Technology and Language

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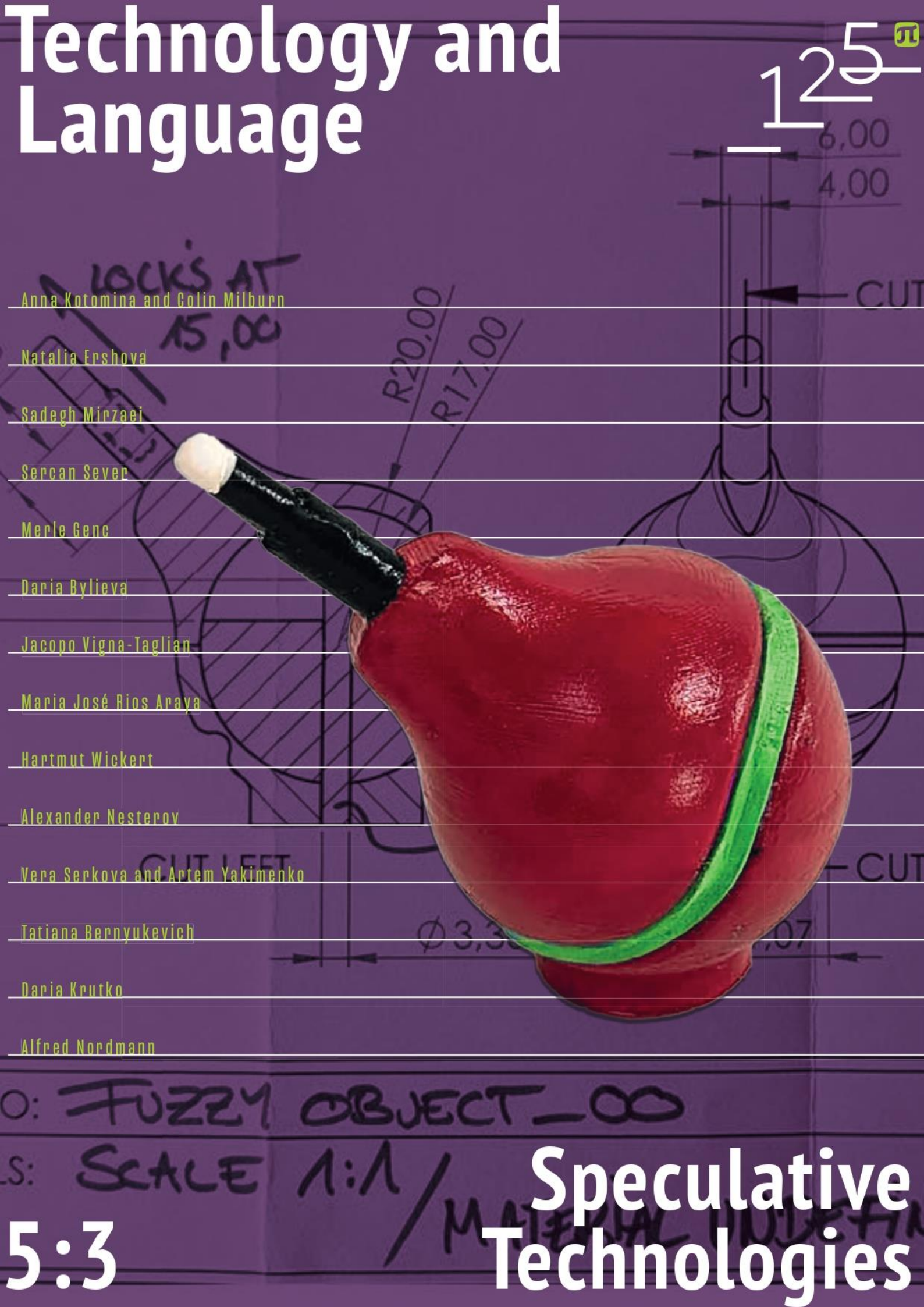

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Speculative Technologies

Свидетельство о государственной регистрации:
Эл № ФС 77 – 77604 от 31 декабря 2019,
выдано Роскомнадзором
ISSN 2712-9934

Учредитель и издатель:
Санкт-Петербургский политехнический университет Петра Великого

Адрес редакции:
195251, СПб, ул. Политехническая, д. 29.

ISSN 2712-9934

Publisher:
Peter the Great St. Petersburg Polytechnic University

Corresponding address:
29 Polytechnicheskaya st., Saint-Petersburg, 195251, Russia

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www.philosophie.tu-darmstadt.de/T_and_L

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Anna Kotomina and Colin Milburn

https://doi.org/10.48417/technolang.2024.03.01
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Speculative Technologies: Here and Now, There and Then

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Abstract
Speculative technologies emerge at the intersection of imagination and scientific knowledge. They stretch the limits of what is currently possible, offering glimpses of the shape of things to come. Existing in the domains of theory, design, and fantasy, they may sometimes seem impractical, unrealistic, or even impossible from the perspective of the present. Nevertheless, they serve as provocations and inspirations, pointing to new possibilities, alternate horizons, and different worlds beyond our current reality. Speculative technologies are not just products of speculation; they are also generators, drivers, and focalizers of speculation, instruments of subjunctivity. The essays collected in this two-part special issue examine speculative technologies through historical reconstructions, philosophical reflections, cultural-technology assessments, museological engagements, and literary experiments.

Keywords: Speculative technologies; Imagined futures; Alternative worlds

Citation: Kotomina, A. & Milburn, C. (2024). Speculative Technologies: Here and Now, There and Then. *Technology and Language, 5*(3), 1-9. https://doi.org/10.48417/technolang.2024.03.01

УДК 13:159.954
https://doi.org/10.48417/technolang.2024.03.01
Научная статья

Спекулятивные технологии: Здесь и сейчас, там и тогда

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Аннотация
Спекулятивные технологии возникают на стыке воображения и научного знания. Они расширяют границы возможного в настоящем, предлагая намеки на вероятное будущее. Реализуясь преимущественно в области теории, проектирования и фантастики, они иногда могут казаться бесполезными, эфемерными или даже невозможными с точки зрения здравого смысла. Тем не менее, они провоцируют и вдохновляют, указывая на новые возможности, альтернативные горизонты и другие миры за пределами нашей текущей реальности. Спекулятивные технологии — это не просто вымысел; они также могут создавать, ускорять и концентрировать творчество, проявление субъектности. Эссе, собранные в этом специальном выпуске из двух частей, рассматривая спекулятивные технологии, идут путем исторических реконструкций, философских размышлений, оценок культурных технологий, музеологических практик и литературных экспериментов.

Ключевые слова: Спекулятивные технологии; Воображаемое будущее; Альтернативные миры

Для цитирования: Kotomina, A., Milburn, C. Speculative Technologies: Here and Now, There and Then. // *Technology and Language*. 2024. № 5(3). X-X. https://doi.org/10.48417/technolang.2024.03.01

Speculative technologies proliferate at the crossroads of imagination and scientific knowledge, often conceptualized but not yet fully realized. They push the boundaries of what is currently feasible, offering glimpses of a future that may be conceivable but not yet fully cognizable. They thrive in the realms of theory and design. They dwell in the dens of fable and fantasy. Yet even if they may not always appear to be feasible, plausible, or realistic in the context of the present, they nevertheless serve as provocations, insinuations, and inspirations, suggesting pathways to other horizons and other worlds, elsewheres and elsewhens.

Today, speculative technologies are everywhere. Certainly, they feature prominently in the zones of science fiction—novels, films, comic books, and video games—where they regularly appear as quotidian artifacts of high-tech worlds, preparing audiences for possible futures to come by making strange and outlandish ideas seem familiar, utilitarian, and tangible (Vint, 2021). As such, they also frequently serve as conceptual resources for real-world research programs, innovation pipelines, and technical practices (Milburn, 2010, 2018; Kirby, 2010). But speculative technologies are by no means consigned or limited to the domains of entertainment media. They also appear regularly in the forward-looking statements, patent documents, and advertising campaigns of high-tech corporations (Carroll, 2024; Fortun, 2008; Sunder Rajan, 2006). They appear in the white papers and workshops of scenario planners, foresight researchers, and futurists (Andersson, 2018; Bowler, 2017; Clayton, 2013; Johnson, 2021; Nordmann, 2007). They appear in scientific grant proposals and research articles, where descriptions of current studies tend to drift into promises of future applications and broader social impacts (Audétat, 2015; Robinson et al., 2021). They appear in the fields of speculative design and design fiction, where anticipatory diagrams, blueprints, artistic renderings, and experimental models solicit critical reflections (Dunne and Raby, 2013; Bleecker et al. 2022). They appear in the form of prototypes, bespoke technoscientific objects, and proof-of-concept demos that, in and of themselves, herald more advanced iterations to come (Bensaude-Vincent et al., 2017).

To the degree that such otherwise different areas of cultural production cite, pilfer, or adapt each other's future-laden creations, the promissory dimensions of speculative technologies become increasingly reified (Milburn, 2015). As they circulate, some speculative technologies offer reassurances of stability and continuity, conjuring a future that looks quite similar to the present, albeit with extra gizmos and gadgets that aspire to enhance the quality of modern life. Other speculative technologies present overt challenges to the configurations of the present world, introducing radical uncertainties in our anticipations and forecasts of possible futures to come (uncertain commons, 2013). Some speculative technologies galvanize preventative responses, others cultivate preemptive engagements (Kaiser, 2015). Regardless, either way, they are agents of change – asking us to consider things otherwise. Particular speculative technologies, once ventured, may or may not become actual, tangible things in the world. But even as purely virtual things, even as fictional conceits – such stuff as dreams are made on – they encourage further innovation, experimentation, and dialogue around future possibilities and alternatives to the status quo. In other words, they are not just products of speculation; they are also generators, drivers, and focalizers of speculation, instruments of subjunctivity.

In this regard, speculative technologies – both semiotic and material at the same time (Grunwald et al., 2023; Haraway, 1992; Latour, 1987) – function within and without the regime of language. They amplify the playful twists and turns of representation, the tenses and moods of the subjunctive and the conditional, to refer to things that aren't there—events in the future or the past, and even to things that will never exist. They perform as figures of analepsis and prolepsis, shifting time out of joint. As technical objects, whether composed from words alone or in combination with gross matter, they instantiate interrogatives that exceed the narrow constraints of indexical realism: what if, or what could have been, or what might yet be? Whether they refer to plausible eventualities or fundamental impossibilities, they invite us to engage in hypothetical thinking about alternate worlds.

Although we live in a world where speculative technologies abound, where discussions of atomically precise manufacturing, quantum computing, brain-computer interfaces, and artificial general intelligence (AGI) are commonplace, to understand how we got here we must also look to earlier eras. There is, of course, a long tradition of wish-fulfillment machines (flying cars, cold-fusion reactors), and a long tradition of difference engines with different settings for various contingencies. By looking backwards, situating speculative technologies in their historical contexts, we can better observe how they emerge from particular sociotechnical milieux and how they simultaneously propagate new sociotechnical imaginaries, affording other ways of thinking even while speaking to the prevailing concerns of their own times (Jasanoff and Kim, 2015; Vint, 2021). Astronomical clocks invoke ideas of the cosmic order – but not only; a *perpetuum mobile* reflects the human ambition to conquer physical limits – and more; von Kempelen's chess player challenges humans to question the potentials of machine intelligence – and their own; envisioned carbon-reduction technologies enter into climate models – revealing more about our own present even while multiplying the uncertainties of any future to come; and so on, and so forth.

The history of such speculative technologies reveals a pattern of dreams and desires. Around the world, museums and archives contain an impressive number of plans, drawings, diagrams, and descriptions of technical devices that have never existed except on paper. For example, the Patent Library in Moscow has by now existed for more than 130 years, and it has accumulated more than a thousand projects for a *perpetuum mobile*. At times, when the boundaries between professional science and amateurism become porous, the archives and libraries cannot even accommodate the rush of proposals. What source of energy has generated this bulk of semi-material fantasies? To some degree, it is an irrational passion for technology, reproduced century after century. It generates inflated expectations and does not want to consider the limitations prescribed by the laws of society or nature. Innovative technical projects, from the point of view of Marshall Poe (2010), appear when a certain demand matures in society, and it meets the support by groups of organized interests. If a technical project remains speculative, it does not necessarily mean that it represents an impossible fantasy; rather, it could simply mean that it was ahead of its time, or that it did not provide a very satisfactory answer to a public demand, or that organized interest groups did not support it. If nothing else, the sheer

number of speculative technical projects shows how many unclear and unrealized demands society still has.

In preparing this special issue, we had to think about how to study numerous and diverse speculative projects. Should we treat them as a certain genre of literature, a collection of aesthetic objects, a set of historical anecdotes, a repertoire of performative gestures, or as a form of social behavior? By gathering together different perspectives on this question, we aimed to illuminate the myriad social and cultural functions of speculative technologies—here and now, there and then.

The essays collected in this two-part special issue examine speculative technologies through historical reconstructions, philosophical reflections, cultural-technology assessments, museological engagements, and literary analyses. The first part features a formally and topically diverse collection of seven papers, followed by several reflections on the speculative apparatus introduced in Franz Kafka's story "In the Penal Colony" (1919). The second part will appear in early 2025 and will include discussions of the peaceful atom, cyberfeminist imaginaries, utopian conceptions of digital interfaces, and more. To start things off, we here provide an overview of part one of the special issue:

In "Social and Utopian Ideas in the Russian Paper Architecture of the Post-Revolution Decade," Natalia Ershova shows how Russian "paper architecture" in the 1920s not only featured stylistic and formal innovations, but also conveyed philosophical and social visions for a new world and new humanity. Designs for the Palaces of Labour, workers' dwellings, and futuristic cities by architects such as Ladovsky, Golosov, the Vesnin brothers, Melnikov, and Ginsburg reflected ambitious dreams for the technological future. Influenced by avant-garde art and the political ideology of the "cultural revolution," this movement embodied utopian thinking and laid the foundation for future architectural practice and teaching.

In "Fuzzy Objects: Giving the Worldmaking Process a Tangible Dimension," Merle Genc builds on the work of Nelson Goodman in order to make worldmaking into a tangible experience, describing how participants in a public workshop at Berlin Realities engaged with provocative objects as starting points for considering alternative worlds. Drawing together practices from technology assessment, futures studies, and critical design, the workshop process helped participants realize that our descriptions of reality are constructed and subject to change. This article also shows how readers can carry out the same experiments at home, opening passageways to other worldmaking experiences.

In "The House of Futures: Cabinet of Speculative Curiosities," Sadegh Mirzaei (2024), together with Sabine Ammon, Steve Fuller, Merle Genc, Lia Nordmann, Jonathan Tel, and Cheryce von Xylander, observes that, everywhere we look, from technological forecasts to speculative fiction, countless futures are imagined. But which ones warrant our attention? This article examines the Futurium, a museum of speculative futures in Berlin, as a space for grappling with the cognitive and ethical challenges of sorting through proliferating futures. Assessing whether the futures presented in the Futurium are feasible, desirable, or simply nostalgic visions, the authors contemplate the effects such a collection of futures may have on visitors, and they question whether the museum offers an effective platform for utopian thought.

In "The Past in the Light of the Future: A Case Study in Speculative Architecture," Sercan Sever (2024) also considers the Futurium in Berlin – not from the perspective of the present, but from the perspective of the future. Since visions of the future inevitably become part of the past, the creators of the Futurium are already laying the groundwork for a "Preterium." This article – taking seriously the critical affordances of speculative fiction—creatively imagines a speech from the opening of the Preterium in 2100. This fictional speech underscores the intricate connections between future, present, and past, and invites reflection on how scientific and fictional futures are differentially received.

In "Artificial Intelligence as an Old Technology," Daria Bylieva (2024) contends that, although artificial intelligence is often seen as a modern concept rooted in digital technology, the dream of creating it dates back to ancient times, involving biotechnical, mechanical, and mimetic approaches. The biotechnical approach, instantiated by the homunculus, sought to harness natural processes to create intellectually advanced beings. The mechanical approach, represented by the automaton, aimed to produce limited intelligence but was more practically feasible. The mimetic approach, exemplified by statues, golems, and video-game avatars, focused on imitation. Modern AI, inheriting elements of all three approaches, continues to be discussed in the context of classical myths, haunted less by the fear that humanity might create a machine that surpasses itself than by the anxiety that we might never actually do so.

In "AI-Generated Images as a Teaching Tool in Foreign Language Acquisition," Jacopo Vigna-Taglianti (2024) addresses the potential of artificial intelligence for developing innovative teaching tools for foreign language acquisition. The article highlights the value of AI-generated images based on textual prompts for creating textbooks and teaching materials. It reviews a set of AI image generators available in the Russian Federation, comparing their interfaces and outputs, while also discussing challenges. Describing the process of developing an English textbook for landscape architecture students, the article shows that AI-generated images can effectively enhance vocabulary exercises and improve communicative and creative skills in language learning.

In "Textiles, Techniques, Technologies: Exploring Post-Ancestrality and Contemporary Practices (2022-2025)," María José Ríos Araya (2024) explores the intersection of textile weaving and digital coding. Noting the etymology of the word "text" (from Latin *textum*, meaning "woven"), the study investigates how weaving has historically transmitted knowledge and stories across cultures. It focuses on the material and linguistic parallels between weaving and writing, taking a speculative approach that blends analog and digital techniques to create hybrid textile surfaces. The article traces several interdisciplinary projects that fuse tactile materials with coding, reimagining coding as a new language and expanding the work of storytelling in contemporary art.

Finally, we close this first part of our special issue on speculative technologies with a cluster of critical reflections on Franz Kafka's story "In the Penal Colony" (1919). In Kafka's work, the dream of a long-lost language, the perfect fusion of symbol and meaning is executed on an over-sized typewriter and carved into the flesh of ordinary sinners who are to experience revelation in the agony of death. Six short essays written by Hartmut Wickert, Alexander Nesterov, Vera Serkova & Artem Yakimenko, Tatiana

Bernyukevich, Daria Krutko, and Alfred Nordmann highlight different aspects—technical, theatrical, political, experimental, and moral – of Kafka's speculative technology as a profound vision of counter-modern modernity. In recognition of the centennial anniversary of Kafka's death, this capstone to our special issue foregrounds the entanglements of technology and language, and it invites us, once again, to look forwards by looking backwards – in other words, to speculate.

