reduction of intentionality, compelled me to distinguish technoratiomorphism as a new onto-epistemological entity. I will repeat what I already mentioned in the *Introduction*: First, this characteristic of digital technology provides insight into the analogies between their mechanisms and the mechanisms of ratiomorphism. The mechanisms that are inherent to digital technology are a necessary condition for the appearance of a new phenomenon. Secondly, digital technology generates new reactions, behaviour and activity in humans, who are forced to adapt to a digital environment. Digital technology frequently forces immediate, automatic and unreflective reactions, in other words, activates the mechanisms of natural ratiomorphism. Thus, modern digital technology enhances ratiomorphism. The mechanisms of digital technology, the reactions, actions and behaviour they evoke in people and their effects—hence also “surplus” ratiomorphism—come together to form a system of mutually-conditioning bonds. I distinguish this relational, hybrid entity

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<sup>27</sup> L. Manovich, *The Language of New Media*, MIT Press, Cambridge, Mass. 2001, online edition: Project ALICE, <https://www.alice.id.tue.nl/references/manovich-2001.pdf>, p. 49.

<sup>28</sup> *Ibidem*, p. 49.

<sup>29</sup> *Ibidem*, pp. 49–53.

made up of many incommensurable elements owing to the rank it occupies in the contemporary human world.

Like the new media, this entity consists of various layers. Manovich spoke about two: “computer” and “cultural,” which work together and interact. “To use another concept from new media, we can say that they are being composited together. The result of this composite is the new computer culture: a blend of human and computer meanings, of traditional ways human culture modeled the world and computer’s own ways to represent it.”<sup>30</sup> Technoratiomorphism possesses at least three layers: technological (the digital fittings of modern technology), biological (the ratiomorphism that is irremovable from the world of living organisms), and intersubjective-social (the synergic technological-biological effects in whose emergence communication plays a key role).

Cyber- and technoculture are increasingly taking over the functions of human culture, creating new meanings, essences and social practices. As an example of this I often quote the “publish or die” principle, where the axiological imperative to share knowledge goes hand in hand with the Darwinian claim that only the fittest survive. In the perspective I propose here, this can be viewed as a very sophisticated manifestation of technoratiomorphism, and proof of its causal powers—best evident in the speed and ease with which the academic world embraced and adjusted to the “publish or die” rule despite numerous reservations of a rational and axiological nature.

A less extravagant example of how the three layers of technoratiomorphism intertwine is Twitter. Twitter’s Spartan architecture allows only very brief messages (technology), which enhances the immediate, impulsive and often unreflective (biology) introduction of trivial, silly, over-emotional and often insulting (intersubjective-social) content into the intersubjective sphere. Twitter posts rather resemble (techno)ratiomorphic signals than communication: the message is there to be taken note of, but does not invite exchange. Twitter is a deeply subjective medium, whose (techno) ratiomorphic signals enhance unambiguity, immediacy, and unreflectiveness; the analogies with biological ratiomorphism are all too visible here.

Konrad Lorenz, as well as evolutionary epistemologists who followed in his footsteps, describe life as a process that enables cognition (*Leben selbst ist ein erkenntnisgewinnender Prozess*—life itself is a cognition-generating process)<sup>31</sup> The rising dominance of the logics of modern digital technology and e-communication in the intersubjective sphere carries important

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<sup>30</sup> Ibidem, p. 64. Cf. also: A. Friedberg, *The Virtual Window. From Alberti to Microsoft*, MIT Press, Cambridge-London 2006.

<sup>31</sup> R. Riedl, *Biologie der Erkenntnis* (The biology of cognition), Parey Verlag, Berlin-Hamburg 1987, p. 11.

consequences of a vital and epistemological nature. In the Internet era, the conditions and possibilities of cognition are very different from those in the, after all, not-so-distant pre-Internet times. Immersed in technoculture, humans have become deprived of their axiological and epistemological compass: they do not know what is worthwhile and what is only profitable, what is true and what false or deceptive. Confronted with an incomprehensible cognitive environment and the “technorationmorphic rationality” of the internet, they turn towards their own inner selves, the ratiomorphism they trust unreservedly. This way, objective epistemology and axiology is being increasingly replaced by the subjective epistemology and axiology of the individual subject.

The negative effects of these processes are well known: a retreat from rationality, an upsurge in populist ideologies and extreme individualism, etc. However, a counterweight to this are the very meaningful changes that have taken place in the sphere of sensitivity, best expressed in concern for the environment, climate change and the animal world, and the increasingly widespread awareness that human relations must be based on empathy, which could, on the strength of ratiomorphic determinations, lead to understanding without comprehension (which can be viewed as a variety of competence without comprehension). These positive developments base on the common denominator for for all living beings—biological ratiomorphism, the irremovable component of the human world discovered by Konrad Lorenz. Ratiomorphism frequently save the skins of the protagonists of Stanisław Lem’s stories—the pilot Pirx and Ijon Tichy.

Lorenz argued that communication and ratiomorphism are the conditions for the endurance of individuals and species. Lem in his *Tales of Pirx the Pilot*, *The Star Diaries*, *The Futurological Congress*, or *Observation on the Spot* moved the issue onto a global and cosmic level. Lem was curious to know if and how human nature changed under drastically different physical, technological, social and communicational conditions, what remained of it in a fast-changing environment—like the situation in which *homo sapiens socialis et communicans* found himself after his world’s invasion by the internet, modern digital technology and artificial intelligence. Normal people —like the pilot Pirx and Ijon Tichy—come out of such tests victorious: rationality combined with ratiomorphism—the impulse to be and endure—are complementary and allow them to survive.

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