D.O.I. http://dx.doi.org/10.1590/2176-4573e69359

ARTICLES

(Colonial) Technology: The Contribution of Lotmanian Culturology to Digital Coloniality Studies / *Tecnologia (colonial): a contribuição da culturologia lotmaniana para os estudos da colonialidade digital*

Laura Gherlone[*]

ABSTRACT
This article examines the intellectual milieu that challenged Yu. Lotman to think about technological progress in culturological terms. The discussion focuses on the Tartu scholar's critical theory of technology, which emerged from contact with two specific intellectual projects of the Soviet period, advanced by cybernetics and the Cosmist movement, respectively: the machine-driven ordering of the world and the planetarisation of technology. The article then discusses the contribution of Lotman's technocriticism to current research on digital coloniality, as an emerging field of study arising from the critique of today's technological "colonisation" of culture(s) through the core ideas of post/decolonial theory.
KEYWORDS: Yu. Lotman; Soviet culturology; (The question of) technology; Critical theory; Digital coloniality

RESUMO
Este artigo examina o milieu intelectual que desafiou Yu. Lotman a pensar sobre o progresso tecnológico em termos culturológicos. A discussão se concentra na teoria crítica da tecnologia do estudioso de Tartu, que surgiu do contato com dois projetos intelectuais específicos do período soviético, promovidos pela cibernética e pelo movimento cosmista, respectivamente: a ordenação do mundo conduzida pelas máquinas e a planetarização da tecnologia. Em seguida, o artigo discute a contribuição do tecnocriticismo de Lotman para a pesquisa atual sobre colonialidade digital como um campo de estudo emergente que surge da crítica da atual "colonização" tecnológica da(s) cultura(s) por meio das ideias centrais da teoria pós-/decolonial.
PALAVRAS-CHAVE: Yu. Lotman; Culturologia soviética; (A questão da) tecnologia; Teoria crítica; Colonialidade digital

[*] Pontificia Universidad Católica Argentina – UCA, Facultad de Filosofía y Letras, Buenos Aires, Argentina; Consejo Nacional de Investigaciones Científicas y Técnicas de Argentina – CONICET, Buenos Aires, Argentina; https://orcid.org/0000-0002-0117-1077; lauragherlone@uca.edu.ar

1 Lotmanian Culturology and the Soviet Context: The Question of Technology

Technology undoubtedly played a pivotal role in Soviet ideology, serving both to achieve the goals set out in the Five-Year Plans and to demonstrate socialist competitiveness in the face of the formidable overseas adversary during the Cold War. Did not the Kremlin demonstrate "a (short-lived) technological superiority to the USA by the dramatic triumph of Soviet satellites and cosmonauts?" (Hobsbawm, 1995, p. 243). However, it was not merely the prevailing atmosphere of enthusiasm for technological advancement that prompted the semiotician and historian of Russian culture Yu. Lotman's interest in this domain. Two distinct currents of thought, characterised by a "totalising" perspective on reality and closely linked to the issue of technology, significantly shaped his culturological theory. These were the worldview derived from cybernetics and that implied by cosmism.

1.1 Cybernetics and the Ordering of the World

The relationship between cybernetics and Lotman's work has been the subject of extensive previous research (see in particular Salupere, 2015). In this section, I will briefly outline the reasons for the success of this science in the Soviet Union and its influence on Lotmanian technocriticism.

It is important to recall that, following an initial fall from grace (Peters, 2016, pp. 29-32), the reception of cybernetics by the post-Stalin political-intellectual ecosystem was resounding from the 1960s onwards. It appeared to respond to the necessity, already identified in the Soviet Union since the mid-1920s, to mould a "new man" [*novyy chelovek*] and to develop a pedagogical-educational system capable of training future socialist generations. From the outset, this was pursued through scientific research in the fields of neurophysiology and psychological-behavioural science. In other words, the study of the human mind became the gateway to the creation of an efficient, standardised and indoctrinated human worker.

The introduction of cybernetics in the Soviet Union's intellectual milieu represented a significant development in the pursuit of this objective. Indeed, it had already made significant advances in exploring machine-human equivalence in military

contexts. Moreover, it had also signalled a genuine shift in perspective, one that could potentially have global implications. Cybernetics was originally conceived as an operational response to the war between the United States and Nazi Germany. It was simultaneously nourished by technoscientific optimism and a deep anthropological pessimism, thereby embodying a general atmosphere of distrust in humanity due to the perceived defeat of humanistic ideals (Lafontaine, 2007, p. 30). Consequently, communication – understood cybernetically as the mathematical transmission of information – was perceived as the sole means of combating the entropy that prevailed in the wartime and post-war era. The operational notion of *information* underwent a transformation, becoming an ontological concept that evoked order, structure, and organisation in the face of chaos, whether in the human or mechanical domain.

This vision aligned with the demands of the Soviet Union's cultural agenda, which, in pursuit of the goal of a "new humanity," compelled researchers to rethink the humanistic methodological apparatus (prone to subjective interpretation and thus to "imprecision" and potential conflict) with the cybernetic one. This was reflected in two distinct yet interrelated ways. Firstly, there was a notable intensification of research activity within the fields of electrical engineering and instrument-making experimentation. Secondly, there was a marked increase in the level of collaboration between a number of disparate academic disciplines, including linguistics, logic, mathematics, neurophysiology and robotics.

It was inevitable that Lotman's work was affected by the constellation of ideas, yearnings, fears and limitations that characterised the Soviet scientific landscape of the 1960s and 1970s. Whether driven by the necessity to circumvent censorship or an intrinsic scientific curiosity, he delved into the domain of cybernetic research (see Rickberg, 2023, pp. 21-25). Of particular significance was his experience at the Leningrad Institute of Aviation Instrumentation [*LIAP*] in the early 1970s, in collaboration with his colleague B. Egorov (2011). In the 1960s, the Soviet government had allocated substantial funding to this cybernetics and robotics research centre for the construction of groups of robots for lunar travel. The difficulty in creating behavioural patterns of robots (models of behavioural semiotics, one might say) prompted M. Ignatiev, the then head of the Institute's Department of Cybernetics and Technology, to confront Lotman and Egorov with the development of different interaction scenarios.

Although this field experience was relatively brief, the study of behaviour and communication in a semiotic and human-robotic sense had a significant impact on Lotmanian inventiveness, as evidenced in the articles published from 1973 onwards. Indeed, the encounter between the Soviet scholar and cybernetics gave rise to a number of questions from a culturological perspective. Firstly, he adopted several key notions from cybernetics, including those of system, information, purposefulness, self-regulation, entropy, negentropy, equilibrium, feedback, self-correction, and teleology,[1] and applied them to the study of culture. The latter began to be regarded as the result of a process of information accumulation, which, from a cybernetic standpoint, entails a reconsideration of the relationship between the parts and the whole. Indeed, the accumulation of information suggests that the whole cannot be reduced to the mere sum of its parts, given that, as the levels of organisation of matter become increasingly complex, properties of the whole emerge as new information: that is to say, characters that exhibit qualitative diversification, rather than merely quantitative.