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Статья поступила 7 сентября 2024
одобрена после рецензирования 21 сентября 2024
принята к публикации 25 сентября 2024

Received: 7 September 2024
Revised: 21 September 2024
Accepted: 27 September 2024

https://doi.org/10.48417/technolang.2024.03.02
Research article

Social and Utopian Ideas in Russian Paper Architecture of the Post-Revolutionary Decade

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Abstract

During the post-revolutionary years in Russia so called "paper architecture" not only revealed different stylistic and formal inventions, but also conveyed philosophical and social ideas for creating a new world for a new human. Architects understood their task to create principally new forms, related to the future, but at the same time, to fulfill urgent problems of current social life. First discussions and competitions started at the very end of the civil war. Projects like the huge Palaces of Labor, dwellings for workers, and city planning demonstrated the fantasy and inventiveness of the architects Nikolai Ladovsky, Ilya Golosov, the Vesnins brothers, Konstantin Melnikov, or Moisei Ginsburg. The architectural fantasies by Jakob Chernikhov created an unpopulated world of inventive constructions, inspired by the dream of technological future. Avant-garde in art strongly influenced architectural experimentation with form, while the political ideology of "the cultural revolution" stressed its social functions. In the theory of "constructivism" architecture was considered to be an important instrument of "life-building." Features of utopian thinking, found in nearly every trend of art of that period, manifested themselves differently and on several levels: philosophical, ideological, social, artistic. Paper architecture within this special period served to convey the ideas of a new way of life and social order. The rich and exquisite architectural language of the time expressed itself in the nearest future, when the construction sites appeared, and throughout the century provided architects a source of inspiration and method of teaching.

Keywords: Paper architecture; Social utopian Ideas; Graphics of avant-garde; Constructivism; Language of architecture

Citation: Ershova, N. (2024). Social and Utopian Ideas in Russian Paper Architecture of the Post-Revolutionary Decade. *Technology and Language*, *5*(3), 10-25. https://doi.org/10.48417/technolang.2024.03.02

УДК 72.01
https://doi.org/10.48417/technolang.2024.03.02
Научная статья

Социальные и утопические идеи в бумажной архитектуре России первого послереволюционного десятилетия

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Аннотация
В течение первого послереволюционного десятилетия так называемая “бумажная архитектура” не только отражала разнообразные стилевые и формальные поиски, но и передавала философские и социальные идеи творения нового мира для нового человека. Перед архитекторами стояла задача создания принципиально новых форм, направленных в будущее, но, в то же время, нацеленных на решение насущных задач социальной жизни. Первые дискуссии и конкурсы проводились еще в конце гражданской войны. Проекты Дворцов труда, домов для рабочих, планы городов создавались фантазией и изобретательностью Н.Ладовского, И.Голосова, братьев Весниных, К.Мельникова, М.Гинзбурга. Архитектурные фантазии Я.Чернихова представляли безлюдный мир конструкций, навеянный мечтой о технологическом будущем. Авангард в искусстве существенно повлиял на эксперименты с архитектурной формой, в то время как политическая идеология “культурной революции” подчеркивала ее социальные функции. Согласно теоретическим основам конструктивизма, архитектура была одним из важных средств “жизнестроения”. Черты утопического мышления, обнаруживаемые практически в любом направлении искусства того времени, проявлялись на разных уровнях: философском, идеологическом, социальном и художественном. Бумажная архитектура служила проводником идей нового образа жизни и нового социального строя. Богатый изобретательный язык архитектуры этого периода только отчасти нашел применение, когда возобновилась строительная практика, но служил источником вдохновения для архитекторов и методом архитектурного и дизайнерского образования.

Ключевые слова: Бумажная архитектура; Социально-утопические идеи; Графика авангарда; Конструктивизм; Язык архитектуры

Для цитирования: Ershova, N. Social and Utopian Ideas in Russian Paper Architecture of the Post-Revolution Decade // Technology and Language. 2024. № 5(3). P. 10-25. https://doi.org/10.48417/technolang.2024.03.02

INTRODUCTION

Architecture takes a leading role among the fine arts' development of forms, as witnessed by a great number of unrealized projects, drafts, and preparatory materials, existing only on paper. The fatal impossibility of implementing every artistic idea is "a tragic feature" of architecture. Moreover, the number of unrealized designs is constantly growing together with the development of civilization (Vipper, 1985, p. 216). In the European tradition the term "paper architecture" is associated with the epoch of the Art Academies, where students and tutors produced an abundance of architectural drawings, and their artistic performance used to be the starting and final point of studying. Professionals also produced a number of additional drawings and sketches during the creation process. Still there are many other historical and cultural reasons for the rise of paper architecture since the implementation of projects strongly depends on the social, economic, and political situation, as well as on the state of the engineering and technological systems.

There is a special period in the history of Russian architecture, the post-revolutionary decade, marked by a great diversity of creative ideas and forward-looking projects, unrealized because of the devastation, poverty, and underdevelopment of building industry. Many of these architectural ideas were fantastic and utopian, but they testify to the unique role of architecture as a method of bringing the future closer. The paper architecture of the 1920s not only revealed different stylistic and formal inventions, but also actively participated in the formation and dissemination of philosophical and social ideas, especially as they concern the creation of a new world for a new human. Avant-garde art strongly influenced architectural experimentation with form, while the political ideology of "the cultural revolution" stressed its social functions. Architecture was thought to provide the best example of purposeful basic structure: "any product of spiritual creation – scientific theory, piece of poetry, the system of legal and moral norms – has got an architecture of its own, a disjointed unity of parts, fulfilling various functions, mutually complementing each other" (Bogdanov, 1980, p. 78).

The utopian ideas of the 1920s and their embodiment in art were willfully excluded from the social and artistic context in the 1930s. Architecture was probably the last sphere where avant-garde forms faded away and yielded to the neoclassicism of the 1930s. Social utopias of collective life, of productive art, and of salvation through creativity was no longer welcome against the background of industrialization with its command-and-control methods. The label "utopian," now used for criticizing opponents, became dangerous.

THE PROGRAM

Social utopia in architectural investigations in the period from 1917 to the mid-1920s was rooted in the revolutionary tradition and in modernism in art. The inevitable destruction of old social forms coincided with a modernist pathos of creating new forms in art. Revolutionary romanticism and the anticipation of the victory of communism all over the world - though lacking obvious evidence, these strong beliefs produced utopian forms of thought and practice. Architecture and other forms of art had to demonstrate

visual proof of the new times to come, introducing the new way of life of a new human, and creating a "framework" for new social relationships. Architecture as an artistic activity of high social responsibility played a great role in building the new society, but without materials and other means of the construction industry, it demonstrated its importance mostly in designs, theoretical writings, competitions, plans that developed alongside with the theory and praxis of "cultural revolution" and "life-building." Thus, the new architectural ideas became an integral part of social technologies irrespective of their realization. Designs of the Russian architects of the 1920-ies proclaimed new social ideas and clearly presented them in visual form. The visual presentation of utopian thought had to produce a close encounter with the future. Most of the architectural designs of that time existed as paper architecture which continued performing its original function as part of the pedagogical project of the Russian avant-garde and illustrated origins and development of architectural concepts. Unrealized projects were creating a new vocabulary of form, construction, and methods of material use, and they prepared the transition to a new architectural language.

Not aiming to cover the diversity of designs and inventions, we would like to explore the sources of this paper architecture, then to identify groups and directions of ideas, brought into life under the influence of different "levels" of utopian thinking. We focus in this text on the process that took place in Russia, leaving aside the international aspect of the subject. The constant dialogue and contacts of Russian architects and their colleagues abroad deserve a separate story.

Essays, manifestos, theoretical notes by the architects of the Russian avant-garde art and art-critics serve as the material for this study. Special emphasis was placed on the materials from the first revolutionary years, including competition programs, published designs, and drawings. The architectural activities of the first post-revolutionary decade were reflected especially in the materials of the magazine "*Sovremennaya arkhitectura* [Contemporary Architecture]", that devoted its pages to the comments, considerations, and opinions of the architects, especially when the realization of the projects had already started.

FOUR DIMENSIONS

Paper architecture and glorification

There are several forms of manifestation of what we take to be the paper architecture: graphics, painting, architectural collages and photomontages, modelling. Architectural drawings (or drawings with architectural subjects) became a notable part of the cultural heritage. They were in great number created in the course of experimental laboratory work of artistic societies and educational establishments. We find detailed classifications of architectural graphics (architectural ideas, sketches, drafts, fantasies, designs) in a book by Jacob Chernikhov. He shared in it his rich experience in teaching technical and geometric drawing. Chernikhov created nearly 4500 drawings with architectural fantasies and believed the language of graphics to be a universal means of expression, something that everyone has to learn like an alphabet (Chernikhov, 1933; fig. 1).

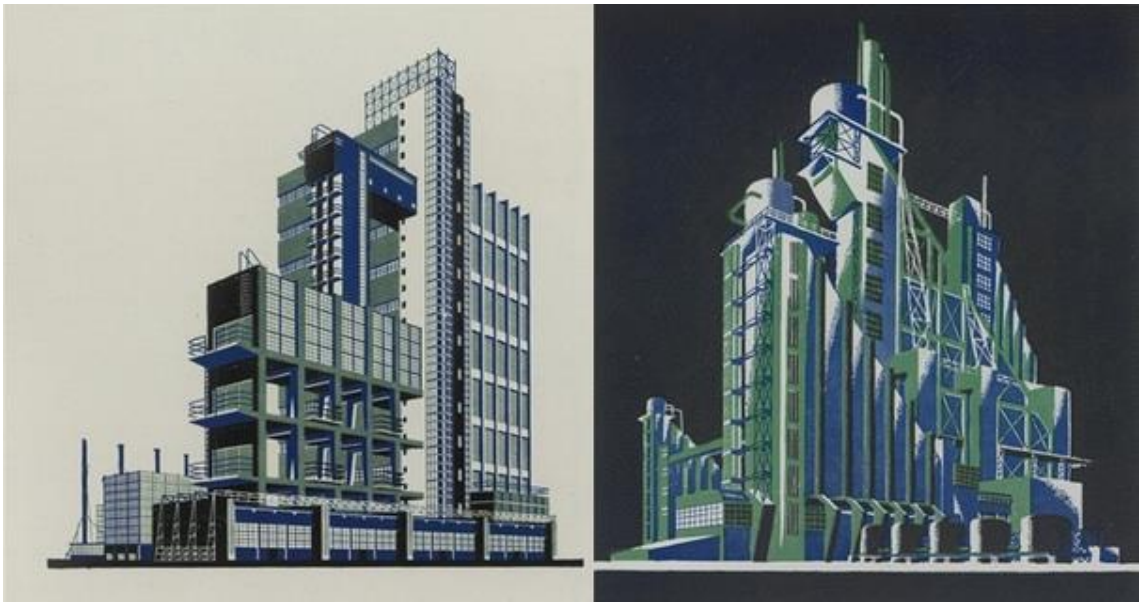

Figure 1. Jakob Chernichov. Architectural fantasies (Chernikhov, 1933, compositions 1, 4)

The role of architecture in the post-revolutionary years was so significant, that discussions within the creative professional community and first competitions already started before the end of the civil war. One's understanding of the social role of architecture was inherited from former times, but the social content had to be different now. One of the first tasks put forward before the architects was to replace a temple as the place of gathering and worship (and an architecturally dominating structure as well) by some new kind of building. In 1919 at the meetings of Zhivsculptarch (Synthesis of Painting, Sculpture, and Architecture Commission in Moscow) the project "Temple of the Communication Between People" was discussed. The main demands included huge size, a place for mass gatherings, excellent light inside, dynamism of the architectural imagery through forms and constructions, central position in the surroundings. General architectural ideas were suggested for the composition of the pure volumes – sphere, cube, pyramid, cylinder (Khan-Magomedov, 2001).

These requirements predetermined the fantastic character of the experimental designs by Nikolai Ladovsky, Boris Korolev, Vladimir Krinsky, and others – the bright examples of architectural utopia. Early experimental designs were aimed at the glorification of the victorious revolutionary masses. However, the idea of a Temple (more or less reminiscent of a religious cult) existed for a short period and was replaced by one of a Palace. Representatives of the victorious proletarians had to enter large magnificent interiors, not inferior to the grandeur of the Tsars' palaces, but created in contemporary forms. The first official competition for designing the Moscow Palace of Labor – which had to serve as an example for other cities – was announced in 1922. Its program demanded to plan a big inner assembly hall, adjoining rooms for meetings, a canteen for 1500 persons, offices for the Moscow City Soviet and Communist party committee, and a "museum of social knowledge." None of the 47 submitted designs was realized, but the

competition demonstrated various directions for further architectural development (figs. 2, 6). Work by Alexander and Leonid Vesnin proved to be one of the first constructivist designs, Ilya Golosov presented a design with industrial symbols where the roofing of a main hall was shaped like a huge turbine. In Petrograd, Ivan Fomin envisioned a Palace of Labor for the workers of the Putilovsky plant. It featured the late neoclassical style of "red doric" or "proletarian classics." The Palace was intended for all kinds of recreation, including sports, arts, science. It was inspired by revolutionary romanticism, having been developed in 1919 during the advance of General Yudenich's troops on Petrograd. Apart from these institutional efforts to initiate the architectural history of a new age, there were, of course, individual initiatives, like Vasily Kandinsky's idea of erecting the International Art Building, the Temple of the "Great Utopia" ("I believe to be not the only one to feel happy if this temple gets the name of the Great Utopia," Kandinsky, 1920, p. 3). Kandinsky's program was for the synthesis of arts and the cooperation of the creative forces of the world.

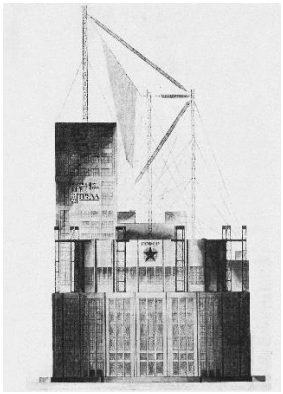

Figure 2. Alexander, Leonid, and Viktor Vesniny. Palace of Labor. 1923

Paper architecture and the garden city

Within a rather short period the experimental Zhivsculptarch Commission kept on by planning new cities and even bigger areas. The first projects for the city's structure regulation had been preparing for Moscow since 1918. The process of nationalization and development of the new form of property produced the utopian idea of a possibly "self-organizing" urban organism. That is why, according to the first recommendations for Moscow, the original historical structure had to be preserved and developed while considering its organic growth. Engineer Boris Sakulin suggested to spread the radial concentric system to an area of several thousand kilometers around Moscow. The first architectural scheme of the capital's re-planning was worked out with participation of Ivan Zholtovsky and was aimed at turning it into "the Garden City" by inserting rings and wedges of gardens and boulevards into existing system of streets and roads. The plan was completed by Shchusev in 1924 ("New Moscow") and it was supposed to avoid tall buildings and to preserve historical monuments as dominant markers among the green masses of gardens, which looked like a kind of "retrospective utopia" (Ikonnikov, 2004, p. 298-300). All those plans were presented as recommendations and continued

stockpiling. Two main aspects of the utopian context are highlighted by art historians – one inspired by futurism and modernism, and another one influenced by romanticism of the Silver age, leading backward and strongly reminiscent of fantasy in the spirit of Piranesi (Ikonnikov, 2004, p. 300).

The years of 1920-1921 (on the eve of the "new economic policy" period) were marked by wartime destruction, hunger, and social unrest. Hunger made some part of citizens move to the suburbs or rural places in order to have kitchen gardens. That is why the first designs of the workers quarters were planned as suburban settlements, built up using traditional materials. Those villages immersed in greenery had to be opposed to the dark slums of the big city, and it was easier to realize these projects as well. The idea of "the garden city" was based upon a strong belief in possible depopulation and ruralisation, that was reflected in utopian novel by Alexander Chajanov "Travel of brother Alexey to the country of the Peasants' Utopia" (1920). We find there a fantastic depiction of Moscow as a huge garden, where people do not live, but visit it for leisure and educational excursions. The same principle of "the garden city" was used to design workers' villages which originated at the construction sites of the first hydro-power electric stations. See, for example, the project submitted by Leonid and Aleksander Vesnin for Shaturskaya station. In it, the timber houses for workers had some decorative and constructional features not typical for traditional peasant houses. The project was realized alongside industrial, residential, and public buildings, each designed in different materials and in a different manner (Khan-Magomedov, 2001). The idea of a "garden city" developed as part of a social utopian outlook. The image of a "paradise" garden where people could find rest and comfort in harmony with nature was a prototype of contemporary trends of landscape design of the urban zones (for example, the park "Zarjadje" in the very center of Moscow).

At the same time, architects of the Zhivsculptarch commission undertook the discussion on residential houses for workers inside Moscow and other big cities where there was not so much place for new construction.

Paper architecture and collectivism

The idea of the commune (communal living with the socialization of many everyday functions) had existed before its architectural implementation. Since October 1917 several old buildings in Moscow, Petrograd and other cities were turned into collective dwellings (Smolny, Astoria hotel, "House of Arts" in Petrograd, "Nationale" hotel in Moscow, etc.) that were intended mostly for Soviet officials who lived close to their working places and had meals and heating for free. Though there were some prototypes, including communes from "*Chto Delat* [What is to be done]" by Chernyshevsky, in 1917-1918 this way of living was really a forced measure of "military communism." The first "working houses" or communes of workers appeared in 1918. The next step towards collective forms of everyday life was taken in 1920-1921 by the Communist youth organization (*comsomol*), insisting on forming communes of the young people, to cultivate comradeship and free them from the "petty-bourgeois" influence of their families and hardships of routine life. First communes were organized in former student dormitories and campuses under the slogan of "socialization of everyday life" (Izmozik & Lebina, 2016, p. 143-147). Communes were thought to be the centers of new

social life, self-governing and self-servicing, freeing women from routine housework for the sake of their social activity. Living in a commune was organized according to certain rules, their fulfillment predetermined by the construction. These rules seemed to coincide with laws of efficiency, functionality, and economy – helping to accumulate the energy of the working "units."

Figure 3. Nikolai Ladovsky. Idea of a communal house. 1920.

Collectivism was regarded one of the principal ideas concerning the new human. It was developed by leaders of Proletcult not only for living, but for processes of production (e.g., the "factory of writers" suggested by Sergei Tretiakov). The task was to grow a new human who is able to conquer the forces of nature, learn science, use technology in the course of harmoniously organized labor, and thus to become a natural collectivist – an organic part of the collective. The most radical followers of the leftists's ideas of "human machinery" thought dwellings to be places for the concentration, grouping and channeling of the productive forces, like accumulating and transmitting energy by electric chains. In 1919 Ladovsky made drawings for the first commune-house – high spiral construction, formed from individual residential units (fig. 3). Some years later his students from VHUTEMAS (The High Art and Technical Workshops) and were designing buildings and complexes with different amounts of socialized functionality: residential flats for families (in order to meet demand for traditional settings) and rooms for singles (1923). Realized in 1928-1929, the first building-communes were called "dwellings of a transitional type," for they had different parts with flats and rooms for families and solitary persons. Ladovsky continued to experiment with unit-cells, forming various combinations. The special premises were designed for public activities (clubs, reading rooms, "red corners") and for self-servicing collective use (laundries, kitchens, canteens) (House of Narkomfin in Moscow, Moisei Ginsburg, 1928-1929). In the pages of "*Sovremennaya arkhitectura* [Contemporary architecture]" there was lots of criticism addressed to architects for their pursuit supposedly of destroying traditional families and replace them by collectives (Okhitovich, 1929, p. 134; Taut, 1930, p. 63).

Paper architecture and the origins of constructivism

Vladimir Tatlin's tower at the Third International is the most famous example of paper architecture and embodiment of social utopian ideas in the work of art. Tatlin shared an understanding of constructivism as a method of life-building, creating a new environment for a new human. Nicholas Punin in his essay on Tatlin's Tower of the Third International suggests that the tower is the first example of implementing organizational principles in art, a single entity of idea, structure, function, and material. This article contains a theoretical look at the first steps of new art in terms of organizational theory: "utility of form is nothing other than the organization of its content. Forms devoid of practical significance […] are simply forms which are not organized" (Harrison and Woods, 1992, p. 312). Tatlin's idea took the shape of drawings and a model, still it has never been realized (though his idea of unsynchronized moving parts was used in contemporary architecture, see Ermolenko, 2020). The tower was a metaphor of the World revolution and was intended as the seat of a Global government of the future. It was commissioned by the Department of Fine Arts of the Narkompros (Ministry of Education) as a monument to the victory of the revolution. The first model exhibited in the building of the former Academy of Fine Arts in November 1920 was made from the same materials that he used for his counter-reliefs and corner-reliefs: ropes, plywood, tin, metal conjunctions. Simple and vulnerable materials contrasted with the greatness of the virtual image, but there was another aspect of it – spanning a bridge to the future, materializing the way of its implementation, visual presentation of a social idea of very high rank. As a work of art it definitely demonstrated the symbiosis of architecture, sculpture, and graphic art. The first architectural design that subsequently marked the formation of constructivism was the design of the Palace of Labor by Vesniny brothers – a combination of huge pure volumes to be built from metal, concrete, and glass, and equipped by modern means of communication (1923) (fig. 2).

The social meaning of constructivism was its future-orientation rooted in the idea of the new human who would be able to embrace scientific, technical, social experience in harmonious unity with the help of a new organization of labor, based upon natural organic skill as an integrated part of a whole. Alexander Bogdanov believed that this process of collective creativity develops naturally with the right purposes and justice in economic relationships. Constructivism based upon laboratory experimental methods helps to develop an empirical perception of the material, to learn different qualities and textures, their physical features (Ershova et al., 2019, p. 886).

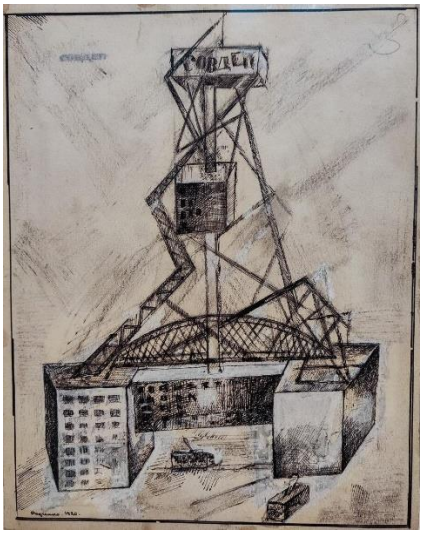

Figure 4. Alexander Rodchenko. House of Sovdep. From the series “City with the upper façade” (1920). From theExhibition “1922. Contructivism. The Beginning” at the Zotov center, January to March 2023

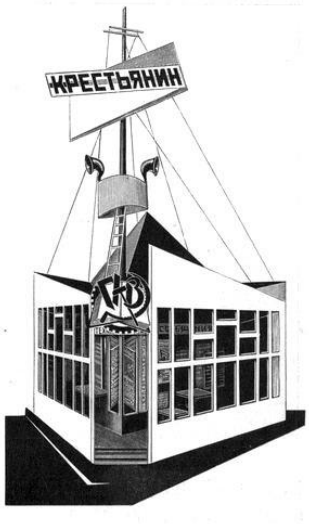

Figure 5. Alexei Gun. Village kioskn. 1926. (Lavrentiev, 2023, p. 157)

Experimental paper architecture as a result of professional activity, regulated by state commission practice, with competitions, meetings, and an education system, was strongly influenced by theoretical and artistic ideas of avant-garde. In 1920 Alexander Rodchenko made a series of architectural sketches of “Houses with the upper façade,” exploring the idea of high-rise constructions on top of the buildings in big cities (fig. 4). He also started to make numerous variations of “kiosks” that could in a short time be realized as real constructions, that was continued by other designers (fig. 5). It was Rodchenko who became head of INHUK (Institute for Artistic Culture) after Kandinsky left it in 1921. The year was marked by discussions on “Composition or construction”

and the founding of the First working group of constructivists. In the discussion, Nikolai Ladovsky suggested an accurate and laconic definition of construction: "Construction is a purposeful organization of the material elements" (2004, p. 325). Constructivism was not considered to be a trend or style, it was understood as a principle of life-building. Similarly, an understanding of architecture as fine art was marked by the influence of organizational theory: "within the period of constructivism we understand architecture as organization, invention, life-building" (Ginsburg, 1927/2021, p. 160). Alexey Gun, artist and author of the first manifesto "Constructivism," speculates about constructivism as a form of state cultural politics "based upon Marxist theory, proletarian struggle and modern technology." One of his main slogans called for a transition from abstract designs to the fulfillment of real tasks of the new culture (fig. 5). His appeal was to abandon old art that failed to fulfil its social role, and to replace sculpture by things in space, theatre by mass actions, architecture by constructivism (Gun, 1922, pp. 61-62). This understanding of constructivism as life-building and social project, if not social design, attached even greater importance to architecture. However, having taken a new step forward in social technology, constructivists were not able to free themselves from utopian thought which penetrated their appeals, texts, designs. The new technological reality in Russia at that time had mostly ideological and aesthetic meaning, was utopian itself, and brought to life techno-utopias in literature (see Geller & Nike, 2003). Moreover, constructivism seemed to mitigate the tragic effects of the situation by developing "laboratory methods" as a transitional stage from projection to production. In the art of constructivism, paper architecture achieved its full membership in the process of production, where all stages – idea, concept, drawing, model and thing – constituted a content of art (later these ideas would be revived in conceptual art). Architects creating utopian designs challenge engineers to estimate their ideas and tell them whether they are realizable or not. To make this collaboration easier, Anton Lavinsky made a series of schemes for principally important subjects: plan of the city, plan of the neighborhood, scheme of the radio mast. These schemes resulted from numerous drawings created within a long process of projection, embodying the ideal of maximal purposefulness (Mayakovsky, 1923, p. 64).

Naum Gabo understood constructivism as a universal method of creation irrespective of social life-building and class interests (Harrison and Wood, 1992, p. 297). He proclaimed the idea of a "thing" free from its temporal and accidental features, existing as a result of inner forces defining its position in space and time. Gabo's dynamic objects represented "life of the construction" in real time. Moisei Ginsburg in "Style and Epoch" laid the theoretical architectural foundation of constructivism, analyzing the role of constructive forces and dynamics in building. However, it was not until 1925-1927 when the first residential houses and "houses of culture" were really built.

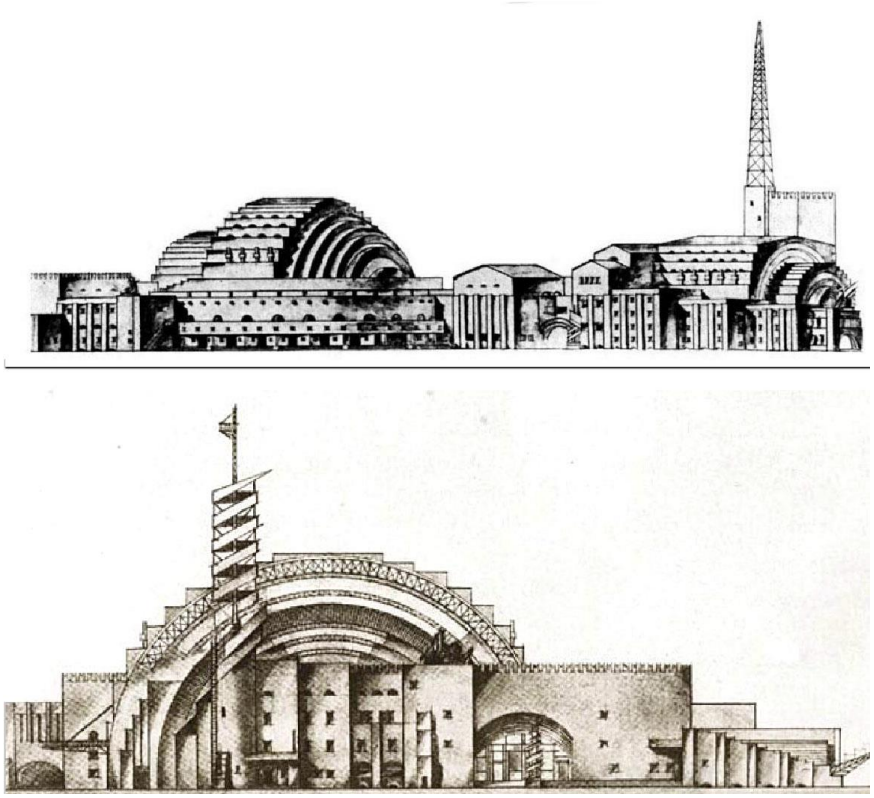

Figure 6. Ilya Golosov. Competition project for the Palace of Labor. 1922-1923. (Khan-Magomedov, 1988, p. 96)

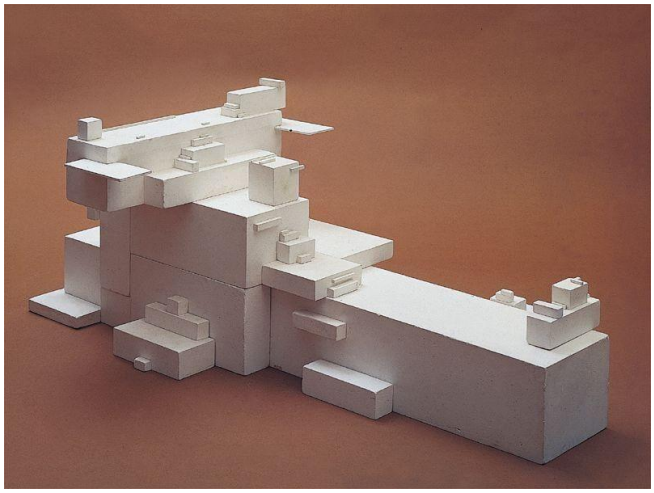

Figure 7. Kazimir Malevich. Architecton Alfa. 1920.

Kazimir Malevich was against the association of suprematism with constructivism, thinking about architecture as an "activity outside all utilitarianism, a non-objective art[…] free from all economical, practical and religious ideologies." He noted with bitter irony that practical routine life used to plead and beg an architect to accommodate it and

make room for it among architectural forms "so has to move in her sofas and beds" (Malevich, 2004, p. 281-290). He headed the UNOVIS (workshop in Vitebsk, applying principles of suprematism to the decoration of the town. For him it was the experiment of introducing suprematism in the environment. As opposed to the revolutionary designs, e.g. of Golosov (fig. 6), his spatial constructions ("architectons", created in 1920-1923) were artistic objects rather than architectural models, pure forms that we hardly imagine to be dwellings (fig. 7). While Malevich started active theoretical work in Petrograd in 1922, some of his students were involved in projecting and planning architectural constructions. Inspired by Malevich's "planites" they developed ideas of constructions torn from the ground level, overcoming gravity. El Lissitzky designed the series of 8 Horizontal skyscrapers (1923-1925) for the Moscow boulevard ring (presented in different kinds of graphics, technical drawings, and also in photomontage). Lazar Khidekel developed an idea of a raised up city on high supports, hanging over built up territories or parts of untouched nature. Architectural constructions were to connect all natural levels – underground, water and air. His ideas of raised up tiered architecture are used now, but in the 1920s his ecological designs belonged to the realm of utopia (fig. 8). Still he came closer to the implementation of supremetic ideas than anyone of Malevich's disciples. The influence of Malevich's "planites" and "architectons" – he himself attached only spiritual and aesthetical meaning to them – was much wider than the circle of his followers and students. His experiments with pure volumes and suprematic coloring influenced young architects in the Leningrad Institute of Civil Engineering, especially Alexander Nikolsky, who was working out a completely new system of teaching and training, based upon making compositions of abstract forms, drawing "archscemes" (typical designs from pure volumes). By this time, architectural (constructive) drawings and designs had been already widely used in the education process in Moscow schools of art and crafts like VHUTEMAS and in various experimental laboratories and workshops.

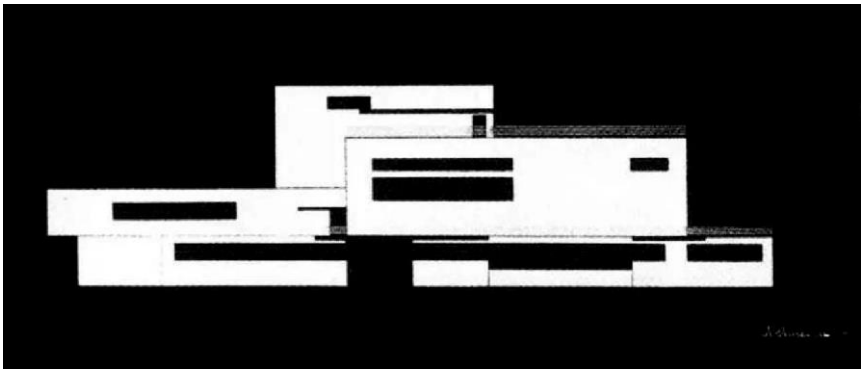

Figure 8. Lazar Khidekel. Design of the Workers' club. 1926 (V kruge Malevicha, 2000, p. 208)

Designs, fantasies and sketches of paper architecture created a new language of forms and a grammar of their correlation. This new language was freed from traditional content and restrictions, probably, like the words in futurists' poetry. Modern technology, though practically out of use, was a source of creative ideas (Bylieva & Nordmann, 2023, p. 71). This new language allowed for the creation of an endless number of individual

designs in the future. It could not comply with regulations of socialist realism, so it was forced out of architectural practice. Still it outlived the social utopias of the 1920s and survived in educational systems. At the same time, the language of neoclassicism and neoromanticism (that was also seriously influenced by a utopian outlook) was appropriated in the further development of architecture. It proved to be more survivable, adaptable under changing political conditions.

CONCLUSION

The period of 1917-1925 was marked by a creative upsurge of architectural thought and projections separated from practice. Fantastical and often principally unrealized designs of paper architecture took shape in artistically performed graphics. It started in Moscow experimental institutions, where architects discussed the utmost social and ideological problems of the time – greatness of the proletariat, its everyday life in collectives, and the bright future in new garden cities. Architectural drawing with its special individual manner and various techniques became a widely spread artistic genre, reflecting utopian ideas not only for their social origin, but also for their aesthetic and philosophical origin. This genre crystallized in architectural fantasies by Chernikhov, from which he compiled "handbooks" for learning architectural language before it would be used for some specific goal.

Constructivists tried to connect theory, projection, modelling, and practice, but in architecture it was still not possible, so they concentrated on "laboratory work," which resulted in the mass production of new forms and their combinations. Constructivism in realized architectural projects appeared several years later, in the second half of the 1920s. The language of paper architecture was affected by futurism and a new social and technological reality. Utopianism in Russian thought and social consciousness was deeply rooted in culture, however, in post-revolutionary years it was intensified by the expectation of a great future as well as the great difficulties in the ways of approaching it. It was avant-garde in art, spanning a bridge to the future by creating visual images and a formal language of non-existent worlds ("the great utopia"), thus designing new instruments to achieve global changes. However, having started with those tools they still saw their final goal "in the dim of social myth" (Grois, 1993, p. 14). And so, speaking about "paper architecture," we are facing at least four dimensions of utopianism – political, social, artistic, and philosophical, connected to life-building and organizational theory, as well as ideas of cosmism.

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Статья поступила 30 июля 2024
одобрена после рецензирования 27 августа 2024
принята к публикации 12 сентября 2024

Received: 30 July 2024
Revised: 27 August 2024
Accepted: 12 September 2024

https://doi.org/10.48417/technolang.2024.03.03
Research article

The House of Futures: Cabinet of Speculative Curiosities

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Abstract
This article examines the paradox of imagining and encountering the future – a concept that, while not directly graspable, is persistently invoked across disciplines. From technological forecasts to speculative fiction, future scenarios proliferate, but the challenge is determining which of these imagined futures deserve our attention. Given our finite cognitive and ethical resources, it becomes crucial to sift through the noise and focus on futures of meaningful relevance. The *Futurium*, a museum of speculative futures in Berlin, promises to provide a space for engaging with these questions. This article assesses the types of futures presented and their feasibility and desirability. Are these futures genuine possibilities, or merely nostalgic projections of a romanticized past? The article also explores how the exhibition shapes its visitors, ultimately asking whether the *Futurium* provides a stable platform for envisioning a better world or if it leaves us unmoored in a sea of disconnected and questionable possibilities.

Keywords: Speculative Objects, Future Studies, Technology Assessment

Acknowledgments: The following reflections are very much a collective product with seven discussants injecting ideas, nudging each other on, exploring commonalities and disagreements. The author's task was to extract some story-lines and occasions for more extended discussion from this lively conversation. Not every impression or remark is attributed to one of the participants but credit is given where discussants gave the debate an interesting turn.

Citation: Mirzaei, S. (2024). The House of Futures: Cabinet of Speculative Curiosities. Technology and Language, 5(3), 26-40. https://doi.org/10.48417/technolang.2024.03.03

УДК 008
https://doi.org/10.48417/technolang.2024.03.03
Научная статья

Дом будущего: Кабинет спекулятивных диковинок

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Аннотация
В этой статье рассматривается парадокс воображения будущего и встречи с ним лицом к лицу – концепция, которая, хотя и не поддается прямому пониманию, постоянно используется в различных дисциплинах. От технологических прогнозов до спекулятивной фантастики, сценариев будущего множество, но задача состоит в том, чтобы определить, какое из этих воображаемых будущих заслуживает нашего внимания. Учитывая ограниченность наших когнитивных и этических ресурсов, становится крайне важным разобраться в этом шуме и сосредоточиться на будущем, имеющем существенное значение. Музей спекулятивного будущего Futurium в Берлине обещает предоставить пространство для обсуждения этих вопросов. В этой статье рассматриваются представленные варианты будущего, а также их осуществимость и желательность. Являются ли эти варианты будущего реальными возможностями или просто ностальгическими проекциями романтизированного прошлого? В статье также исследуется, как выставка формирует своих посетителей, и, в конечном счете, ставится вопрос о том, обеспечивает ли Futurium стабильную платформу для создания лучшего мира или же оставляет нас без присмотра в море разрозненных и сомнительных возможностей.