Secondly, Lotman endorsed the growing association between machine science and biology. This association corroborated Wiener's conviction that both machines and living beings can be understood as systems organised by information. Lotman was particularly intrigued by cybernetic research with regard to the potential of considering the human brain and the machine processor (the computer/robot) in an analogous and contiguous manner, thereby encompassing both human and artificial intelligence. By analogy, culture began to be regarded by Lotman as a highly complex device, situated more closely to the living than the non-living: a collective intelligence (see Semenenko, 2015).

The two perspectives – culture as an information-communication system and as a collective intelligence – established the concepts of *holism* (the informational "surplus" of the whole) and *interrelation between the parts* as two cornerstones of the semiotics of culture. This led Lotman to develop the idea of the "unity of culture," which he first proposed in 1970 as a research object for the Tartu-Moscow School (Lotman, 2013 [1970], p. 41): an idea that, while stimulating him to adopt a unifying and anti-reductionist view of reality, suggested to him the possibility of interpreting human culture as part of the evolution of the planet. Could this be regarded as a vast process of information growth,

[1] In the field of cybernetics, teleology refers to the operational purpose that drives a self-regulating machine.

in which the cosmic, geological, biological, and anthropological interrelate? It is at this juncture that the Soviet scholar reconnected with the tradition of cosmism, a topic that will be discussed in greater detail in the following subsection.

It is also noteworthy that the "totalising" conception of reality implied in cybernetics, namely the belief in science and machines as a counterbalance to a radical pessimism in humanistic values, prompted a number of criticisms from Lotman. This will be further elaborated upon in the second section.

1.2 Cosmism and the Planetarisation of Technology

In order to gain an understanding of Lotman's perspective on technology as a vital element of the dynamics of culture(s), it is essential to consider the concept of cosmism. He became acquainted with this stream of Russian philosophical thought in the 1980s, primarily through the work of the geochemist and mineralogist V. Vernadsky. From the latter, Lotman (1984) borrowed the concept of the biosphere to develop the theory of the semiosphere. He was inspired both by the Soviet scientist's properly biogeochemical works, most notably the two essays that comprise the book *The Biosphere* (Vernadsky, 1998 [1926]),[2] and by his works on the philosophy of science. In both of these, Vernadsky was driven by the question of whether it was possible to identify an attribute that distinguishes humans from the organisms that inhabit Earth. In this respect, in *The Biosphere* he observed that living matter is characterised by three fundamental properties: ubiquity of life, power of adaptation and the law of economy. In other words, it is driven, through reproduction, to conquer the entire space of the biosphere by the energy of life, to adapt through imperceptible transformations and to reach a state of equilibrium with the lowest possible energy consumption. However, these characteristics do not find full correspondence in humans, who exceed this natural organisation through the capacity for self-reflection – thought and consciousness. Indeed, as Vernadsky emphasised in his renowned treatise *Scientific Thought as a Planetary Phenomenon*[3] (2020 [1938]), humans are the sole organisms capable of modifying the processes undertaken by living matter

[2] Namely *The Biosphere in the Cosmos* [*Biosfera v Kosmose*] and *The Domain of Life* [*Oblast' zhizni*].
[3] The essay was originally composed in 1938. It was first published in 1977, with editorial cuts, and then republished in 1988 in the book *Philosophical Thoughts of a Naturalist*. In the article *On the Semiosphere* Lotman (1984) cited the 1977 edition.

with both spatial and temporal limitations. This is achieved through the application of reason and volition, i.e. science, technology and labour. An illustrative example is the capacity to ascend exponentially in altitude, penetrating the stratosphere, or to descend exponentially in depth, reaching the lithosphere. Additionally, humans can accelerate adaptation times, with a significant expenditure of energy, and create elements that do not exist in nature, such as metal in its pure state. Vernadsky came to say that humans are a geological force, capable of both transforming the Earth and causing its destruction.

In the essay *The Evolution of Species and Living Matter*, published two years after the release of *The Biosphere*, Vernadsky (2022 [1928], p. 197) defined the time of *Homo sapiens* as the Psychozoic Era [*Psikhavoz'yskaya epokha*], a period during which the biosphere, influenced by human thought, is undergoing a transformation into the noosphere. The natural environment is transformed by human activity, resulting in an anthropomorphised space shaped by the mind and its prostheses, namely human technologies. Furthermore, in the 1930 essay *The Origins of Life and the Evolution of Species*, the Soviet scientist (2022 [1930]) employed the term "culture," associating it with a pathway that has spanned millions of years and that has as its *natural* and *inevitable* outcome the scientifisation of human thought and, consequently, the cephalisation of the biosphere. This is an irreversible phenomenon, the result of an evolutionary progression that has become increasingly pronounced over time, culminating in the emergence of conscious thought. In his treatise *Scientific Thought as a Planetary Phenomenon*, he wrote:

> The manifestation [of reason] in the ancestors of man was apparently developed over hundreds of millions of years, but it could only express itself as a geological force in our time, when Homo sapiens embraced the entire biosphere with his life and cultural work (Vernadsky, 2020 [1938], p. 128).

Vernadsky defined the human being as a "natural object" and humankind as "a natural phenomenon" (Vernadsky, 2020 [1938], p. 16) – not the pinnacle of creation but a product of geological history and the environment that has accommodated it, i.e. the biosphere. The only rigorous and legitimate language capable of accounting for this reality is scientific language, since it is the most precise expression of contemporary humans' awareness of their status as subjects of, part of, and consequence of nature.

In conclusion, from a cosmist perspective, humankind is not an entirely distinct entity, but rather an advanced and highly effective unit of the natural order. The cephalisation of the biosphere is a consequence of the scientific effectiveness of the Homo sapiens species, which is rapidly transforming reality. Technology, therefore, can be seen as a part of this process of planetarisation, or even cosmicisation of human thought and action, whereby the cultural is continuous with the natural, the result of the natural.

This constellation of ideas proved highly encouraging for Lotman, who, in the late 1970s and early 1980s, undertook a significant reformulation of his distinctive spatial theory of culture, perhaps also inspired by the "Soviet project of exploration and colonisation of the cosmos" (Salizzoni, 1992, p. 114). In addition, it is noteworthy that Lotman echoed the resurgence of interest in the 1970s USSR in the field of Russian cosmism, a religious, philosophical and artistic movement that originated in Imperial Russia with the posthumous publication of *Philosophy of the Common Task* by the Orthodox Christian philosopher N. Fedorov. While it is not feasible to provide a comprehensive analysis of this subject, it is essential to acknowledge that, insofar as the cosmist movement was induced by Stalinism to inhibit its religious matrix, it was ingeniously embraced and advanced by the Soviet scientific and technical community (see Young, 2012, chap. 9). Due to his holistic and systemic perspective, which posits the interrelationship between living and inert matter at varying levels of complexity, culminating in the cephalisation of the biosphere and potentially extraterrestrial space, Vernadsky was regarded as a prominent figure within this movement.