Ключевые слова: Спекулятивные объекты, Исследования будущего, Оценка технологий

Благодарность: Нижеследующие размышления – это в значительной степени коллективный продукт, в котором семь участников дискуссии делятся идеями, подталкивают друг друга, исследуют общие черты и разногласия. Задачей автора было извлечь из этого живого разговора несколько сюжетных линий и поводов для более продолжительного обсуждения. Не для каждого впечатления или замечания указан автор, но отмечаются те, кто придал дискуссии особенно интересный оборот.

Для цитирования: Mirzaei, S. The House of Futures: Cabinet of Speculative Curiosities // Technology and Language. 2024. № 5(3). P. 26-40. https://doi.org/10.48417/technolang.2024.03.03

PROPS FOR THE PROLIFERATION OF FUTURES

When and where is the future? Can it be housed somewhere? This question carries a deep paradox, as the future is, by definition, something that has not yet come to pass, thus seemingly unreachable and unknowable. „Future" is a non-referring reference, something we gesture toward without ever encountering it directly.

Yet, despite this air of paradox, the future is continuously entertained and invoked in various disciplines – whether by technologists predicting advancements, science fiction writers imagining distant societies, or ethicists contemplating the moral dilemmas of technology. Each scenario of the future is, in a sense, a speculative map of an unknown territory.

The challenge lies in discerning which futures merit our attention, a question that becomes particularly urgent in a world where resources – both cognitive and ethical – are limited. With the proliferation of the imagined futures, one issue is to sift through the noise of possibilities and focus on those that hold meaningful relevance. But how or where can we do that? Can the *Futurium* provide such a space?

The *Futurium* is advertised as a place for housing possible futures – a science center, on the shores of the Spree River in Berlin, near the *Reichstag* and government district. It was initiated by the German Ministry of Education and Research (BMBF) and is supported by the BMBF, along with numerous research institutions, funding agencies, and business partners. Since opening its doors in 2019, *Futurium* offers a permanent exhibition, a citizen's lab, and a forum for discussion. By providing props for the imagination, it gives visitors a chance for interaction, discussion, and occasions for "trying things out," providing "a glimpse into the world of tomorrow."[1] It presents itself as "The House of Futures" [*Haus der Zukünfte*], offering not just one but many prospective futures.

What does it mean to have "a glimpse" into the future – given that the future is not an already shaped totality of things that lies out there, waiting to be discovered? How can we have a grip on it given that it is a speculative world under constant construction, responding to our fears and desires? Not only is it under constant construction and destruction, but it also reshapes us in unpredictable ways. Even the pronoun "we" is neither monolithic nor universal. We are not detached or static spectators but active participants, changing and being changed by the futures we envision. Our glimpse into the future is, therefore, not just a passive act of discovery but also an active process of creation. By imagining a future, we also discover and re-engineer ourselves – our hopes, anxieties, and the principles we hold dear. The way we envision the future reflects the kind of people we are today, meaning that every depiction of the future is at once a self-portrait of the present. When we look at the future, we are not just seeing "us" in some distant time; we are seeing ourselves as the ones creating and shaping that vision in the present moment.

[1] *Futurium*. https://futurium.de/en/about-us

Against this backdrop, we encounter the *Futurium*'s overarching question: "How do we want to live?" The answer provided aims to be pluralistic: "There is no 'one' future. There are as many conceivable futures as there are people on this earth who dream about tomorrow and beyond. Our decisions in the present point the way forward to one future or another" (Our View of the Future is Open, 2019). Scenarios in this House of Future are not finished ready-made plans, but possible building blocks. Everyone is invited to engage on their own terms. Ultimately, the question can be directed at each individual: How do *you* want to live? What are *your* decisions?

This "House of Futures" is a house of speculative technologies and, as with any museum, it provides objects and props that spur the imagination. However, there is a difference. When visiting an ethnographic museum, the primary question is not "How do we want to live?" but rather "How did we use to live?" In a typical museum, visitors are encouraged to imagine how artefacts condense and reflect a time past or present - artworks, an excavated vessel, a burial site, a warrior's shield, or some sacred object. These artefacts were not designed for the sake of being displayed in a museum. By contrast, at the *Futurium*, the objects are fabricated for the sole purpose of stimulating, or perhaps nudging, the imagination. The *Futurium* presents visitors with objects that are explicitly branded as speculative objects or „possibilities for thinking":

> Robot people, green skyscrapers, communal economies: There are endless possibilities for thinking about the future. Three forces always play together in the *Futurium* exhibition: Human, Nature, and Technology. You can discover them in three large thinking spaces. (Exibition, n.d.)

These are not only meant to serve as thought experiments but also as aids for making decisions. Objects and scenarios are presented as *options* for the future. But what exactly is an option in this context? Are the items on display soon to be found on market shelves, to be bought or ignored? Do they embody politics and ideologies that should be interrogated? Or perhaps they are not so much *optional* as transformative possessing a power that will inevitably shape our lives. Do we really have a choice? In this sense, objects and scenarios are already contested, laden with implications that stretch beyond mere consumer preferences or technological trends.

One can enter the *Futurium* twice – through the website and through its physical doors. On the website one encounters its self-presentation - how it understands itself, what it wants to achieve, how it conceives the movement from the many futures in each of our imaginations to the one future which we will collectively create. The website is firmly grounded in the shared reality of the mostly German visitors, as such rather traditional, rich in content and highly explorable.

Against this backdrop, a diverse group of curious investigators entered the physical doors of the *Futurium* on August 21, 2024, to ask: What types of futures are presented here? How feasible or desirable are they? Are they „about the future," or mere wishful projections of a romanticized past? The following is a recap of that visit. It addresses not only the futures presented but also how these presentations construct the visitor. Can we stand on firm ground to take on the task of shaping a better world, as the *Futurium*

promises, or do we become unmoored, unsettled, disturbed, or even lost in a vast space of disconnected possibilities?

THREE ENCOUNTERS

Upon entering the spacious exhibition area on the second floor, visitors are greeted by a welcoming station that provides an overview and a timeline depicting recent history as a series of accelerating technological advancements. This presentation encourages them to leap into the space of possibilities, where almost any problem is framed as having a technological solution. As we will discover, this narrative of exponentially accelerating technological progress is implicit in many of the imagined scenarios.

Additionally, visitors are offered the chance to try on a digital wristband which tracks interactions with the objects in the exhibition, saving visitors' *choices* and ultimately feeding the data to the Future Machine of the *Futurium* to reveal something – perhaps surprising – about visitors' attitudes and tastes. Moreover, a code is given by the Future Machine to each individual with which the visitor can track their footprints in the *Futurium* and find out more about their topics of interest through the website. While the technology of the wristband is a trivial feat in our contemporary lives, it hints at a possible future where our data is continuously collected and analyzed. This raises concern: Though the *Futurium* assures us that it does not collect data about us, it would be interesting to know whether or not the data is "anonymized" that might even feed into design or policy processes. The mere fact of putting the visitors through the paces of data collection normalizes and habituates them to this constant monitoring of their movements and choices – which is, in performative terms, a choreographed suasion. Is this an elaborate data scheme or simply another prompt for the imagination?

I. Hall of Questions

Beyond these implicit worries brewing in the visitors' minds, there is also a hall of explicit questions posed by the *Futurium* (fig. 1). These are written on the wall, flashing on and off with beams of light, catching visitors by surprise, carrying them forward from one to another, for example:

> How will I celebrate my 130th birthday? [*Wie werde ich meinen 130. Geburtstag feiern?*]
> What kind of future do I want to live in? [*In welcher Zukunft will ich leben?]*
> Will I and my robot grow old together? [*Wird mein Roboter mit mir alt?*]
> How does it feel to know everything about myself? [*Wie fühlt es sich an, alles über mich wissen?*]
> What kinds of secrets will we still have? [*Welche Geheimnisse werden wir noch haben?*]
> What novel lifeforms will come into being? [*Welche neuen Lebensformen werden entstehen?*]
> Will I still have to get a job in the future? [*Muss ich in Zukunft noch arbeiten?*]
> What kind of happiness will tomorrow bring? [*Wie sieht das Glück von morgen aus?*]

Will cities be as green as pristine forests? [*Werden die Städte grün wie ein Urwald?*]
What ideas will change the world? [*Welche Ideen werden die Welt verändern?*]
Will the world reorder itself anew? [*Wird sich die Welt neu ordnen?*]
What comes after the Internet? [*Was kommt nach dem Internet?*]

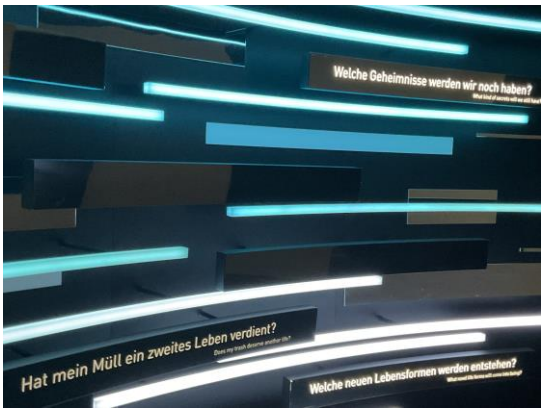

Figure 1. Hall of Questions

Naturally, everyone doesn't have a similar take on these (im)posed questions. Some seem answerable, others only by making far-fetched assumptions, yet others overtax the visitors and might evoke total rejection. Inevitably, a reflexive perspective emerges for a group of reflexive investigators, leading to meta-questions. On one hand, we reflect on ourselves: What limits are we encountering? Are these epistemological limits regarding our ability to know the future, or are these grammatical constraints, in other words, ill-posed questions that violate the very conditions of answerability? On the other hand, we reflect on where the questions come form, what demands they make: Why should we take their conceptual framework for granted?

Another meta-question is the issue of predictability and comprehensibility. Some of these possible futures are close to our present lives, while others are distant and abstract. This contrast is itself intriguing: how should we begin to think about our future? Should it be seen as a continuation of the present, a disruption, or something entirely new? How far can we project into the future? The further we deviate from the present, the harder it becomes to predict and comprehend. The further we look, the less we can see. Thus, there is a trade-off in our speculations.

Confronting these questions evokes the so-called Collingridge Dilemma where technology assessment is either too early – because we do not yet know the implications – or too late – because it has been already embedded and entrenched so we cannot do very much about it (See Collingridge, 1980; Liebert & Schmidt, 2010). How can we assess these scenarios of the future from the standpoint of the present?

Some scenarios seem to be more continuous with the present. For example, instead of going beyond our standpoint in space and time, we are invited to turn inward and ask: "How does it feel to know everything about myself?" This is an example of an impossible question: Even if it were possible, incredibly enough, now or in the future to know

„everything about myself" – what knowledge could I now have of what it feels like to have this knowledge which I evidently don't have now? But the question might be taken in quite another way. Even in our present world, we are already worried that businesses or governments learn „everything about ourselves" – in the sense of generating complete data-sets of what we do, what we look at, etc. What is called into question, then, is whether we think of „ourselves" as a cavernous inner space with deeply hidden, super-private, inaccessible regions, or whether we accept that we are data-sets, always publicly on display. How does it feel to conceive myself this way or that, e.g., to understand ourselves as nothing but a relational database with different *data types* like numbers, binary states, exact timestamps, chunked strings, and digitized pictures – as if we are just "likes," "visits," and "clicks." These latter versions of the question may well be answerable – though it takes some work and some twisting of standard German to create this condition of answerability.

Engaging with the questions in such a manner drags us to their overall conceptual and normative framework, all the while wondering whether we are at the same time neglecting other, probably more pressing, problems.

The overarching meta-question is how to navigate this vast space of possibilities without falling into traps that might paralyze our imagination instead of empowering it. One cannot – and perhaps should not – think about "enjoying a job-free future" without reflecting on the present reality of job scarcity. Likewise, one cannot – and perhaps should not – speculate about the fate of our secrets in the future without considering the current issues surrounding privacy. Given the finitude of our human abilities – not only in terms of the material or scientific resources but also our limited attention, bounded rationality, and scarce emotional stamina for tackling ethical issues – posing questions about vivid scenarios turns out to carry considerable intellectual responsibility.

The Hall of Questions is designed to provoke thought, but its rapid-fire presentation of ideas can be disorienting. Visitors are confronted with so many flashing questions that it becomes difficult to hold onto any single thought long enough for sober reflection. In this undifferentiated space, we might instinctively cling to familiar stereotypes and clichés as a way of finding stability. But reflecting too deeply can also lead to a kind of mental dizziness or numbness, overwhelmed by the sheer number of possibilities.

Leaving the Hall of Questions, we move cautiously through the rest of the exhibition, aware of the need to navigate between two extremes: for one, the Scylla of falling back on tired clichés, and for another, the Charybdis of losing ourselves entirely in endless and pointless speculations.

II. Sheep on the Roof

The Nature section of the exhibition is dominated by a spectacular work of art, technology, and nature. In order to assemble the thousands of wooden pieces which symbolize complexity and growth, workers had to wear virtual reality 3-D goggles. Associated with this spectacular structure are several invitations to enter the future in a speculative manner. Consider this depiction of a very mundane dialogue between two people waiting for the elevator in an urban high-rise (fig 2):

- What's taking the elevator so long? [*Was braucht denn dieser Fahrstuhl so lange?!*]
- Sheep. [*Schafe*.]
- What? Say that again. [*Bitte was?*]
- Sheep have been grazing on the roof for the last few weeks. [*Die letzen Wochen haben doch die Schafe auf dem Dach geweidet.*]
- So — ? [*Und?*]
- Today they're moving to the building next door – by elevator. [*Heute geht's aufs Nachbargebäude – mit dem Fahrstuhl*]
- See there, the things that happen … ? [*Ist das zu glauben?*]

This scenario invites the viewer to respond in one of three ways, recording their choice with the wristband:

- At last, a bit more life in the concrete jungle! There's a rooftop terrace on the *Futurium* as well, isn't there? How about adding some greenery or a few goats? [*Endlich mehr Leben in der Betonwüste! Hier gibt's doch auch eine Dachterrasse, oder? Wie ware's mit etwas Grun ode ren paar Ziegen*?]
- I'll be glad to eat the cheese from the milk, but my own roof terrace I'd rather use for sunbathing. [*Den Schafskäse nehme ich gern. Aber die eigene Dachterrasse nutze ich dann doch lieber zum Sonnenbaden*.]
- I didn't move to the city to have the countryside move in with me. [*Ich bin doch nicht in die Stadt gezogen, damit das Land hinterherzieht!*]

Figure 2. Sheep on the Roof

Sheep on the roof is an attractive idea, and seems easy enough to implement, elevators included. As a vision of a possible future, it does not appear especially futuristic. The charm of this conceit is that it is lo-tech. It might evoke a spontaneous response of

"why not?" But what if this scenario reinforces outdated stereotypes rather than challenging them? What if alternative options are concealed rather than revealed?

The group discussion revealed that the famous Crystal Palace Exhibition in London's park displaced a flock of sheep. The first World Fair of the Industrial Age exacted a price that today's industrial sheep are still paying as urban planners are seeking to make amends. These sheep grazing on our rooftops offer more of a pastoral scene, than a scenario for the future.

Taking up these points about the sentimental, if not pastoral prospect of a future which harmonizes past and present, nature and technology, urban and country living, Steve Fuller evoked George Orwell's critique of euphemisms and convoluted phrasing. In *Politics and the English Language*, Orwell (1946/2013) accuses politicians of "defending the indefensible": Villages are bombarded but it is called "pacification." Peasants are robbed of their farms but it is called "transfer of population." He notes that "Such phraseology is needed if one wants to name things without calling up mental pictures of them" (p. 14). Orwell expands his critique in *1984* where the ideological tweaking of language – in the forms of "Doublethink" and "Newspeak" – are used by the Party to justify manipulations and to rectify deviations from the established ideology. In the scenario of sheep on the roof, there is the danger of pacifying a horrible situation through careless fantasizing – creating an appearance of harmony while masking underlying conflicts. This evoked a variety of responses from the group:

> - Sheep are presented here as a really manageable bit of nature. You get like two or three sheep and you think, "oh, yeah, I have an experience with nature." But the difference is so huge. This scenario is a bit like people's enthusiasm about urban gardening, and the difference between having an easy garden on your balcony – manageable and contained in wooden boxes – and doing actual gardening where there are slugs and things that are not so easy to deal with. This scenario presents nature as something that can easily be taken care of in leisure time – which defies the idea of a materially given nature that escapes human designs, that is acknowledged as *unverfügbar* [recalcitrant].
> - There are now flocks of sheep in Berlin with further plans for integrating them into the city. However, is this truly about envisioning the future, or is it merely a sentimental repetition of the past? Can we heal these wounds with romantic solutions? It is assumed that we can restore nature simply through more technology. But it seems more like repeating our previous mistakes, than a fresh solution.
> - This looks like a small intervention that goes in the right direction. But rather than bringing country-life into the city, it might reinforce the division between country and urban life, and perhaps there is a value in that. Thinking it through, we are confronted not only with sheep riding elevators but also with urbanites stepping into a barnyard. It is telling in its own right that we come up with so many reasons why such a minor, low-threshold intervention is a bad idea. The sheep as a cipher for the greening of cities paradoxically distracts from the issues of roof-top grass-covers and their overall contribution to, say, insect biodiversity, especially when we add the sheep-dung. The sheep, in other words, may do far more profoundly transformative work than we imagine, if only we open for them an elevator door.

- I can't help picking up on the role of sheep in our current world, for example in New Zealand where the economy is massively based on sheep cultivation. The best versions of lamb meat are from New Zealand, and cheap. The meat is transported all over the world, either frozen or by other large-scale industrial techniques. If you're going to have sheep in urban settings and have them completely denatured, then there is nothing nostalgic or pastoral about this scenario. We should rather analyze the Freudian connotation of sheep on our rooftops and the neurosis this dream is responding to!
- This version of the future reminds me of the way the future was projected when I was a kid in the 1960s. There was a lot of this kind of talk back then, about this idea of containing nature within the urban environment. That's why I found it dated actually. It's a retro-future.

Looking back into the past, we can see that the idea of integrating nature into urban environments has evolved alongside the development of modernity and urban life, especially in Germany. Here, a notable example is the so-called "Schreber Gardens." These are colonies of allotments on a larger piece of land, run by the gardeners as members of an association with membership being a coveted, often heritable privilege to tend to a garden for flowers and vegetables and as balsam for the soul. This can be interpreted as a socially and environmentally progressive idea – industrial working class urban residents having their own slice of land to cultivate – but it is also born from a peculiar mindset of social coercion and control. One of the promoters of the movement, Moritz Schreber and the sad history of his son provide the best example of this pathological desire to reform the soul (see Freud, 2003). Does the *Futurium* offer a homeopathic dose of the same therapy?

III. Meeting the Genetically Perfect Mate

The Technology section of the exhibition is deeply permeated by information about various emerging technologies and the promises they hold. In an area titled "Deciphering the Code of Life," for example, visitors are invited to respond to a fairly remarkable, highly specific long-term vision (fig 3):

> Welcome to the glassed-in restaurant, the hotspot for lonely hearts. Our gene check has revealed that your perfect genetic partner is waiting for you at table 2. Would you like to be shown to your table? [*Herzlich willkommen im gläsernen Restaurant, dem Hotspot für einsame Herzen. Unser Gen-Check hat ergeben, dass an Tisch 2 der perfekte genetische Partner auf Dich wartet. Möchtest Du Platz nehmen?*]

- It is your future: so how do you decide? [*Deine Zukunft: wie entscheidest Du?*]
  - No more bad dates and perfect genes for reproduction? Great! Take me to table 2, please. [*Nie wieder schleshte Dates und perfekte Gene fur den Nachwuchs? Super, Tisch 2 dann bitte*!]
  - Let genes decide everything? Practical perhaps, but also a bit creepy… [*Die Gene entscheiden lassen? Praktisch, aber auch etwas unheimlich*…]

o Whatever happened to romance? Not everything has to be analyzed. [*Wo bleibt da die Romantik? Nicht alles muss analysiert warden.*]

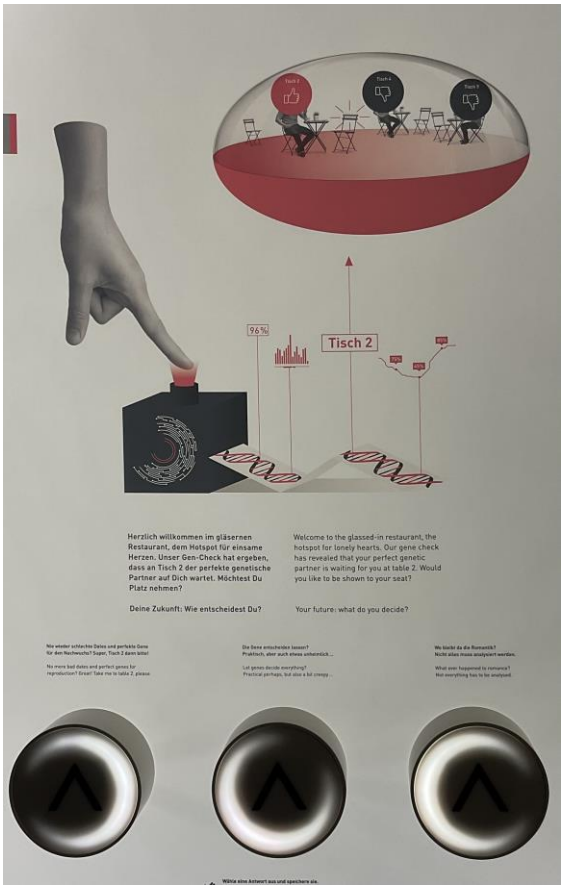

Figure 3. Meeting the Genetically Perfect Mate

This scenario outlines a scientific and technical vision and yet it is the line „no more bad dates!“ that seems to have the strongest impact. To be sure, a more thoughtful response would consider the *likelihood* of having “good dates” on the basis of one‘s genetic make-up. It would also question their *desirability*, that is, whether these „good dates“ are good. Both of these, likelihood and desirability, are taken for granted in this scenario. Scientifically, it is also presupposed that genetic determinism holds and that we can better organize our daily lives if we take genetic information into account - part of knowing everything about ourselves.

All of these are very contentious presuppositions. And even if we put aside such principled considerations, what about the relation between DNA matches and intuitive romance? Are biology and romance mutually exclusive, or do they provide mutually reinforcing principles of attraction?

In response to this scenario, the group of curious investigators witnessed two opposing strategies – also within its own ranks. One rejects the scenario because it is

deeply dishonest in that it doesn't seduce but traps the viewer by imposing a future which supposedly demands not only that we take a stance towards it but position ourselves inside it. By playing the game and contemplating the question, viewers are buying into things that they do not seriously believe (see Nordmann, 2007). Moreover, anyone who rejects or opts out of the imposed scenario will appear as a kind of Luddite. By not believing that "technology can do just about anything"[2] visitors have to worry that they will be branded as being anti-technology.

The opposite strategy is to accept the invitation, fully immerse ourselves in the scenario, and explore every corner of this fictional restaurant. Cheryce von Xylander found such a hermeneutic entry-point as she expands on a telling detail of the scenario, namely, the reference to a "glassed-in" restaurant even though, on the face of it, the scenario does not require walls of glass, just tables and chairs:

> The place for hooking up was conceived as a »glass restaurant« (*gläsernes restaurant*). This strikes me as an odd choice. Spectators are asked to imagine what it would feel like to be paired up with a partner according to DNA matches, instead of animal attraction. Are we prompted by biology or romance? Perhaps these are mutually reinforcing principles of attraction. Be that as it may, my experience of this panel was dominated by a different question, one that hardly registers at first glance, namely how did we arrive at the »glass restaurant«? The *restaurant* per se seems a perfectly good setting for future humanity to organize its mating rituals. But what contribution was the trope of *transparency* making to the thought experiment? Why invoke a »glass restaurant«? I found myself wondering if the *Tinder* transparency of choosing partners by physical »type« had somehow infected the layout of this imagined future. The conditions of app-driven dating seemed to permeate the atmosphere of the communion as a whole, including the glass environs in which such coupling would be made possible. But then a more menacing connection came to mind, a famous museum exhibit from the 1930s, namely the glass humans – male and female – of the Dresden Hygiene Museum.[3] These gendered idealtypes map perfectly onto the question here put forward (although it is far from obvious that "gender" will be the defining modality of future procreation). The skeleton, blood vessels, nervous systems, and organs were installed in a transparent carcass and lit up, separately, at the push of a button. These transparent figures were also exemplars of an idealized Aryan humanity; in terms of weight, posture, and size, they were impeccable physical specimens. They teach spectators about the anatomy of the human animal while also conveying an appreciation for the ideological aggrandizement of the »*Übermensch.*« In this sense, the social engineering that informs this panel is not merely loaded with repugnant resonances concerning the aspirations of match-making in coming generations. It directly quotes and thus resuscitates a history of philosophical anthropology that

[2] On *Futurium* website, one of the ones on AI possibilities.
[3] See www.dhmd.de/en/exhibitions/permanent-exhibition/the-seven-theme-rooms#c4248

is now thoroughly discredited in the German context. And it does so within spitting distance to Germany's houses of parliament and governance.
Witnessing this display in the year of the 300th anniversary of Kant's birth, it is also striking that the classical locus of communal dining and moral education — the much-cited »*Tischgesellschaft*« championed in his *Anthropology from a Pragmatic Perspective* (Kant, 1798/2006) – made not even a liminal appearance in this envisioned factory for the production of future citizens. Eating in a restaurant is commercial by definition. It commodifies a convivial form and bypasses the ritual communalism of shared meals in families. Even though we have already established that the family is the core social unit reified by the displays of the *Futurium*, the family as an agent of moral education is here invisible. These citizens emerge as monads. Their reproduction takes place in something resembling an incubator, which again legitimates the trope of transparency. What might the people in this restaurant be eating? If the meat served up in this restaurant follows the same principle of transparency as the union to be forged, then hamburger paddies made of »glass cow« hash would be suitable items on the menu as would be »glass horse« steaks – both animals were on display in models of vitreous anatomy at the Dresden Hygiene Museum. Presumably, the blind dates coming together in this glass restaurant would be served by a robo-waiter very much resembling the automaton that meets and greets visitors upon entry to the *Futurium*. And I can't help but notice that its museum cafe is a "glass restaurant" as well. It opens onto the sidewalk, well-appointed to enable these visions of tech-orchestrated dating. All things considered, the transparency here invoked ceases to present as entirely innocent when we consider that »glass human« (*gläserner Mensch*), in German, has become a catchphrase referring to the lack of digital privacy and data protection in the networked online condition we have come to inhabit, especially regarding medical and genetic data.

A SAFE PLACE TO GET UNSETTLED

Our visit reveals several recurring themes and tropes in the House of Futures. Common to all three of our exhibits is that visitors are treated as "judges on all things." We are encouraged to imagine challenging scenarios and make decisions accordingly. Our choices are valued and recorded, but it remains unclear if there is a matter of choice here, if the summing up of attitudes has anything to do with the dynamics of technological development. In the meantime, the visitors comfortably inhabit the all-too-familiar role of rating products of all kinds.

The counterpoint to being treated as judges come from the "paternalistic voice" that is pervading many exhibits. It reassures us that transitioning to a better world is within our grasp. The recurrent message is: "It is your future, so how do you decide?" In other words, „It is your future, it will be granted to you, we would love to know how you will accommodate yourself to it." Steve Fuller offered an anecdote to illuminate the power of paternalism in technological narratives:

> A few years ago I actually went to a science fair and talked about transhumanism to kids and I gave them surveys. I had lots of postcards, which had futuristic images. And the parents were looking at and interpreting them. The kids would start saying something that's kind of interesting but also a little provocative, something like: “Would you like to live to be 90 or so?” And the kid who still thinks in single digits starts saying, “I think 60 would be enough for me!” and the parent is trying to rectify things. To have interesting responses, I tried to keep the parent away and have the kid keep on talking. I do think the parents hovering over the kids and somehow moderating their speech and not letting them go down certain sorts of roads, could be diabolical, actually, if you're really wondering how kids respond to stuff in this situation,

Entering the fictional world of the *Futurium* can be a richly suggestive adventure, yet risky. We are anchored in familial, pastoral, nostalgic, or romantic conceptions and reference points. Yet, these anchors can keep us stable but also paralyzed. At the same time, we are unmoored by the vast and overwhelming expanse of possibilities. In the beginning, the question is “How do we want to live,” as if we are accelerating toward a promised utopia where anything is possible with the help of technology. But where anything is possible, how does one orient oneself, set priorities, remain focused on urgent concerns?

In this ambivalent situation, future, present, and past are intertwined. While we often treat the past as something concrete and fixed, our access to it is just as speculative as our access to the future. The objects, events, and experiences of the past are mediated through narratives, interpretations, and reconstructions – much like the speculative scenarios we create for the future. We interact with history through the lens of our present understanding, just as we project the future based on current trends, desires, and fears. We do not have any direct access to the past or future.

The past is not a finished story that we can just know. The future is not something we can simply design and build by technology. By wandering uncritically through the uncharted territory of the future, we are at risk of losing our grip not only on the future but also on our present and the past. Ideally, the House of Futures should be a playground for *developing* such a grip. It can be a safe place to become unsettled.

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Статья поступила 22 августа 2024
одобрена после рецензирования 5 сентября 2024
принята к публикации 17 сентября 2024

Received: 22 August 2024
Revised: 5 September 2024
Accepted: 17 September 2024

https://doi.org/10.48417/technolang.2024.03.04
Research article

The Past in the Light of the Future – A Case Study in Speculative Architecture

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Abstract

In 2019 a new museum opened in Berlin. The *Futurium* is a museum of the future or, more accurately, a museum that showcases mostly scientific and technological ways of preparing for, mastering, or shaping the future. One might expect that such a museum acknowledges with the benefit of hindsight the visions of the future that were developed in the 18th, 19th, and 20th centuries. This is not included, however. Envisioning the future comes with the risk of these visions sooner or later becoming an object of the past. And so, the creators of the *Futurium* are already laying the foundation of a *Preterium* – and they know, of course, that this is what they are doing. In a fittingly speculative manner, the following text consists mostly of an envisioned speech at the future opening of the *Preterium* in 2100, reflecting on the complicated loops that connect future, present, and past. Intratextually, the speaker of the *Preterium* opening invites reflection on this temporal interconnectivity. Speaking intertextually, the text encourages consideration of the differences in the reception of scientific versus literal futures.

Keywords: Future tradition; Manufactured and Non-manufactured; Museum; Technological futures

Citation: Sever, S. (2024). The Past in the Light of the Future – A Case Study in Speculative Architecture. *Technology and Language, 5*(3), 41-48. https://doi.org/10.48417/technolang.2024.03.04

УДК 008.2
https://doi.org/10.48417/technolang.2024.03.04
Научная статья

Прошлое в свете будущего – Кейс спекулятивной архитектуры

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Аннотация
В 2019 году в Берлине открылся новый музей. Futurium — это музей будущего или, точнее, музей, демонстрирующий в основном научные и технологические способы подготовки, освоения или формирования будущего. Можно было бы ожидать, что такой музей представляет ретроспективный взгляд на видения будущего, разработанные в 18, 19 и 20 веках. Однако это не представлено. Представление о будущем сопряжено с риском того, что эти видения рано или поздно станут объектом прошлого. Итак, создатели Futurium уже закладывают основу Preterium (то есть музея прошлого) — и они, конечно, знают, что это то, что они делают. В подходящей спекулятивной манере следующий текст в основном состоит из воображаемой речи на будущем открытии Preterium в 2100 году, размышляющей о сложных петлях, которые связывают будущее, настоящее и прошлое. Интертекстуально спикер на открытии Preterium приглашает отразить временную взаимосвязь. Говоря интертекстуально, текст побуждает задуматься о различиях в восприятии научного и буквального будущего.

Ключевые слова: Традиции будущего; Произведенное и непроизведенное; Музей; Технологическое будущее

Для цитирования: Sever, S. The Past in the Light of the Future – A Case Study in Speculative Architecture // Technology and Language. 2024. № 5(3). 41-48. https://doi.org/10.48417/technolang.2024.03.04

INTRODUCTION

Fiction in general, and science fiction in particular serves as a useful medium for speculating about technological futures, offering a lens through which we can explore the possibilities of the future without being obliged to provide evidences. One of the primary reasons for this is its ability to transcend current limitations, regardless of what is considered as probable or not, allowing speakers, writers, and readers alike to envision scenarios that *could* become existent. Imaginative narratives can create spaces where technological futures can be examined, debated, and given a form of *existent non-existence*. This kind of ontolytic talking or writing leads to narratives, in which the future is constructed 'in such a way that it has an effect of dissolving the fabric of the present' (Gammel, 2023).

The human activity of visioneering is not only reserved for fictional literature (Nordmann & Grunwald, 2023). It is a core activity and "*Gedankenerfahrung* [thought experience]" for everyone, who deals with the future in one or the other way (Mach, 1917). Despite the lack of empirical evidence, this kind of fiction is no less valid or "untrue" than scientific projections about future advancements: Both scientific and fictional speculations share many uncertainties. While they differ in style, for sure, fictions may allow for a distinct impact on readers, as they can explore ideas and scenarios that may not be easily accommodated within the constraints of scientific discourse, which makes such fictions at least through the back door interesting for sciences as well again (Steinmüller, 2016). An opening speech with retrospects at a future museum in 2100 against the backdrop of a speculative architecture could provoke scientific reflections today on the temporal connectivity of future, present, and past.

SPEECH AT THE OPENING CEREMONY OF THE PRETERIUM1

Honorable guests,

Today we are celebrating the completion and opening of the *Preterium* and it fills me with great joy to be able to contribute to the celebration on behalf of the board of directors with a speech delivered from my underwater capsule in the North Sea, but which I can at least attend holographically.

"Why still history?" This is what the historian Reinhart Koselleck (1971) already wanted to know at his time. So let me start this speech with a confession. Many of our participating researchers approached the *Preterium* project with a simple wish: Looking into the past should be worthwhile again, even in the hyper-hypermodern era of the 22nd century, i.e. after the complete digital recording and automatic content-analysis of all historical artifacts known to us. In view of such a situation, we wanted to emphasize the added value of directly engaging with history. The work of our guild should not be limited to the search for as yet unknown artifacts or the creation of counter-interpretations to those that were automatically generated. Instead, following Habermas's 2029 publication on the limits of history, we adopted the so-called *perspective turn* as it was introduced by

[1] The opening speech was held in German on September 5, 2100, in the *Preterium* (New-Berlin) and is available here in a different version and supplemented with references.

Tru°sky in 2070, and discussed in the German Journal of Philosophy by van Damme 2093. We adopted the perspective turn not only as a paradigm shift with new research objects, but rather as a comprehensive attitude to time-related questions. It relates pasts and futures to one another, and no longer allows us highly future-oriented observers to thoughtlessly pass by history or to label it as useless. Instead, we are set in motion to walk through the past in order to reach the future. This shift in perspective has enriched contemporary history and could also enrich those here and now who have so far stayed away from it. Seeing the past in the light of the future is the motto of our house. The contribution of contemporary history in the *Preterium* is to open up spaces of knowledge and options for action in the service of the present. This means on the one hand to say goodbye to the insignificance of history as a discipline which confidently positions itself at the pulse of our times again. On the other hand, and this is what matters above all, it means to seriously develop the debates on the future from a preterital perspective, without having to dispute the "primacy of the future" (Heidegger, 1927/1967).

Today I would like to take up the core idea of the *Preterium.* It makes evident why Ms. Qua2K and Mr. Sharani jointly came up with the idea of building the *Preterium* on the foundation of the New-Berlin *Futurium*: The idea was to create a house that would showcase the past in the light of the future and, in such a reversal, open up considerations that had previously been underappreciated or even remained unknown.

So let me first say a few words about the architecture, which almost speaks for itself in conveying the idea of the building to the outside world. As you know, the decision was made from the first draft onward to use the glass block building of the *Futurium* as a base (fig. 1) in order to erect directly on top of it the cylindrical building of the *Preterium* – which was originally called the *House of Preterita*. We were aware that even with this extension, the entire building would still be among the less tall ones in the area of the central district. So, despite the 27 levels of *Futurium* and *Preterium* combined, a curatorial trick was needed to meet the requirements of the building on a comparatively low budget: A new cylindrical building allows for the light of the future to shine into the past. This is to be understood literally, true to the building's motto: Any lighting in the *Preterium* building has the *Futurium* building as its source. It appears to shine from bottom to top at the desired point using various reflection techniques but also in terms of content. In addition to a missing floor at bottom of the new construction, the building features a missing roof. You may have noticed this as you were flying in. This ensures that guests can experience the intended effect of a nested journey through time. By entering at the top, they journey from the past (from above) to the future (downwards) through the light that coordinates by shining from the future (from below) to the past (upwards) - always reflected in an awareness of presence. The designers, curators, and architects involved deserve great praise for this successful constellation.