The cosmist scientists, on the one hand, helped to integrate elements rooted in the Russian tradition (in many respects of Eastern influence) with modern Western science and technology, themselves achieving scientific solutions that were previously unknown in the West; on the other hand, they consolidated one of the fundamental tenets of the cosmist movement, i.e. the techno-mediated role of human activity as a means of conquering space with a view to a cosmically propagable good – namely intelligence, understood as reason [*razum*]. The resurgence of interest in cosmism within the USSR can be attributed to the fact that its anthropo-techno-space-centric vision, presented on a universal scale, appeared to align with the achievements of Soviet cosmonautics. This was perceived as a natural, almost inevitable outcome of a properly Russian cosmovision.

The cybernetic background of Lotman's semiotic theory, anchored in the pivotal concepts of information and intelligence, converged with the idea of the cosmicisation of the human mind, giving rise to a distinctly culturological approach to inquiry. In his book, (not coincidentally) entitled *Universe of the Mind*, he employed terminology evidently inspired by Vernadsky, stating that the semiosphere

> seethes like the sun, centres of activity boil up in different places, in the depths and on the surface, irradiating relatively peaceful areas with its immense energy. But unlike that of the sun, the energy of the semiosphere is the energy of information, the energy of Thought. (Lotman, 1990, p. 150)

If cosmism, primarily through the lens of Vernadsky, provided Lotman with the impetus to develop an anti-reductionist perspective on reality, it is also important to acknowledge that it prompted him to engage in critical reflection on the sphere of technology and its intrinsic connection with the physical notion of "linear time" and the metaphysical one of "inevitability." Furthermore, it stimulated him to consider scientific language in terms of translation and point of view (Lotman, 2024 [1993], p. 330), as will be discussed in the next section.

1.3 Taking a Distance: Criticism of Soviet Techno-Scientific Rationalism

It has been argued that cybernetics was able to integrate and, to a certain extent, adapt to the Soviet cultural context, offering theoretical and practical insights of considerable significance. Nevertheless, it also gave rise to ethical and philosophical considerations. Firstly, as Lotman observed (1976), despite the intention of technology to model, mediate, facilitate and, in some cases, replace an increasing proportion of human thinking and action, the redundant heterogeneity of meanings implied in them is challenging to harness, except at the cost of simplification. The Soviet scholar reached this conclusion (and was further convinced by subsequent experiences) while working on the behavioural patterns of robotic groups destined for lunar travel. He concluded that machines, particularly those designed to simulate and enhance human intellectual capabilities, are limited when dealing with creative acts of new information. While they may be capable of reorganising information in a teleological manner through

recombination mechanisms, they are unable to self-create new meanings or even new intentional behaviours that are unpredictable at the outset.

Secondly, Lotman was reluctant to fully adopt the tenets of cybernetics. The project was presented as a means of reorganising and reordering the world, implying a universalising vision of the function of machines as *kyvernítes* – pilots – of the future of humanity. Although it was appealing from a methodological perspective (i.e. interdisciplinarity), it was at odds with Lotman's culturological viewpoint on a conceptual level. This was due to his conviction that human knowledge is inherently multi-perspective and that it can be enhanced by technology, but not replaced (Lotman, 1973; 1976; 2019 [1978]). Moreover, the cybernetic project involved a certain degree of faith, namely, the trust placed in machines with their operational teleology over human beings (for further contextualisation, see Gerovitch, 2002). While this meant freeing the future from the potential for subjective arbitrariness, it also entailed the loss of humanity's capacity for self-transcendence and purposiveness without purpose, as exemplified in artistic endeavours.

We may now direct attention to the second current of thought that influenced Lotman with its "totalising" perspective: cosmism. In this worldview the role of technology as a means of "tidying up" of reality was not as prominent as in cybernetics. However, both perspectives shared a kind of belief in what G. Young (2012) defined as "Promethean theurgy," that is, an unshakable and perhaps overly naive faith in the rational possibilities of human beings and their ability to rationally take the helm of evolution into their own hands. Vernadsky was infected by this radical optimism, founded in the belief that anthropocosmic progress was natural and inevitable, despite having glimpsed in humanity a geological force potentially capable of destroying the Earth. Lotman's perspective diverges from this vision. Firstly, while maintaining the conviction that the natural and the cultural are distinct spheres of meaning, he questioned the "arrow of time" model, appealing to a complexification of the concept of evolution. In doing so, he introduced a distinction between gradual and explosive change in human history, associating the former trend with technology and the latter with science. For the Tartu scholar, science is characterised by a mode of thought that is more akin to the artistic forma mentis than to the technological one (Lotman, 2002 [1990]; 2009 [1992]; 2013 [1994/2010]). In both cases, namely science and art, non-intentionality and

unpredictability, driven by a purposiveness devoid of a functional aim, assume a guiding (explosive) role. In the Lotmanian perspective, culturally evolutionary human knowledge coincides with the explosion, the result of inspiration, intuition and astonishment. It is neither natural nor inevitable. In contrast, technology falls within the sphere of graduality and pragmatic rationality. As will be discussed in the next section, it can lead to cultural involution, passing itself off as inevitable and universal.

Secondly, Lotman challenged the assumption that scientific language is the only rigorous and legitimate medium capable of explaining the interconnectedness of cosmic, earthly and human processes. It is notable that Vernadsky's approach resonates with the political and institutional debates of that era concerning the preferred scientific method for shaping future socialist generations. In this sense, the Soviet Union espoused the tenets of inductive empiricism, which is based on observational data and the continuous shift from the particular to the general. This approach eschews the realm of ideas and speculation, anchoring research in the domain of empirically verifiable facts. Scientific language was tasked with describing the observed world in a universal, objective, and neutral manner, as well as translating it into the technological realm. As in the case of cybernetics, this view was at odds with Lotman's conviction (2024 [1993], p. 330) that "[s]cience is also a process of translation into a specific language," not the only possible one. Furthermore, given that what is "described in one language may appear essential or recurring may in another not appear at all," it is not advisable to discard any perspective for describing and interpreting the objects of reality. Doing so would result in a loss of complexity in the process of understanding reality itself.

2 Lotman's Critical Perspective on Technology

This section will address a number of questions that facilitate the interpretation of Lotmanian culturology as an expression of a critical theory of technology. This theory originated in the Soviet vicissitude and, as a result, has the potential to contribute to current studies on digital coloniality, as will be discussed in the third section.