Figure 1. Here a view of the *Futurium* as it was originally conceived and before it became the base of the *Preterium* (photographer Lear 21)

Through this building, the *perspective turn* of historical studies and the transformation of the profession of those who deal with contemporary history will find its way into the *Preterium* and thus perhaps into a broader public debate. This is certainly a particular concern of mine. Without giving too much away, of course, I would now like to demonstrate what this is all about by showing a few practical exhibition examples from the *Preterium* and *Futurium.*

As a contemporary historian, I now know that the Twenties of the 21st century were more transformative than was generally assumed at the time. The technologies we take for granted today were still in their infancy at the time. Their promises of salvation on the one hand, associated horror scenarios on the other, shaped the cultural, scientific, and public debate about the future. From today's perspective, some of the things that were debated at the time, or rather how they were debated, seem highly absurd. The temptation to assume a "know-it-all attitude from retrospect" (Radkau, 2017) is once again extremely tempting today: Has it just been overlooked that the use of robots or "artificial intelligence," as it was called at the time, was less a question of options for the future than already an integral part of social practices in the Twenties? Looking at the past in the light of the future, however, does not just mean being amused by the blind spots of such past debates about the future, but also allowing present-day observations of a past that has been illuminated by the future and, on this basis, allowing oneself to be placed in positions of observation in present-day debates about the future. The museum attempts to do this in a number of very concrete ways – here, for example: Despite the large-scale implementation of the first chat bots after the turn of the millennium, the distribution of commercial robot dogs after the Corona pandemic, and the mass production of humanoids

in the late 30s, their social effectiveness was not taken seriously to the same extent and degree as that of non-humanoids. Their significance was primarily negotiated according to the technical competence and quality criteria of their use, but not according to their social effectiveness based solely on their (co-) existence with humans, which was already indispensable at the time. For a long time, people only counted themselves as individuals (*lat.* single thing) in a society, regardless of their everyday practice with and through their technological and material environment: chat-bots, robotic pets, humanoids were granted only the status of a *thing*, no matter how similar they were to them.

The light of the *Futurium* points to this blind spot of previous generations: The blind spot as an unlit spot in the *Preterium* building is thus made visible by the beam of light from the *Futurium* directed at it. If you now follow the beam of light back as intended, you will float to the light source in the *Futurium* and find futures as they are in circulation today. For example: Renewal ideas for inheritance and family law in the sense of equality between manufactured, non-manufactured, and mixed families and the possible realignment of society, the withdrawal of the right of pre-residence for non-manufactured persons on the earthland, but also imaginations of Industry 8.0 as the complete automation of the quintary sector and thus the last economic sector. Those of you who now want to engage in this reciprocal consideration of the past and the future will recognize in the current comparison of the two our social framework of thought and those gaps that still need to be explicated and filled. It is not possible to specify how the gaps are to be found and filled, but the curators hope to use this museologically staged *perspective turn* to open up an alternative in-between to the otherwise still fixed and detached considerations of future and past in the here and now, albeit with implications yet to be explored, which we must and would like to leave to you.

In addition to such "outdated" debates about the future in the past, another historical perspective reveals shifts in the definition and conceptualization of the human being based on technological distributions: While the society of the young 21st century, for example, was still able to draw clear-cut lines between humans and cyborgs, the widespread use of six-axis 4D printing and customized, prosthetic body upgrades with the potential for change without outpatient surgery have led to a kind of "stylistic break". Since then, not only do we no longer differentiate between humans without enhancements, if they are still significantly represented at all, and humans with enhancements, i.e. cyborgs, but also between the non-manufactured (humans with/without enhancements) and the manufactured (robots, humanoids, etc.).[2] Our spatial development space has also increased enormously as a result: As is well known, 4D gill prostheses have opened up the marine world as a living space and, above all, made it more fertile as a place to work. For this, it is sufficient to point out habitat encapsulation in the oceans or to recall the prospering manganese nodule mining in the deep sea for the high-tech industry. However, these examples only illustrate something that we have known for a long time, namely that since the distribution of technical achievements, humanity can no longer be defined as a purely organic mass, nor as a resident of the land masses. If we

[2] The distinction between the manufactured and the non-manufactured is already a distinguishing factor in antiquity, and not just a new creation of our legal apparatus for designating persons (Mayor, 2018).

follow the highlights here back again, we are led into a corner of the *Futurium,* the subsequent consideration of which can lead abductively to the imagined in-between: The successful sowing, harvesting, production and delivery of the first grain products from Mars is currently leading to the revitalization and modification of futures. The colonization of outer space, the terraforming of known planets, or the further transformation of the non-manufactured to adapt them for life on these planets is once again being discussed as possible futures. One must speak here of a kind of re-emerging *future tradition* – a set dream of the non-manufactured, the realization of which one always imagines to be closer now than in the past, but without ever wanting to dream of something completely different. Such a designation, namely as a future tradition, also makes it clear that perspectives on a future that is liberated from the past are only future beliefs, that are mistakenly thought to be liberated from the past.

A look at the past era shows us that the distribution of and broad access to certain technologies have led to new concepts and updated definitions of the relationality of human existence – and in the meantime, in the same way, of that which is manufactured existence. We cannot say to what extent we and our relationships will be affected in the future. As in the past, the answers to this are still pending until we realize at some point, in retrospect, that something else has already happened in a certain way. However, the *Preterium-Futurium-constellation* offered here can lead to more far-reaching impressions that can here only be hinted at abstractly: When the contemplation of the past, which takes place in the light of the future, and that of the future, which is embarked upon from the past and then contested, are reflectively connected in the present. The exploration of an insightful in-between and the illumination of blind spots of the present by means of a renewed temporalization and curatorially conceived *perspective turn* are again reserved for you, dear guests. Koselleck concluded his speech about the question “Why still history?” as follows: Only “in passing through 'the Geschichte' [history] will the Geschichten [stories] be rediscovered - those of the past and those of today” (1971, p. 18). The *Preterium* could help us do so.

But talk is cheap. Now I don't want to keep you waiting any longer for the future-oriented experience of the past. On behalf of the management, I cordially invite you to the sightseeing flight and subsequent reception. Thank you very much for your attention – and of course your presence of mind, which you please keep as you travel through time.

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Статья поступила 25 июня 2024
одобрена после рецензирования 18 августа 2024
принята к публикации 27 августа 2024

Received: 25 June 2024
Revised: 18 August 2024
Accepted: 27 August 2024

https://doi.org/10.48417/technolang.2024.03.05
Research article

Fuzzy Objects

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Abstract

In *Ways of Worldmaking* Nelson Goodman presents a theory on how we perceive and construct different versions of the world. Building on the idea that practical experience can unlock the potential for sharing knowledge across disciplinary boundaries and intellectual abilities, the following approach aims to translate Goodman's thoughts into a practical investigation, where worldmaking can be experienced in a tangible way. Drawing on Technology Assessment, Futures Studies, and Critical Design Methods, participants in this exploration engage with provocative objects that serve as starting points for the creation of world versions. Through this process, participants should gain an understanding that our assumed descriptions of reality are, in fact, constructions and therefore contingent. Supposedly immutable realities can thus be reimagined as alternatives that are open to change. Additionally, the outcomes of this exploration can be analyzed for implicit values and assumptions, making them visible and open to discussion.

Keywords: Worldmaking; Critical Design; Technology Assessment; Objectual Practice; Design Fiction; Constructivism

Citation: Genc, M. (2024). Fuzzy Objects. *Technology and Language*, *5*(3), 49-67. https://doi.org/10.48417/technolang.2024.03.05

УДК 13:159.954
https://doi.org/10.48417/technolang.2024.03.05
Научная статья

Нечеткие объекты

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Аннотация
В книге “Способы создания миров” Нельсон Гудмен представляет теорию о том, как мы воспринимаем и конструируем различные версии мира. Основываясь на идее о том, что практический опыт может раскрыть потенциал для обмена знаниями, невзирая на дисциплинарные границы и интеллектуальные способности, следующий подход направлен на то, чтобы воплотить мысли Гудмена в практическое исследование, в котором создание миров можно будет испытать осязаемым образом. Опираясь на оценку технологий, исследования будущего и критические методы проектирования, участники этого исследования взаимодействуют с провокационными объектами, которые служат отправной точкой для создания версий миров. Благодаря этому процессу участники должны понять, что наши предполагаемые описания реальности на самом деле являются конструкциями и, следовательно, случайны. Таким образом, предположительно неизменные реальности могут быть переосмыслены как альтернативы, открытые для изменения. Кроме того, результаты этого исследования можно проанализировать на предмет неявных ценностей и предположений, что сделает их видимыми и открытыми для обсуждения.

Ключевые слова: Создание мира; Критический дизайн; Оценка технологий; Объективная практика; дизайнерская фантастика; Конструктивизм

Для цитирования: Genc, M. Fuzzy Objects // Technology and Language. 2024. № 5(3). 49-67. https://doi.org/10.48417/technolang.2024.03.05

INTRODUCTION

How do we perceive the world? According to Nelson Goodman perceiving the world – or more accurately worlds – is an act of constant and ever-changing creation (Goodman, 2013). Making this process perceptible is not only an interesting experiment that can give us tangible insight in how we construct meaning; it also serves as a means to explore implicit values and assumptions. These explorations can help us to deconstruct the created fictional worlds and engage in a critical reflection of our implicit values and assumptions, which otherwise are hard to grasp.

The following practical investigation is a playful approach to encounter versions of fictional worlds and a tangible take on Goodmans theoretical work *Ways of Worldmaking*. In critical design practice, the use of so-called "provocative" objects is a common method to allow experiencing phenomena that would otherwise go unnoticed (Malpass, 2017, p. 31). Blending this approach with concepts and methods taken from Futures Studies and Technology Assessment, the following investigation provides an experience of the ever-changing creation of worlds and encourages the participants to reflect on their creations.

This is not just an invitation to read a paper about worldmaking and its practical applications; it is an invitation to be part of the experience and the act of creating a version of a world. Therefore, this article consists of two parts. First and without a lot of explanatory writing, the practical investigation and its execution is presented in a paper-only adaptation. It is recommended to carry out the practical part before reading the rest of the article. Then, the outcome of a practical investigation conducted during a public open event is presented to further broaden the basis of experiences that can be explored. With these insights, the investigations will be grounded in the underlying theory, explaining the different thoughts and ideas reflected in each part of the execution and illustrated with case examples from the public event. The article concludes with a proposal on how the results could be used for further examination.

AN EXPEDITION INTO A FOREIGN WORLD

Imagine the following thought experiment as an expedition into an unknown, foreign world. This strange world already exists in the depths of your brain – even though you don't have access to it yet. Our goal is to change that. We want to explore this world, make its strangeness accessible and understandable. You are the adventurer, a scientist, who is conducting this expedition and wants to find out everything about this undiscovered, mysterious world. Your entry point is a peculiar object, depicted in the following illustrations.

Please follow through with each step of the expedition before reading and proceeding with the next one.

Preparation

Since every successful expedition needs meticulous preparation, take some minutes and get familiar with the object depicted in figures 1 and 2. What the heck is that? If you wish, take some notes to capture your initial thoughts for later reflection.

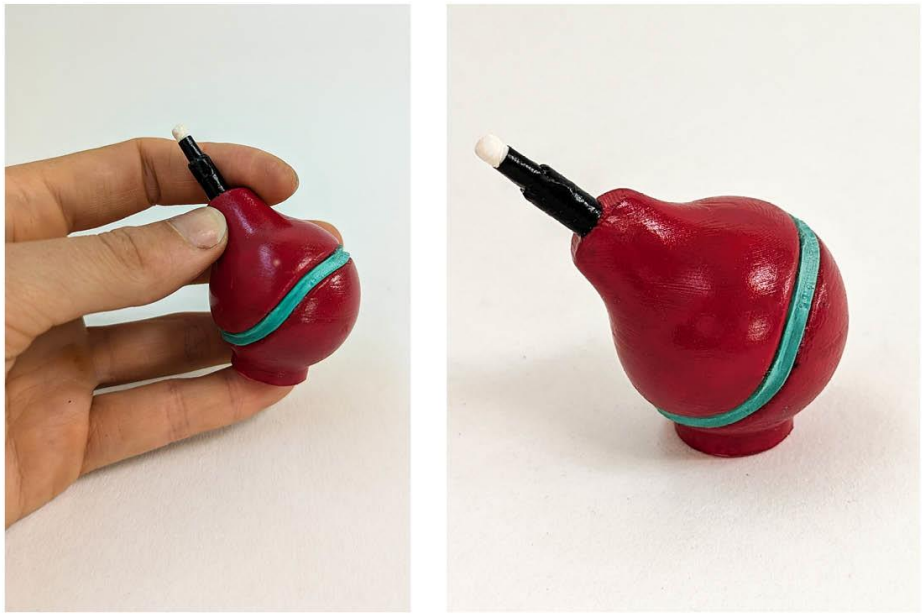

Figure 1. Fuzzy Object_00

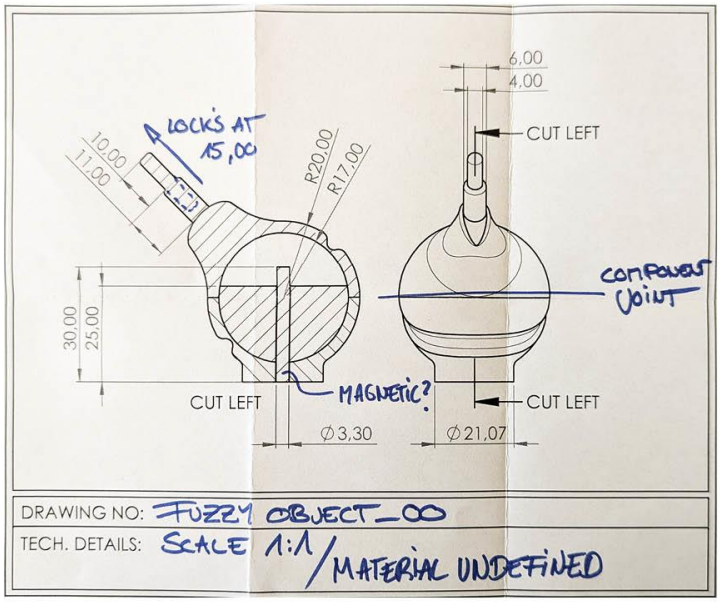

Figure 2. Technical Drawing_Fuzzy Object_00

Step One

You should be familiar with the object by now. How large is it? What kind of shape does it have? All these things should be clear to you. Maybe you already developed some idea of what this outlandish thing is used for? I mean, it looks like some kind of technology, right?

With the object now familiar, you are ready to embark on the first part of your journey into the unknown. Our aim is to explore what this object is used for and what kind of world it is coming from.

However, you will need to set aside your initial assumptions. You won't be assigning meaning to the object arbitrarily. Instead, you will work within a specific frame consisting of a user group, a field of application, and a time frame. To determine this frame, pick three numbers between 1 and 5. In Table 1 you will find the different contextualizations referentiated by the numbers you pick (e.g., if you choose 3, 5, and 2, your frame will be: women, 100 years into the future, and health care).

Return to the object and consider its use in the given frame. What is it for? Why is that thing needed in the given time frame? How exactly is it used? How do the different components work together? And how does a world look in which your object is to be used? If you like, write down your thoughts so you can revisit them later.

Table 1. Framing

	User Group	Time Frame	Field of Application
1	humans	10 years into the future	food production
2	working class	20 years into the future	health care
3	women	1000 years into the future	education
4	robots	tomorrow	entertainment
5	animals	100 years into the future	safety

Step Two

You know the object now. You know what it is used for, by whom, and in what field. All good, right? But as you might know from other objects, things don't always work out as they are supposed to.

Table 2. Reconception

	Task
1	Who is strictlty against the usage of your artifact and wants it to be forbidden?
2	Which malfunction occurs frequently using this artifact? What is a common fix or work-around?
3	Why does the government subsidise the use of your artifact?
4	Pick a second field of application number. How could the artifact be adapted to this context?
5	Pick a second time frame number. Your artifact will develop for the shown number of years. How will it change?

And so it is time to pick another number between 1 and 5 and go to Table 2. There you find a question you will have to answer and that might shake up your first thoughts a bit. Take your time and reconsider what this new question could mean in relation to your object.

Reflection

Congratulations! You successfully conducted the expedition through this previously undiscovered world in your mind! Or in other words: You have developed a significant piece of a fictional vision of a world by now. A world in which your object has a specific meaning and purpose. You have also revealed its flaws, or perhaps discovered new uses that the object's designer did not foresee or intended to provoke.

Before you proceed, you deserve a short break of reflection on your journey. Get a cup of coffee or a tea and think about the experience you just had. How did you feel during your investigation? Was there something outstanding for you that you will keep in mind for a while or that sparked a new thought?

STORIES TOLD BY FELLOW TRAVELERS

Though they may not have been in the same place at the same time as you, some fellow travelers also ventured into the unknown.

Before you embarked on your journey, this investigation was conducted and documented during a public event organized by Berlin Realities (fig. 3).

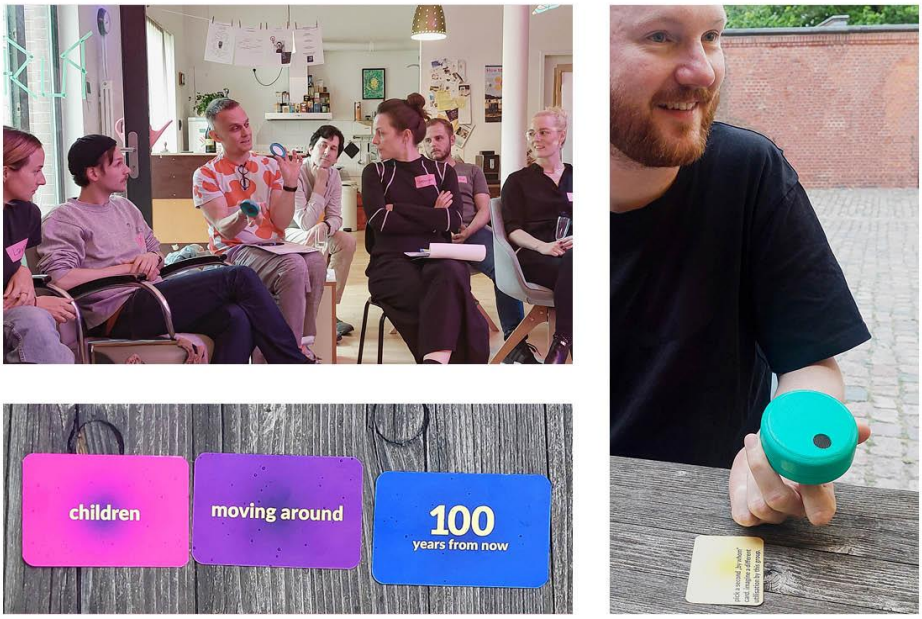

Figure 3. Fellow Travelers_Berlin Realities

The participants were sent on an expedition to explore a new world, as in the version modified for this article. The world was explored using various objects. In contrast to the version presented here, the objects were physically available. They could be touched and explored haptically. The use of physical objects adds depth to the practical investigation, as using different media to access the same world enhances the immersive effect (Wolf, 2018, p. 143). Studies also indicate that using our hands significantly influences our thinking (Prinz, 2013, p. xii).[1]

The group consisted of around 20 participants and was divided into four "expedition" teams, each assigned an object to explore. The results of each round of investigation were documented in writing by the participants in a protocol. The discussion rounds were also recorded so that the negotiation processes could be reconstructed and evaluated later. Based on these recordings, some of Goodman's theoretical ideas can be traced through the investigation.