As Mikhail Epstein (1999, pp. 16-17, 20) pointed out, "[s]ince the very object of the humanities embraces the free will and spiritual activity that escapes mathematical or naturalistic definition," culturology was born to overcome the reductionist bias of the

Soviet conceptual-discursive apparatus and to rehabilitate the "'metapragmatic' consciousness that is critical of narrow pragmatism." From this perspective, Lotman conducted a genuine culturological operation, recuperating the holistic vision of both cybernetics and cosmism, but translating it into metapragmatic and meta-ideological terms. In this operation, the sphere of technology was subjected to scrutiny by the Tartu scholar.

Lotman was able to express his vision of technology, particularly from the late 1980s onwards. This was a period of unprecedented openness in the Soviet Union, which enabled intellectuals to discuss culture in a more openly political manner. At this juncture, two fields of reflection emerged that informed several of his late writings. The first field considers the relationship between technology and the evolutionary model of human knowledge, while the second field considers the relationship between technology and the rationalist model of human communication.

2.1 Technology and the Evolutionary Model of Human Knowledge

The idea that technical solutions tend to conflate into a picture of universal truth became a culturological problem for Lotman. It is no coincidence that he associated technology with the concept of "informational memory" (Lotman, 2019 [1985], p. 134),[4] which can be defined as the shared knowledge, resulting from a collective path of information acquisition. From a temporal perspective, the last chronological cut is the most representative, as it reveals the extent of innovation produced and accumulated. This cut may appear absolute to contemporaries, who adhere to the formula that the *newest is best* (Lotman, 2019 [1985], p. 134). However, it is subject to obsolescence. In his work, *Universe of the Mind*, Lotman drew a parallel between the timeline of technology and that of biological evolution.

> Biological evolution involves species dying out and natural selection. The researcher finds only living creatures contemporary with him. Something similar happens in the history of technology: when an instrument is made obsolete by technical progress it finds a resting place in a museum, as a dead exhibit (Lotman, 1990, p. 127).

[4] The opposite of informational memory is *creative memory*, where the old and the new, the repressed and the remembered coexist pan-chronically and trans-spatially in the form of texts, realised and in power.

In Lotman's view, technology should be understood as a manifestation of a transient, contextual, linguistically shaped and inherently incomplete form of knowledge. The absence of a trans-historical perspective can result in an uncritical and faith-based approach that is anchored in the quantity (the volume of accumulated knowledge) and extension (the claim of universal validity of accumulated knowledge).

Another issue related to this is the a-historical absolutisation of technology within the evolutionary model of human knowledge, which is characterised by the conception of progress. In his 1992 book, *Culture and Explosion*, Lotman identified the development of technology as a paradigmatic example of a gradual temporal process, against the backdrop of the heuristic distinction between graduality and explosion, predictability and unpredictability, i.e. "the two wheels of the bicycle of history" (2009 [1992], p. 60). In other words, the Soviet scholar ascribed a causal trend to technology, regarding it as a foundational resource of anthropocosmic progress on the basis of its expected and predictable developments. However, he also cautioned against its transparency, noting that "it is in the nature of technology that practical necessities act as powerful stimuli in its progress" (2009 [1992], p. 60).

This perspective was further elucidated in his last book, *The Unpredictable Mechanisms of Culture*, which was published posthumously. If the overarching theme of the work is to reclaim the significance of artistic and creative thought in the context of human history, it is not a mere coincidence that several pages are devoted to the critique of the tendency for technology to assume a dominant position in contemporary societies, becoming a form of technicism that serves the purpose of responding to contingency. In his final reflections, Lotman highlighted the potential dangers of a worldview guided by the solution of practical problems (whether they be simple or complex, such as social issues) mainly through the solution of technical problems. The Tartu scholar (2013 [1994/2010], p. 96) highlighted that technology "serves only the present day, or the tomorrow that it creates." Its conversion into a cultural model of the world inevitably gives rise to a conception of progress that is perceived solely in terms of "visible results" and "tangible applications" (Lotman, 2013 [1994/2010], p. 96).[5] Instead, for any new

[5] The critique of technology, or more specifically those who manage technology, also contained a dissent against the Soviet planning model, which was based on the idea of *immediate utility*.

technical means to be genuinely useful, it must be "introduced into culture, somehow taught to become something more than mere technology" (Lotman, 2005 [1988], p. 459). It is only through human mediation that *tékhnē*, with its inherently practical and productive dimension, can "turn into some action of self-awareness for the individual and communication between people" (Lotman, 2005 [1988], p. 459). These reflections, formulated by Lotman in his *Conversations on Russian Culture*, suggest that technology has an inseparable link with the etymological meaning of culture since the technical means and the innovation they bring must be *cultivated* and *nurtured*, i.e. humanised, in order to increase human knowledge. Otherwise, they can become a source of deep social unrest.

It is important to note that Lotman focused on communication technology as a key example of human progress and a prominent manifestation of the evolutionary model "the newest is best." As a scholar of the semiotics of culture, he was fascinated by the rampant invention of devices capable of extending human relationships in space and time and, in a sense, promoting the development of cultures (Lotman, 2005 [1988]). Nevertheless, this fascination was not without its critics. As early as the 1970s, the Tartu scholar had already observed that the (generally accepted) view of human communication as a natural, rational and even modelisable act, particularly in light of human-robotic cybernetic experiments, did not seem to be as self-evident as previously thought. In 1973 he wrote with his colleague Boris Uspensky:

> the technical problem of human communication with automatons has perceptibly convinced us that our ideas of naturalness are extremely relative. To the layman, the ability of an automaton to "understand" is usually astonishing. For science, the more value is attached to what the automaton "*does not understand*," and so it manifests an object of research where common sense seems to have no reason to think (Lotman, Uspensky, 1973, p. xiii).

According to Lotman, human communication in the 20th century turned out to be anything but an ideal-typical act of simple transmission of information from a subject E (sender) to a subject R (receiver), disturbed at most by "noise," which, from a cybernetic point of view, is potentially reducible.

2.2 Technology and the Rationalistic Model of Human Communication

On the threshold of the Internet age, Lotman reached the conclusion that the naive and optimistic belief that every technical development in the field of communication improves and simplifies social ties is a significant error in judgement (Lotman, 2005 [1988], p. 459). The Soviet scholar posited that this belief was predicated on the assumption that the (mass) media had the capacity to dismantle spatial and temporal boundaries between individuals. However, this perspective failed to acknowledge the concomitant increase in conflicts between people, traditions, and cultures, as well as the gradual dissolution of established modes of coexistence. Furthermore, rather than serving as a conduit for *koinonia*, they became potent instruments for legitimising the other as disparate and, thus, punishable. The "common sense" espoused by Lotman in 1973 would suggest that technological mediation should have reduced the noise, facilitated misunderstandings, and increased the potential of human communication, especially in qualitative terms. This would have led to a growing understanding within and between human collectives, and thus a growing integration between cultures. By the end of the 1980s, Lotman had shifted his focus from studying comprehension to examining incomprehension (Lotman, 2024 [1993]). This shift reflected his recognition that human relationality, in contrast to the robotic behavioural schemes he had studied, is characterised by a greater degree of irrationality than rationality, a greater reliance on error and approximation than on correctness, a greater emphasis on plurivocity than on univocity, and a greater tendency towards surplus than towards parsimony of information.

The critique of the initial premise upon which communication technologies were developed, namely the possibility of augmenting the mechanical-computational potential of human relationality through machines, led Lotman to focus on the connection between technology and collective emotions. The Soviet scholar addressed this topic in the article *Technological Progress as a Culturological Problem* (2019a [1988]), as well as in other contemporaneous works, with the objective of analysing the Renaissance as a pivotal epoch for understanding the cultural forces that laid the foundation for the French Revolution.[6] These writings, which were produced in close proximity to the Revolutions

[6] Lotman addressed this topic in order to commemorate the bicentenary of the French Revolution (1789-1989) and to develop new frameworks for interpreting the effects of the Russian Revolution in the present.

of 1989 in the Soviet Union, exhibit a discernible Aesopian rhetoric: they may be interpreted as a critical examination of the epoch in which Lotman was living, namely a communist world undergoing significant transformation and on the brink of collapse.

As I have previously explored this body of thought elsewhere (see Gherlone, 2019, 2025a), in this text I will limit myself to highlighting the conclusions Lotman arrived at. As he observed, it is noteworthy that during the Renaissance (and in the Soviet Union, one might infer) the illuminating force of technological and scientific progress and the mythology of danger and conspiracy, the "optimistic faith in the omnipotence of the human mind" (2019a [1988], p. 205) and the unconditional spread of hysterical fear in an evil considered occult coexisted simultaneously. For the Tartu scholar, technological innovation, especially when it presents itself in the eyes of contemporaries as a "progress" or even a "revolution" (due to the amount of innovation produced and accumulated), is always accompanied by social crisis and the outbreak of irrational collective behaviour linked to the sphere of the affective. Is this not a paradox? If the human being were to function as the 'new man' to which Soviet cultural policy aspired, it would be expected that the growth of rationality and techno-pragmatic efficiency would result in a universal reception and anaesthetise the sphere of the affective. In contrast, Lotman observed that technological advancement, particularly in the realm of communication – including writing, printing, broadcasting, recording, and computing (2019a [1988], p. 218) – gives rise to a multitude of interpretations and disparate responses, that is, a compensatory dynamic wherein individuals seek to identify new languages and meanings while simultaneously attributing these changes to a culturally identifiable culprit.

In Lotman's view, communication technology represented a significant challenge to culturology from two distinct perspectives. Firstly, it demonstrated the inherent "irrational" (in terms of logic) and "inefficient" (in terms of cost-benefit) tendency of human communication to proliferate, collide and contradict itself (Lotman, 2024 [1993]), even when individuals could streamline semiotic negotiation by utilising mediated languages and technologically pre-designed modes of use. The epistemology underlying the study of culture should therefore focus on contradiction [*protivorechilie*] as a constitutive element of human relationality, which is characterised by the affective despite the palliative attempts of the human-machine interactional model. Secondly, Lotman identified a significant interconnection between technology, the chrono-spatial-

collective accumulation of shared emotions, and the social mechanism of witch-hunting. It is noteworthy that he employed the term "atmosphere" on twelve occasions in the Russian version of *Technological Progress as a Culturological Problem* (see Gherlone, 2022, 2025a, 2025b). In other words, the study of communication technology from a culturological perspective emphasised the link between the process of semiotic assimilation of the novelty brought by a new medium, the exhumation of "deeply archaic models of consciousness" (2019a [1988], p. 217), and the creation of popular myths rooted in tradition, generally oriented towards defining cultural otherness with a negative sign.

3 Lotman's Technocriticism and Digital Coloniality Studies

The set of reflections proposed by Lotman, while emerging as a critical theory of technology, is also one of the many expressions of the "*positive* deconstruction" carried out by culturology (Epstein, 1999, p. 21). This, in turn, emerged as a strategic response to the tensions of the "Soviet semiosphere": a specific chrono-geo-cultural context, in which authors and currents were limited by "institutional constraint and subject to the ideological pressure of the centre" (cf. Restaneo in this special issue). Lotman contributed to asserting the specific vocation of culturology, i.e. to be the "self-governing consciousness" of culture (Epstein, 1999, p. 19), by focusing on the question of human knowledge as a complex phenomenon irreducible to a single model. This is where his technocriticism can be brought into contact with the current studies on digital coloniality. Indeed, the aim of this paper is also to examine the potential intersections between a theory that originated in the Soviet techno-driven culture and an emerging scholarship that, in the early 2000s, in light of the increasing cultural phagocitation by technological "colonialism," began to draw on postcolonial and decolonial critical theory to interpret the impact of the digital on societies (see also Viidalepp, 2023, pp. 66-73). The hypothesis is to consider a parallelism between Soviet and contemporary scientism in relation to the "other side of the coin" of the technological phenomenon, namely its cultural self-questioning, embodied by culturology of that time and the post- and decolonial thinking of today. This proposal builds upon a body of research that has already convincingly related genealogically and analogically the Orientalist and anti-colonialist critiques that

arose in the late-imperial (and later Soviet) Russian world with those that, in different historical-geographical contexts, gave rise to postcolonial and decolonial studies (for a general overview, see Gherlone, Restaneo, 2024; see also the recent Partlett, Küpper, 2022).

The advent of digital coloniality studies occurred concurrently with the growing endorsement of the findings of the Digital Divide research agenda and the increasingly pervasive demand for a more profound engagement with the ethical implications of technological advancement. In this context, postcolonial and decolonial approaches appeared particularly suited to the critical study of socio-economic injustices and "centre-periphery" cultural asymmetries generated by a system, such as the digital technological one, that, due to its global reach and pace of advancement, is colonising every aspect of human knowledge and practice. These studies encompass the field of postcolonial informatics, decolonial informatics (both of which were coined in the 2010s), and, more recently, digital decoloniality. The latter term can be used to refer to data colonialism, digital colonialism, and technocolonialism. The expression "digital coloniality," as proposed in this paper, serves as an overarching concept that incorporates a multitude of approaches and fields of application, encompassing technologies associated with the Internet, digital data, human-computer interaction, thought automation and intelligent adaptation (commonly known as AI). Given the extensive scope of the research, it is not feasible to provide a comprehensive analytical overview (the reader is referred to Gherlone, forthcoming). Instead, this paper will present a concise summary of the core idea that unites these critical approaches, with a view to highlighting potential intersections with Lotman's technocriticist perspective.