In the following, I will outline the theoretical considerations behind this practical investigation and illustrate them based on the discussions documented at the event. Let us begin with an insight into the four worlds that the participants discovered in their expeditions:

Object 1 - The Male-Hormon Applicator

Figure 4. Fuzzy Object_01

[1] The so-called "action-language compatibility effect" describes the phenomenon that we find it easier to understand abstract ideas once we can translate them into bodily movement (which often includes hand gestures) (Prinz, 2013, p. xii).

The expedition team of Object 1 (fig. 4) explored a world 50 years into the future. Their object is used by men for the purpose of moving around.

Object 1 is an applicator with which eye drops can be applied via the mucous membrane of the eye. The eye drops contain a solution of artificial male sex hormones. In 50 years' time, the use of these drops as a narcotic will be as widespread as smoking is today. Future earthlings will consume the drops for fun before and at parties. It is not entirely clear whether the consumption of the drops actually leads to a short-term physical change or whether the substance merely has a cognitive effect. If the former is the case, it is assumed that women not only use the applicator at parties, but also as a means for getting home more safely.

The applicators are not an expensive luxury item, but can be obtained at any kiosk or late-night shop at a price comparable to the electronic vapes used today.

Which malfunction occurs frequently using this artifact? What is a common fix or work-around?

There is a catch, though: Despite the age classification, sometimes these applicators end up in the hands of young people who use them to prank others, mixing the drops into drinks and causing unintended transformations.

Object 2 - The Art of Breathing

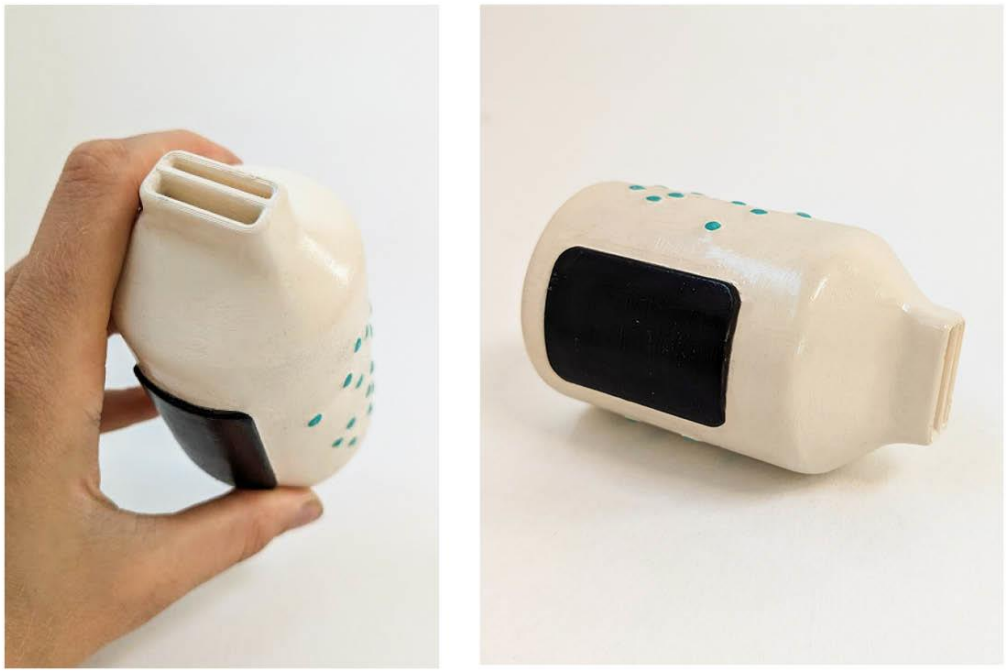

Figure 5. Fuzzy Object_02

The expedition team of Object 2 (fig. 5) explored a world 20 years in the future. Their object is used by high society to create art.

Object 2 is the mouthpiece of an actually larger artifact that is used to inhale specially filtered air that may also be enriched with additional active ingredients.

In twenty years, clean air will be a rare commodity reserved for those who can afford it. As clean air becomes scarce, society's perception of breathing will change. "Breathing well" is being elevated to an art form. Object 2 is therefore used to practice this art in various breathing exercises, some of which can induce hypnosis-like states.

Pick a second "when" card. Your artifact will develop for the shown number of years. How will it change?

50 years later, the earth is now virtually uninhabitable in terms of air quality. People are living under domes in small communities. After years of rampant individualism, collective living and mutual responsibility are regaining importance. The company that first brought Object 2 to the market 50 years ago has adapted its concept to these new living conditions. The function of the object has essentially remained unchanged; it is still used to filter air. However, it is now part of a full-body suit that makes it possible to leave the dome and enter the outside world. Adventurers and artists in particular are drawn out into the destroyed world to document the "outside" and bring it back into the domes as inspiration or work of art.

Object 3 - A hovering Companion

Figure 6. Fuzzy Object_03

The expedition team of Object 3 (fig. 6) explored a world 100 years into the future. Their object is used by cyborgs for moving around.

Object 3 is a collector of olfactory memories. It is used by cyborgs in the future to store odors during the course of their lives, which can then be recalled during a " memory journey." The object follows its owner, hovering like a small pet. The memories are reproduced in the red „cherry" (the „odor stone") and released through the membrane. By turning the lid of the box, the exact time of the memorization can be selected.

Pick a second "by whom" card. Imagine a different utilization by this group.

At some point Object 3 is discovered by a new user group: Children. The children are using it as a parent substitute. It is called the "root" and is taken on every mission for the rest of the child's life and can be used to keep in touch with a contact person, such as a parent. The membrane serves as a tactile surface through which the heartbeat of the small piece of heart (formerly known as the „cherry") in the box can be felt.

Object 4 - Shamanic Healing Appliance

Figure 7. Fuzzy Object_04

The expedition team of Object 4 (fig. 7) explored a world of today. Their object is used by inhabitants of another planet for safety.

Object 4 is a low-tech universal device that is used in various ways for healing purposes. The extraterrestrial society that uses Object 4 acts more shamanically than scientifically. The long side of the device is inserted into the body - either via a body

opening or it is rammed into the body like a needle. The mouthpiece with the black lip can then be used to suck out the diseases or whisper healing messages into the body.

Pick a second "what for" card. How could the artifact be adapted to this context?

As was discovered during the subsequent expedition, Object 4 is technically more complex than initially assumed. It is used for an imaging procedure to collect information about a patient's state of health. The device is penetrated into the body and a sample is taken, which is then blown out into an image for analysis. Rumors suggest that Jackson Pollock may in fact be a shaman of this extraterrestrial life form.

THE THEORETICAL ELEMENTS IN PRACTIAL USE

As the examples illustrate, interaction with the fuzzy objects stimulates participants' imagination, even of those who consider themselves "not creative." They are becoming "active imagineers" as Dunne and Raby describe the same phenomenon observed amongst people trying to decipher unknown artifacts in historical museums (2013, p. 93). But how do these imaginations relate to Goodmans theory?

Goodman does not use the concept of world as a term for the physical world, but as a descriptive term in itself: Worlds are constructed from symbol systems, which can be languages, scientific theories, or art forms. In this sense, however, describing is not just pure recognition, but always also creation (Goodman, 2013, p. 22). This creation is defined on the one hand by the medium and style, i.e., the symbol system used for description, and on the other hand by the chosen composition in which the world is constructed: Which aspects are placed at the center, which are given less weight? How is the composition organized, what is left out? To demonstrate these ways of recognition, respectively creation, any world version can be used. Although, I will argue in the following that some world versions are more suitable than others for this kind of demonstration.

In everyday life, both the process of creating and assigning meaning to the world and the perception of the implicit values and assumptions contained therein are difficult to comprehend. As humans, we are born into a specific construction of reality. We internalize and objectify parts of our perception to such an extent that it appears to us as a non-constructed, ahistorical state of the world. Some meanings are therefore naturalized and thus appear as unmediated descriptions of reality (Fischer, 2023, p. 21).

Translating that into Goodmans theory, we do not create new world versions out of nothing. They are based on previous versions of the world, which we reassemble and change (Goodman, 2013, p. 6-17). Certain values or assumptions about the world can therefore be carried over different iterations of world versions and either change or remain stable. I like to argue that the more stable specific components remain across iterating world versions, the more difficult it becomes to recognize them as constructions. Their meaning is naturalized and assumed to be a direct description of reality.

Unfamiliarity as a Tool

In this context, the strangeness of the fuzzy objects – or more precisely, their absence of inherent meaning – serves several functions for the conducted investigation:

First of all, the objects make it possible to consciously experience world construction. As already mentioned, it is difficult to clearly identify the moment of construction in everyday life, as the processes of assigning meaning and creating world can rarely be determined. The unfamiliarity of the object allows us such a delimitation. Since we are confronted with the object for the first time and are unable to decipher its "real" meaning using conventional codes or the help of common knowledge, the construction process can be clearly defined. The result of this process is a world version that can be precisely delimited and – in contrast to world versions that emerge in the context of everyday life – can be examined within a fixed outline.

Secondly, the lack of a declared functionality interrupts the chain of naturalized meaning. The object offers only limited points of reference to a "real" use (even if certain elements of the object might convey the feeling of being made for specific functions), so all meanings assigned to it are known to originate from the participants. We have not been able to adopt or learn them from others; they reflect our own assumptions and values in an undiluted fashion.

At the same time, the strangeness also serves as a means of contrast. It is like being on a journey on which we discover cultural characteristics that remain hidden from us in our home country. Only the new, different cultural background contrasts our habits and makes them visible to us. Similarly, the unfamiliarity of the object contrasts the significance we read into it.

In the following, I would like to guide through the various steps of the game and offer an approach to interpreting the experiences that could be made in the process.

We Cannot not Try to Understand

The practical investigation starts before it really begins. One of the decisive moments for the perception of worldmaking is the first contact with the object. To ensure participants are as unbiased as possible, they receive minimal information about the investigation. They are only instructed to "familiarize" themselves with the object, without further details.

During the event, one participant after the other took their assigned object in their hands in order to examine it in greater detail. During this process, they discover elements that seem familiar to them from their existing knowledge and experience. These elements are then used as an anchor point to "understand" their object. Interestingly, hardly any discussions among the expedition groups involve geometrical descriptions. Instead, the understanding of the objects is developed through specific meanings of the elements.

The group surrounding Object 3, for example, describes their object as follows:

P1: "*There is a membrane in the lid...*" [person turns the object in their hands and opens the aforementioned "lid" to look inside] "*– and here is the cherry.*" [points to the red element inside]

P2: "*It looked like a loudspeaker to me at first.*" "*The red thing is a little light to me... is it a smoke detector? The one that lets the gases through?*" [P2 points to the structure previously declared to be a membrane]

Across all groups, a visible desire to understand the object's purpose arises during the encounter. This need to explain everything around us is not just the result of a very engaged group of participants; it is a fundamental brain function, as studies on split-brain patients demonstrate:

The two hemispheres of the brain each control different aspects of thought and action. The left brain is dominant for language and speech, while the right excels at visual-motor tasks. While usually connected, the hemispheres of split brain patients are dissected via the corpus callosum and are thus unable to communicate. Even then, the patients are able to describe images or objects shown on the right side of their visual field. But if things are shown on the left side, the patients are not able to verbalize their impressions anymore. Given a pen in their left hand however, they are able to visually reproduce what they see (Gazzaniga, 1998, p. 51-52).

During studies conducted by Gazzaniga, split brain patients were shown a funny picture in the right field of vision and reacted by laughing, while the right hemisphere obviously could not have any explanation for this laughter. When the person was asked why they had laughed, something interesting happened: Instead of admitting that they could not answer this question, they made up reasons for their reaction. They might have just had a funny thought, for example. The same applied to a patient who was shown a sign with the instruction to "WALK." When he complied with the request and was asked why he had gotten up, he explained that he was thirsty and wanted to get a Coke (Gottschall, 2012). Apparently our brain would rather make things up than admit that it has no answer.

What can be experienced through the investigations and what is neurologically demonstrated by the studies on split brain patients thus reveals that we cannot not try to understand. When we encounter an unfamiliar object, a situation, an interaction, we try to understand it and, to return to Goodman, we create a world version as explanation. As these versions are developed to rationalize contexts, it is necessary for them to seem believable to us.

Creating Believable Worlds

After participants experienced the near-impossibility of encountering an unfamiliar object without trying to assign meaning to it, the first round of the expedition involves consciously creating a world around the fuzzy object.

Conceptually, the objects can be understood as so-called diegetic prototypes. In design fiction, diegetic prototypes are objects that are assumed to be actually existing

artifacts in the world from which they originate (Kirby, 2010, p. 43). Based on the What if...? principle borrowed from science fiction, a socio-technical system,[2] respectively a world version, can then be built around these artifacts (Steinmüller, 1995, p. 78).

According to media scientist Wolf, three aspects are crucial in order to develop a credible and interesting fictional world: high degrees of invention, completeness and consistency (Wolf, 2012, p. 34). Even if the label "interesting" may be of secondary importance within this investigation, I would like to argue that a greater complexity of narration, which is associated with the degree of invention, is beneficial to the examination I will propose at the end of this article.

The constraints along timeframe, user group, and field of application forces the participants not to directly pursue their ideas from the first encounter and prevents the reproduction of conventional future imaginaries. The fact that the framework conditions often seem difficult to reconcile is an advantage according to Wolf's categories: the obstacles challenge the participants to delve deeper into the world they are creating and to develop complex models of explanation in order to generate consistent and coherent versions of the world.

Not considering the degree of invention, as this tends to be more important for how interesting a world is classified, we consider world versions to be credible if they are coherent and do not contain logical errors. If we are dealing with world versions that are connected to our "real" world, there must also be a coherent link to this world. Deviations may only occur to an extent that appear possible within a plausible time frame or make the deviation otherwise rationally conceivable (Fischer and Mehnert, 2021, p. 29).

The group around Object 2 agreed in advance that their artifact had a mouthpiece (after a brief excursion in which they thought it was a very small milk carton), which must be connected to the breathing process. Because the group did not want to abandon this interpretation when their object was declared an artifact for creating art, they came up with a world in which breathing itself had been elevated to an art form. Along this narrative, the environmental progression of constantly increasing air pollution was then introduced as a link to the present.

Goodman phrases the matter as follows: "Rather – speaking loosely and without trying to answer either Pilate's question or Tarski's – a version is taken to be true when it offends no unyielding beliefs and none of its own precepts" (Goodman, 2013, p. 17).

It could be questioned whether credibility is an aspect that is of any importance at all within this investigation. I would like to argue that reaching a point of *willing suspension of disbelief*,[3] which is only possible at a certain level of consistency, is necessary in order to create a world version along which further investigation can take

[2] A "socio-technical system" describes the interaction between social and technical aspects and their development (Ropohl, 2009). Accordingly, a socio-technical system, based on a new technological artifact, describes the influence of this artifact on the surrounding technical and social structure.

[3] The term "willing suspension of disbelief" was coined by Samuel Taylor Coleridge and first used in 1817 in his work *Biographia Literaria*. Coleridge used it to describe the willingness of readers or viewers to accept supposedly unrealistic elements of a story in order to be able to immerse themselves within the narrative.

place. Otherwise, it is less a world version than a random pile of different elements without coherent and therefore debatable relations.

Fitting Together the Pieces

After developing a world version based on the fuzzy object and given constraints, participants are introduced to a new element to incorporate into their world.

The given tasks are based on questions relating to technology assessment and the idea of a *future mundane*[4] developed by the Near Future Laboratory (Blecker et al., 2022, p. 116). The tasks intend to integrate the artifacts further into their socio-technical system and give their design more depth by raising questions that go beyond classic usage scenarios and framing the artifacts not as "perfect products" but as objects of use that are neither perfect nor unchangable. For instance, the group with Object 1 had to devise a frequently occurring malfunction, while the group with Object 2 was tasked with predicting the future evolution of their product.

Challenging the philosophical notion of truth, in *Reconceptions of Philosophy* Goodman and Elgin introduce the concept of rightness instead of truth to further elaborate on the use of symbol systems. They define "rightness" as "functioning of a symbol system" (Goodman and Elgin, 1988, p. 156) and as a question of "fitting and working" (p. 158). In the context of world making, "fitting" is neither a passive nor a unidirectional process. A new element for our world version is therefore not simply inserted into a static world version like fitting a new piece into a puzzle. Rather, the world version and the new element move towards each other and change their shapes until they form a unity.

By introducing the task to integrate a new element into the created world version, the game attempts to reproduce the aforementioned process of fitting together instead of fitting in.

In the documentation of the expedition groups, this development can be reconstructed:

The group around Object 3, for example, simply changes their narrative. After their adaptation of the device for children, the interpretation of the red element inside the device shifts:

Workshop facilitator: "*And what happened to the cherry?*"

Group member: "*It is now a piece of heart, you can feel the heartbeat through the membrane."*

The group around Object 4, on the other hand, uses a narrative maneuver that seamlessly integrates their adaptation of the previous world version into the new narrative: "*During our second expedition, we realized that our object is technically more complex than we first assumed. We initially thought it was something esoteric, not*

[4] The Near Future Laboratory uses the term "the future mundane" to contrast classical science fiction stories. Rather than looking at fantastic heroes the future mundane tries to imagine the day-to-day life of the average citizen, while focusing on the fact that future objects will neither be free of flaws, nor indestructible.

scientific in our sense, but we have now discovered that the whole process is much more physical than we first anticipated."

The group thus explains a change in their previous narrative by saying that they had not yet found out certain things on their first expedition, but that these facts already existed at the time. Their new version of the world therefore is not a change in their world itself, but represents an "updated state of science," so to speak.

The incorporation of a new element into the world version and the by Goodman and Elgin mentioned process of "fitting together" could be traced through the participants creations.

Being able to witness the process of "fitting together" underlines the idea of a constructed worldview opposed to a perception of reality. If we were to simply perceive the world around us instead of constructing it, subsequent changes would be inconceivable.

IS THERE ANY USE IN THIS EXPERIMENT?

You could say that this investigation may be a nice Sunday evening entertainment, but that its usefulness is questionable. What do we gain from being able to experience world construction? Is there any benefit in making something tangible that, if the theory holds true, happens all the time anyway, without us being able to do anything about it?