It has been observed by numerous scholars, whether they draw on postcolonial literature or decolonial reflections (for an overview, see Milan, Treré, 2019), that the defining feature of contemporary technology is its universalising claim, which can be summarised in the concept of "coloniality." This is distinct from "colonialism" in that it denotes a state of prolonged oppression (expressed by the suffix -ity), which European-Atlantic colonisation initiated from the 16th century onwards, resulting in enduring global effects. The durability of this condition can be attributed to its anchorage in a self-reproducing ecosystem of knowledge, values and beliefs – Western culture – which is claimed to be universal, despite its actual local nature. Technology, as it is inextricably

intertwined with the genesis and development of this global epistemological enterprise guided by practical-moral imperatives (i.e. the accumulation of power and wealth through the dispossession of the most "dispossessed" by virtue of an expansionist/modernising religiosity) is at the heart of the critique of coloniality (Mohamed *et al*., 2020). The current research indicates that the technological supremacy of the West, or rather, of what is now known as the Global North, should be seen as the result of a century-old design of dispossession, accumulation and expansion that has persisted until the present day. This design perpetuates itself through discourse and praxis that adhere to the same ecosystem of knowledge, values, and beliefs as those espoused during the colonial era (universality, rationality, and efficiency), while utilising novel forms of expression enabled by the digital. Consequently, the processes, methods, implementation and control procedures of today's technology, as well as its design, languages and forms of representation, are to be seen as conscious or unconscious incorporations of the colonial worldview. Rather than being universal and neutral, it can be argued that computer-mediated relations are shaped by an exercise of power that is economic and institutional, but above all epistemological, as a result of a "universal knowledge" that connects us globally.

In particular, studies on data-driven technologies as vehicles of a universal knowledge paradigm based on data-driven information have taken centre stage in recent years (Ricaurte, 2019). As is widely acknowledged, this kind of information, which is underpinned by predictive models that are in turn reliant on vast quantities of digital data, has become synonymous with value. This is because it enables human beings to navigate uncertainty, providing them with the tools to make informed decisions and take appropriate action. In the most advanced versions, data-driven information, through intelligent adaptation (AI), not only guides but also enhances human faculties (learning, reasoning, etc.) and their application possibilities. In contrast to the prevailing sense of optimism, research on digital coloniality has demonstrated that data-driven technologies are instrumental in the accumulation of power. This is because the value they generate is concentrated in the hands of those who possess the necessary techno-economic resources to collect, quantify, store, extract and organise digital data. Consequently, if these technologies were initially conceived as a potential source of wealth and, therefore, of social development (assuming a distributive logic of information), they have since become the cause of increased oppression, inequality and global surveillance

mechanisms. Indeed, inquiries on algorithmic racism and data extractivism (Silva, 2022; Kwet, 2023) have demonstrated that discriminatory and dispossession practices continue, albeit in a more disguised form.

In light of the challenges posed by digital coloniality to the notion of universal knowledge and the semiotic-discursive architectures that underpin it, Lotman's critical theory emerges as a pertinent framework for analysis, particularly through three lines of enquiry. Indeed, a scrutiny of his reflections suggests that contemporary technology could be better understood by incorporating a positive deconstruction of the concepts of (1) the present, (2) progress and (3) achievement. Firstly, Lotman asserts that an understanding of the universalising claim of technology necessitates an exploration of the temporal model implicit in it, namely the evolutionary timeline. This model posits that "what 'works' (...) is the most recent temporal section" (Lotman, 1990, p. 127). It follows that the entirety of the discursive apparatus that accompanies every technological innovation places a significant emphasis on the present and the near future, relying on the "informational memory," by virtue of which the criterion of quantity (i.e. the volume of accumulated technical knowledge) prevails. However, as quantity is synonymous with success and adaptation, as occurs in the natural selection process where some species survive while others become extinct, those who accumulate the most are also the most entitled to consider the knowledge gained as universally successful and valid. Every technological innovation should be evaluated not only for what it acquires but also for what it can potentially lose, anchoring critical analysis to a temporal framework that is not constrained by the absolutisation of the present. Instead, it must encompass a perspective that contemplates the potential effects of transience, obsolescence, and the long-term future.

Secondly, Lotman's research indicates that the promotion of a positive deconstruction of the utopian concept of progress represents a significant and pressing task for contemporary culture. The Tartu scholar identified the roots of the success of this concept in the Enlightenment philosophy that permeated European culture and expanded far beyond its borders (the cybernetic and cosmist approaches are two examples), noting that it has survived to the present day through the techno-pragmatic forma mentis. This conceptualisation of humanity's journey as a universal, homogenising ascent towards ever greater levels of perfectibility posits that, so to speak, some peoples solve the same

problem in a manner that is very close to the ideal algorithm, while others make mistakes (Lotman, 2019b [1988], p. 179). From this perspective, rational behaviour, the capacity to measure and predict, and probabilistic verifiability assume a pivotal role for the sake of ensuring well-being and utility. These are considered in turn to be evaluative parameters of the validity of human thought and action. This is exemplified by the current conviction in the predictive potential of algorithms, which are regarded as the pinnacle of knowledge due to their capacity to generate "visible results" and "tangible applications" (Lotman, 2013 [1994/2010], p. 96).

Thirdly, Lotman's critical theory emphasises the concept of achievement as a means of understanding the universalising claim of technology. As he noted when working on the behavioural patterns of robots, it is important to consider not only what technology succeeds in achieving, but also what it fails to achieve. The Tartu scholar was specifically referencing the unsuccessful experiments in the domain of artificial intelligence, which should be interpreted not as failure, but rather as a positive indication of the gap between humans and machines. This collective realization would have the potential to transform technology into a conduit for self-awareness and a genuine source for humanity. These reflections still apply today, when, perhaps even more so than during Lotman's lifetime, the persistent focus on the capabilities and potential of machines over the limitations or even imperfections of human beings, not only reinforces the anthropological pessimism that shaped cybernetics at its inception but also suggests a Promethean theurgic project of global scale. One need only consider the rhetoric surrounding AI, which is often presented as a completely autonomous and independent entity, capable of adapting to new information and models, and of learning and evolving. In Lotman's view, it is not a matter of denying the advances of technology – automation in his time, intelligent adaptation today – but of reading the side effects of technological progress (socio-economic injustices, cultural asymmetries, "irrational" collective movements, etc.) in the light of the achievement/failure relationship. This, according to the Tartu scholar, is connected to the unquestionable acknowledgment of humanity's potential to be a transhistorical collective intelligence (cf. note 4) and to think and create under the stimulus of purposiveness without purpose.

Conclusions

This article posits that Lotmanian culturology, which emerged from the distinctive milieu of the Soviet semiosphere, can serve as a foundation for a critical examination of the universalising claims of contemporary technology. This approach is particularly pertinent in the context of current research on digital coloniality. This suggests that, despite the current technological developments being promoted as a means of establishing order, transparency and predictability in the realm of life, along with facilitating the dissemination and democratisation of information, they can in fact serve to promote a monolithic worldview, which in turn is a source of increasing social malaises.

From Lotman's questioning, several pivotal inquiries emerge that have the potential to challenge the extant research agenda on the digital ecosystem and contribute to the advancement of digital coloniality scholarship. These include: What are the prevailing representations of the relationship between technological innovation, knowledge and temporality? What are the implications of the "generally accepted" notions of development, innovation, well-being and utility for culture(s)? What are the implications of the mainstream narrative that posits a direct and necessary link between humanity's future-oriented aspirations and technological advancement? What are the multiple meanings of the concepts of achievement and perfection across diverse cultural contexts? How is the relationship between achievement and failure, perfection and imperfection represented in cultural discourse(s) when the concept of knowledge is under discussion? What is the relationship between technology's reputation for rationality and the collective emotions that seem to arise when technical novelties come to light?

In Lotman's view, responding to these questions was crucial for humanity's survival, as was the necessity of undertaking a positive deconstruction of the Western model of "intelligence" (2009 [1992], chap. 8) and the cultural colonialism it has implied. The conclusion, as the Tartu scholar would say, is that "We will survive if we're not just smart but wise" (Lotman, 2024 [1992], p. 326).

REFERENCES

EGOROV, Boris F. The Influence of the Tartu Summer School's Publications on the Preparation of Robots for Space Flights. *Tartu Summer School of Semiotics*, Palmse, August, 2011. pp.22-26.

EPSTEIN, Mikhail N. From Culturology to Transculture. *In*: BERRY, Ellen E.; EPSTEIN, Mikhail N. (ed.). *Transcultural Experiments:* Russian and American Models of Creative Communication. New York: St. Martin's Press, 1999. pp. 15-30.

GEROVITCH, Slava. *From Newspeak to Cyberspeak:* A History of Soviet Cybernetics. Cambridge, London: The MIT Press, 2002.

GHERLONE, Laura. Lotman Continues to Astonish: Revolutions and Collective Emotions, *Bakhtiniana*, v. 14, n. 4, pp. 163-183. 2019. DOI: https://doi.org/10.1590/2176-457338371. Access on 13 December 2019.

GHERLONE, Laura. Explosion. *In*: TAMM, Marek; TOROP, Peeter (ed.). *The Companion to Juri Lotman:* A Semiotic Theory of Culture. London, New York: Bloomsbury Academic, 2022. pp. 282-295.

GHERLONE, Laura. What About the Bogeyman? Collective Emotions, Everyday Life, and the Search for a Scapegoat: A Lotmanian Reading of the Digital Sphere. *In*: MARAN, Merit; MADISSON, Mari-Liis; VENTSEL, Andreas (ed.). *Through the Lens of Dread:* Exploring the Meaning-Making of Fear in the Mediasphere. Tallinn: Tallinn University Press, 2025a. pp. 48-84.

GHERLONE, Laura. Affective Atmospheres: Collective Emotions Inside and Outside the Digital Sphere. *In*: VENTSEL, Andreas; SELG, Peeter (ed.). *Power of Emotions:* On the Affective Constitution of Political Struggle – A Multidisciplinary Approach. Cham, Switzerland: Springer, 2025b. pp. 111-131.

GHERLONE, Laura. Digital Decoloniality: Perspectives for De-Universalising, Decentralising and Re-Territorialising Today's Digital Ecosystem. *In*: LEONE, Massimo; UMBRELLO, Steven (ed.). *Digitally Divided:* The Impact of Technology on Belief and Societal Polarization. Springer. Forthcoming.

GHERLONE, Laura; RESTANEO, Pietro. Universality and Conflict as a Decolonial and Culturological Problem. *In*: MONTICELLI, Daniele; MARAN, Merit; SEDDA, Franciscu (ed.). *Semiotics of Conflict:* A Lotmanian Perspective. Tallinn: Tallinn University Press, 2024. pp. 120-148.

HOBSBAWM, Eric. *Age of Extremes:* The Short Twentieth Century, 1914-1991. London: Abacus, 1995.

KWET, Michael (ed.). *The Cambridge Handbook of Race and Surveillance*. Cambridge, New York: Cambridge University Press, 2023.

LAFONTAINE, Céline. The Cybernetic Matrix of "French Theory." *Theory, Culture & Society*, v. 24, n. 5, pp. 27-46, 2007. DOI: https://doi.org/10.1177/0263276407084637. Access on 13 November 2024.

LOTMAN, Yuri. Chto daet semioticheskiy podkhod? [What does the Semiotic Approach Offer?]. Voprosy literatury, n. 11, pp. 67-70, 1976.

LOTMAN, Yuri. O semiosfere [On the Semiosphere]. *Trudy po znakovym sistemam*, n. 17, pp. 5-23, 1984.

LOTMAN, Yuri. *Universe of the Mind:* A Semiotic Theory of Culture. Translated by Ann Shukman. London, New York: I.B. Tauris, 1990.

LOTMAN, Yuri. O prirode iskusstva [On the Nature of Art]. *In*: LOTMAN, Yuri. *Statyi po semiotike kultury i iskusstva* [Articles on Semiotics of Culture and Art]. Saint Petersburg: Akademicheskiy proekt. 2002 [1990]. pp. 265-271.

LOTMAN, Yuri. Besedy o russkoy kulture. (Televizionnye lektsii). Tsikl vtoroy. Vzaimootnosheniya lyudey i razvitie kultur [Conversations about Russian Culture. (Television Lectures). II Cycle: Relationships Between People and the Development of Cultures]. *In*: LOTMAN, Yuri. *Vospitanie dushi* [Education of the Soul]. San Petersburg: Iskusstvo—SPB, 414-514, 2005 [1988].

LOTMAN, Yuri. *Culture and Explosion*. Translated by Wilma Clark. Berlin, New York: Mouton de Gruyter. 2009 [1992].

LOTMAN, Yuri. Proposals for the Programme of the 4th Summer School on Secondary Modelling Systems. *In*: KULL, Kalevi; SALUPERE, Silvi; TOROP, Peeter (ed.). *Beginnings of the Semiotics of Culture*. Tartu: University of Tartu Press, 2013 [1970]. pp. 41-43.

LOTMAN, Yuri. *The Unpredictable Workings of Culture*. Translated by Brian J. Baer. Tallinn: Tallinn University Press. 2013 [1994/2010].

LOTMAN, Yuri. The Phenomenon of Culture. *In*: LOTMAN, Yuri. *Culture, Memory and History:* Essays in Cultural Semiotics. Translated by Brian J. Baer, edited by Marek Tamm. Cham: Palgrave Macmillan, 2019 [1978]. pp. 33-48.

LOTMAN, Yuri. Memory in a Culturological Perspective. *In*: LOTMAN, Yuri. *Culture, Memory and History:* Essays in Cultural Semiotics. Translated by Brian J. Baer, edited by Marek Tamm. Cham: Palgrave Macmillan, 2019 [1985]. pp. 133-137.

LOTMAN, Yuri. Technological Progress as a Culturological Problem. *In*: LOTMAN, Yuri. *Culture, Memory and History:* Essays in Cultural Semiotics. Translated by Brian J. Baer, edited by Marek Tamm. Cham: Palgrave Macmillan, 2019a [1988]. pp. 201-223.

LOTMAN, Yuri. Clio at the Crossroads. *In*: LOTMAN, Yuri. *Culture, Memory and History:* Essays in Cultural Semiotics. Translated by Brian J. Baer, edited by Marek Tamm. Cham: Palgrave Macmillan, 2019b [1988]. pp. 177-187.

LOTMAN, Yuri. We Will Survive If We Are Wise. *In*: MONTICELLI, Daniele; MARAN, Merit; SEDDA, Franciscu (ed.). *Semiotics of Conflict:* A Lotmanian Perspective. Translated by Brian J. Baer. Tallinn: Tallinn University Press, 2024 [1992]. pp. 325-328.

LOTMAN, Yuri. "We Need Everything. There Is Nothing Superfluous in the World…." *In*: MONTICELLI, Daniele; MARAN, Merit; SEDDA, Franciscu (ed.). *Semiotics of Conflict:* A Lotmanian Perspective. Translated by Brian J. Baer. Tallinn: Tallinn University Press, 2024 [1993]. pp. 329-340.

LOTMAN, Yuri; USPENSKY, Boris. Introduzione. *In*: LOTMAN, Yuri; USPENSKY, Boris (ed.). *Ricerche semiotiche:* Nuove tendenze delle scienze umane nell' URSS. Turin: Einaudi, 1973. pp. xi-xxvii.

MILAN, Stefania; TRERÉ, Emiliano. Big Data from the South(s): Beyond Data Universalism. *Television & New Media*, v. 20, n. 4, pp. 319-335, 2019. DOI: https://doi.org/10.1177/1527476419837739. Access on 13 November 2024.

MOHAMED, Shakir; PNG, Marie-Therese; ISAAC, William. Decolonial AI: Decolonial Theory as Sociotechnical Foresight in Artificial Intelligence. *Philosophy & Technology*, v. 33, pp. 659-684, 2020. DOI: https://doi.org/10.1007/s13347-020-00405-8. Access on 13 November 2024.

PARTLETT, William; KUPPER, Herbert. *The Post-Soviet as Post-colonial:* A New Paradigm for Understanding Constitutional Dynamics in the Former Soviet Empire. Cheltenham, UK; Northampton MA, USA: Edward Elgar Publishing, 2022.

PETERS, Benjamin. *How Not to Network a Nation:* The Uneasy History of the Soviet Internet. Cambridge, MA: MIT Press, 2016.

RESTANEO, Pietro. Engaging the Difference. Multiperspectivist Themes in the Soviet History of Ideas, *Bakhtiniana*, v. 21, n. 01, e68915e. 2026. DOI: http://dx.doi.org/10.1590/2176-4573e68915. Access on 24 November 2025.

RICAURTE, Paola. Data Epistemologies, the Coloniality of Power, and Resistance. *Television & New Media*, v. 20, n. 4, pp. 350-365, 2019. DOI: https://doi.org/10.1177/1527476419831640. Access on 13 November 2024.

RICKBERG, Merit. *Towards Complexity Thinking with Juri Lotman:* Modelling Cultural Dynamics in Educational Systems. 2023. 110 p. (PhD Thesis in Semiotics and Culture Studies) – Tartu: University of Tartu Press. 2023.

SALIZZONI, Roberto. *L'idea russa di estetica:* Sofia e Cosmo nell'arte della filosofia. Turin: Rosenberg & Sellier, 1992.

SALUPERE, Silvi. The Cybernetic Layer of Juri Lotman's Metalanguage. *Recherches sémiotiques*, v. 35, n. 1, pp. 63-84, 2015. DOI: https://doi.org/10.7202/1050987ar. Access on 13 November 2024.

SEMENENKO, Alekseï. La culture dans le cerveau? La sémiotique soviétique et l'étude de l'asymétrie cérébrale. *Slavica occitania*, n. 40, pp. 101-117, 2015. Available at: https://interfas.univ-tlse2.fr/slavicaoccitania/1721. Access on 13 November 2024.

SILVA, Tarcízio. *Racismo algorítmico em plataformas digitais:* microagressões e discriminação em código. São Paulo: Edições Sesc, 2022.

VERNADSKY, Vladimir I. *The Biosphere*. Translated by David B. Langmuir; revised and annotated by Mark McMenamin. New York: Copernicus, 1998 [1926].

VERNADSKY, Vladimir I. Nauchnaya mysl' kak planetnoe yavlenie [Scientific Thought as a Planetary Phenomenon]. *In*: VERNADSKY, Vladimir I. *Filosofskie mysli naturalista* [Philosophical Thoughts of a Naturalist]. Moscow: Akademicheskiy proekt, 2020 [1938]. pp. 15-191.

VERNADSKY, Vladimir I. Evolyutsiya vidov i zhivoe veshchestvo [The Evolution of Species and Living Matter]. *In*: VERNADSKY, Vladimir I. *Biosfera i noosfera*. Moscow: Izdatel'stvo AST, 2022 [1928]. pp. 188-213.

VERNADSKY, Vladimir I. Nachalo zhizni i evolyutsiya vidov [The Origin of Life and the Evolution of Species]. *In*: VERNADSKY, Vladimir I. *Biosfera i noosfera*. Moscow: Izdatel'stvo AST, 2022 [1930]. pp. 214-224.

VIIDALEPP, Auli. *The Expected AI as a Sociocultural Construct and Its Impact on the Discourse on Technology*. 2023. 98 p. (PhD Thesis in Semiotics and Culture Studies) – Tartu: University of Tartu Press. 2023.

YOUNG, George M. *The Russian Cosmists:* The Esoteric Futurism of Nikolai Fedorov and His Followers. New York: Oxford University Press, 2012.

Received December 4, 2024

Accepted November 25, 2025

Research Data and Other Materials Availability

The contents underlying the research text are included in the manuscript.

Reviews

Due to the commitment assumed by *Bakhtiniana*. Revista de Estudos do Discurso [*Bakhtiniana*. Journal of Discourse Studies] to Open Science, this journal only publishes reviews that have been authorized by all involved.

Review I

The article "(Colonial) technology: The Contribution of Lotmanian Culturology to Digital Coloniality Studies" is well-written and the style and layout are good. References of concerned literature are extensive and cover the present state of analyses of all the topics that are approached in the article which is a result of excellent research that is worthy of publication. Summing up, this article reflects an impressive research effort, a well-structured and meticulously documented write-up, and an innovative and original framework for thinking about the contribution of Lotmanian culturology to digital coloniality studies which is of enduring importance and interest. ACCEPTED

Elena Vássina – Universidade de São Paulo – USP, São Paulo, São Paulo, Brazil; https://orcid.org/0000-0001-8199-5764; elenavassina@usp.br

Reviewed on January 28, 2025.

Editors in charge

Pietro Restaneo
Bruna Lopes