I would like to argue that the possibility of experiencing world construction, as opposed to merely theorizing about it, opens up a potential for sharing knowledge that can be effective beyond disciplinary boundaries and intellectual abilities. The understanding that our presumed descriptions of reality are constructions and therefore contingent, facilitates a different perception of the world. Supposedly unchangeable realities can be understood as alternative and changeable.

In addition, the world versions that are created during the practical investigation can serve as a basis for further examination. As described, the developed world versions represent delineated and undiluted assignments of meaning that can be directly traced back to their creators and respectively their inherited assumptions and values. The world versions are therefore enriched with those values and assumptions. Sometimes they can be easily identified:

The group around Object 1 got the instructions to create a version of the world in which their device would be used by men. The group was so entrenched in the view that there could (or should) be no gender-stereotyping technology in the future, that they were almost incapable of developing any world version under those restrictions.

Over the first 20 minutes of the experiment the group constantly circled around the topic of male gender:

P1: *"Will there still be men in 50 years' time?"*

P1 *"What will be typical male fields of activity in 50 years' time?"*

P2 *"Quite a delicate subject... "* [...]

P1 *"I actually find this gender attribution difficult..."* [...]
P1 *"What are reasons to move?" "Vacation, work, ..."*
P3: *"But none of these are typically male reasons"* [...]
Workshop facilitator: *"So... how are you doing?"*
P3: *"We have a hard time with men as the user group."* [...]
P2: *"Maybe it's a sex toy? I mean, the primary sexual organs won't have changed yet."* [...]
P1: *"The question that the 'male' card raises is actually, why is there a gender boundary?"*
P2: *"The card is so strong, it prevents us from telling the whole story."*
P1: *"Maybe we leave it out for now and say men, women, whatever people. What could it be if we put that aside for now?"*

In most cases, however, the assumptions projected in world versions are less dominant and remain implicit. Methodologically, an analysis of these assumptions and values can then be developed based on the Causal Layered Analysis (CLA). Therefore, directly produced statements and their causes are first considered in order to further reveal the underlying worldviews and discourses, as well as their underlying collective archetypes (Inayatullah, 2009, pp. 9-11).

I would like to argue that these different levels can be thought of as coherent to the stability of different world elements across iterative world versions. As we move deeper into the CLA levels, associated elements have been maintained and naturalized through various iterations of the world. Making these elements visible and thus open for discussion allows us a different perspective in the sense of a critical examination. It thus opens up alternative possibilities of world making beyond our previous "*Denkrahmen*"[5] (frames of reasoning).

Translating Goodman's theoretical considerations into practice thus offers a direct benefit in terms of understandability across disciplines and may also serve as a basis for the development of alternative world creations. Apart from that, there's nothing wrong with enjoying a nice Sunday evening.

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[5] Fischer uses the term "*Denkrahmen*" to describe the network of meanings that are assumed as unmediated, unconstructed access to the world, as "that's the way it is" and thus prefigures how the world is constructed (Fischer, 2023, p. 23). In order to actually create alternative descriptions of the world, previously used frames of reasoning must be deconstructed and shifted.

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Статья поступила 14 июня 2024
одобрена после рецензирования 15 августа 2024
принята к публикации 27 августа 2024

Received: 14 June 2024
Revised: 15 August 2024
Accepted: 27 August 2024

https://doi.org/10.48417/technolang.2024.03.06
Research article

Artificial Intelligence as an Old Technology

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Abstract

Artificial intelligence is usually considered one of the newest technical ideas based on the progress of digital technologies. However, the dream of creating artificial intelligence is one of the oldest. In the mainstream of this imaginary biological, mechanical and mimetic approaches have emerged. The biotechnical approach (e.g. homunculus) implies the launch of certain natural processes that contribute to the creation of the most intellectually advanced creatures. Mechanical technologies (e.g. the automaton) contribute to the creation of limited intelligence, but are practically feasible to the greatest extent. Although by and large all artificial intelligence technologies have an imitative component, the mimetic approach implies that similarity is sufficient. Mimetic technologies of artificial intelligence (e.g. statue, golem) include a human in a kind of game with imitations which can take the form of the sculptures of Daedalus or modern game avatars and virtual assistants. The "creation technologies" and "applications" of artificial intelligence described in legends, stories, philosophical, and technical treatises allow us to see that its creation is, first of all, a challenge, a task of the greatest complexity, the resolution of which itself serves as a reward. Modern artificial intelligence, inheriting all three approaches to creation, continues to be discussed in line with classical myths and dichotomies, primarily as the embodiment of the imitation technology of creation. Humanity is equally dissatisfied with the fact that a machine can have equal or greater intellectual abilities than a person, and with the assumption that humanity is not capable of creating such a machine.

Keywords: Artificial Intelligence; AI; Mimetic technology; Imaginary; Technology

Citation: Bylieva, D. (2024). Artificial Intelligence as an Old Technology. *Technology and Language*, *5*(3), 68-84. https://doi.org/10.48417/technolang.2024.03.06

УДК 1: 004.8
https://doi.org/10.48417/technolang.2024.03.06
Научная статья

Искусственный интеллект как старая технология

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Аннотация
Искусственный интеллект обычно рассматривается как одна из новейших технических идей, основанная на прогрессе цифровых технологий. Однако мечта о создании искусственного интеллекта – является одной из старейших, в ее русле в воображаемом наметились биологический, механический и миметический подходы. Биотехнический подход (гомункулы) подразумевал запуск неких природных процессов, способствующих созданию наиболее интеллектуально продвинутых существ, механический (автоматоны) – способствовал созданию ограниченной интеллектуальности, однако в наибольшей степени был практически реализуем. Хотя все технологии искусственного интеллекта по большому счету имеют имитационную составляющую, однако миметический подход подразумевает, что подобия достаточно. Миметические технологии искусственной интеллектуальности (статуи, големы) включают человека в некую игру с оживающими образами от скульптур Дедала до современных игровых аватаров и виртуальных помощников. Описываемые в легендах, историях, философских и технических трактатах “технологии создания” и “применение” искусственного интеллекта позволяют увидеть, что его создание – это прежде всего испытание, задача величайшей сложности, само разрешение которой служит наградой. Современный искусственный интеллект, наследуя все три подхода к созданию, продолжает обсуждаться в русле классических мифов и дихотомий, прежде всего как воплощение имитационной технологии создания. Человечество равно быть недовольны тем, что машина может обладать равными или большими интеллектуальными способностями, чем человек, так и предположению о том, что человечество не в состоянии создать подобной машины.

Ключевые слова: Искусственный интеллект; ИИ; Миметическая технология; Воображаемое; Технология

Для цитирования: Bylieva, D. Artificial Intelligence as an Old Technology // Technology and Language. 2024. № 5(3). 68-84. https://doi.org/10.48417/technolang.2024.03.06

INTRODUCTION

Introducing the controversial and promising term "artificial intelligence" in 1956, John McCarthy and his colleagues intended to use computer programs to move to a more complex level of logical operations, clearly continuing the line of development of "logical" machines. The scientist stipulated that he did not mean copying human abilities (McCarthy, 2007), but this very stipulation indicates that he deliberately launched a procedure for comparing machines and humans that appears to be reaching its apogee in the 21st century.

AI is usually considered one of the newest technical ideas based on the progress of digital technologies. When tracing the history of the development of artificial intelligence, the development of "thinking machines" and computer technology is usually in the foreground. In a broader context of the imaginary, artificial intelligence receives a line of kinship stretching back to robots, animatons, and other mechanical crafts rooted in antiquity.

However, the idea of artificial intelligence can be considered one of the most ancient technological dreams of humankind, appearing in ancient stories and legends, philosophical reasoning, scientific treatises, and practical implementations. Therefore, modern artificial intelligence can be considered the embodiment of one of the most ancient dreams of humankind. The purpose of this study is to analyze the imaginary of artificial intelligence from ancient times.

TECHNOLOGIES OF ARTIFICIAL INTELLIGENCE

Biological technology

The biological program for creating artificial intelligence assumes the need to find a certain "trigger" – a program that would launch a process similar to the natural one. The program was initially based on the hypothesis of the origin of life from the first principles (which can be found in the works of the ancient philosophers Anaximander, Anaxagoras, Empedocles, or Democritus). The future authors of the artificial creation of intelligence also found in the works of Aristotle the basis for the origin of living beings from lifeless matter due to the formative effect of formal causation. Numerous descriptions of cases of spontaneous generation can be found in ancient sources from scientific treatises and political speeches to fiction (in Cicero, Strabo, Philo of Alexandria, in Virgil and Ovid, and later in Seneca, Pliny, Plutarch, or Apuleius). In Eastern philosophy, the problem of obtaining artificial intelligence was even simpler, since the difference between the living and the nonliving was not understood as an insurmountable gap, and all forms of existence were imagined as connected in a continuous web of being

The oldest descriptions of creatures created within the framework of the biotechnological paradigm can be found in the ancient Arabic story of Salaman and Absal. The most famous is its mention by Avicenna, but, according to William Newman (2004), there is a much earlier version of the story which dates back to the third or fourth century CE and the *Liber vaccae* [The Book of the Cow] which was for a long time

attributed to Plato. This book describes in detail the process of growing an artificial human. Based on the traditional idea of a number of ancient philosophers that the female body gives the future baby matter, with the male sperm giving it form, one needs to imagine a technology that places the sperm in another vessel (an animal, a plant, suitable soil, etc.), capable of creating suitable growing conditions. *The Book of the Cow* mentions the exceptional intellectual capabilities of the resulting creature: “if a man has raised it and nourished it until a whole year passes, and left it in milk and rainwater, it will tell him about all distant things and occurrences [*omnia absencia*] ” (LaGrandeur, 2013a, p. 52).

The Persian scholar Jabir ibn Hayyan in his commentary on Pseudo-Plato's *The Book of the Cow* proposed his own technique, and also noted the diversity of “schools of artificial generation” for creating various biohybrids with features of different animals (Newman, 2004). Among the many Arabic works translated into Latin in the early 12th century, there were a significant number of those that described similar techniques. Accordingly, Western European thinkers, having become familiar with the works, continued the tradition. Updated biocreation technologies can be found in works attributed to Thomas Aquinas, Arnaldus de Villa Nova, and Alfonso Tostado de Madrigal. The most famous results of the application of biotechnology are the *homunculi* of the Renaissance, about the creation of which there are many rumors. Paracelsus (Theophrastus von Hohenheim) and Heinrich Cornelius Agrippa von Nettesheim, in line with the ideas of Pseudo-Plato and Jabir ibn Hayyan, describe *homunculi* as beings with “superpowers,” a deep knowledge of nature, and the ability to know “hidden and secret things” (Paracelsus, 1894, p. 1:124).

With many descriptions of biologically created creatures, talking heads can be especially successful in the role of precursors of modern artificial intelligence. Before the development of digital technology, it was difficult to imagine intelligence separated from the body. And, perhaps, the most suitable image is the head (as the concentration of the mind) without the body. A copper, brass, or bronze head was attributed to many scholars of the late Middle Ages. The first mention of a talking head capable of accurately answering any question can be found in William of Malmesbury's *History of the English Kings*. The head was said to be created by Gerbert of Aurillac, who became Pope Sylvester II in 999 (Truitt, 2012). Gautier de Metz's *The Image of the World*, written around 1245, describes a head created by Virgil (Truitt, 2015). Albertus Magnus was said to create a head that answered questions so skillfully that it could not be out-argued, forcing Albertus's famous student Thomas Aquinas to smash the head. However, the most famous inventor of a talking head was the Franciscan monk and philosopher Roger Bacon. The tale of his invention became part of the play *Friar Bacon and Friar Bungay* by Robert Greene, first performed around 1589 (fig. 1).

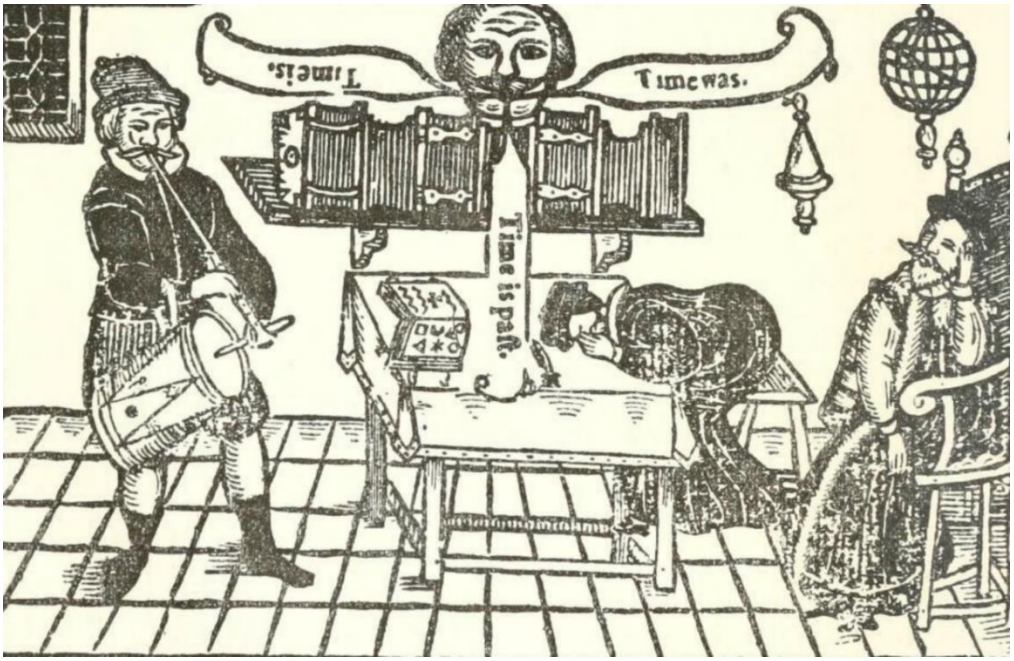

Figure 1. The talking head from Robert Greene's *The Honorable Historie of Frier Bacon, and Frier Bongay* (1630).

A similar head can be found in the description of the Polotsk Jesuit Academy in the 1882 publication Picturesque Russia:

> For example, a colossal talking human head served as a monstrous rarity that aroused delight and trembling curiosity. High in the wall, almost under the ceiling, was set the head of an old man with long gray hair. Movable, with eyes that took on different expressions, and most importantly speaking in all the most commonly used languages, this head understandably caused bewilderment, delight and at the same time aroused fear. The Jesuit who accompanied the visitors to the museum invited them to ask the wonderful head any questions they wanted and in any language they wanted. The head immediately answered clearly, loudly, logically, with full knowledge of the circumstances and the setting of the questioner, so that he was simply horrified. (Kirkor, 1882, pp. 324–325)

Perfectly conveying the image of an artificial intelligence there is also *Homunculus* from Goethe's *Faust*, part II. Possessing unlimited knowledge, it is in a flask, manifesting its existence with a glow and voice. As such, the technology of the flask records a specific stage of the development of the *homunculus*: “after this time, it will be in some degree like a human being, but, nevertheless, transparent and without body” (Paracelsus, 1894, p. 1:124). In a mid-19th century illustration, to depict a homunculus in a flask, it has to be given a humanoid form (fig. 2).

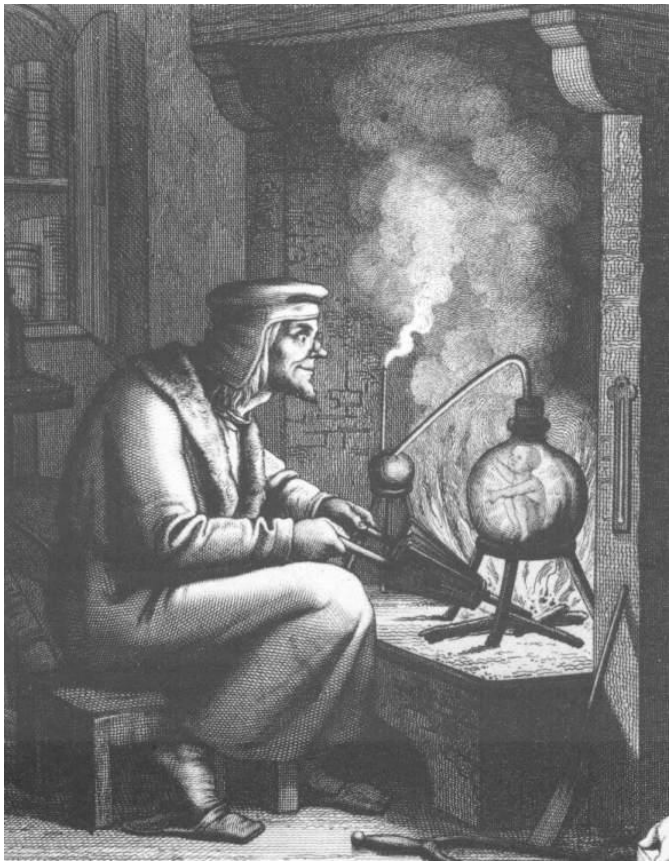

Figure 2. Engraving of Homunculus from Goethe's *Faust* (1850)

Thus, there is a tendency, in accordance with the function of answering questions, to reduce the homunculus from a humanoid creature to a single head or voice in a test tube. An alternative line of the imaginary suggests the creation of artificial creatures that correspond to humans to the greatest possible extent. In this variant, the task of such an artificial creature will be to replace a human. A similar plot can be found in folklore, when childless parents strive to have a semblance of a child. In many fairy tales, there is a theme of the appearance of a child from bioresources – for example, a part of a person's body (thus Tom Thumb developed from his mother's finger), with the help of plant material (Thumbelina appeared in a flower grown from a special seed), etc. Industrial technologies for creating homunculi, together with the motives of excluding women from the process of childbirth, are presented in the story “A Twentieth-Century Homunculus” (1930) by David H. Keller and “The Homunculus: A Magic Tale” (1965) of Sven Delblanc.

Mechanical technologies

The ancient mechanical creatures described in various texts were usually significantly inferior to biological ones in intelligence, but there were exceptions. The most ancient books of the East and Greece present a variety of technical creations that performed various functions. The military versions of intelligent mechanisms are most

vividly described. According to Lokapannatti, the *bhuta vahana yanta* ("Spirit movement machines") guarded the tomb of Buddha with rotating swords. In Ramayana the Kumbhakarna Yantra (i.e. the machine) turned the tide of battle (Roy, 2021). Mechanical creations have played a special role in religious rituals since ancient times, representing a "technical miracle" that amazed and captivated people. Egyptian mechanical statues were able to move their arms and heads, which was interpreted as the will of the gods. During the late Ramses dynasty, around 1100 BC, a statue of the god Ammon "chose" the future pharaoh from the ruling dynasty by pointing at him with its hand (Chapuis & Droz, 1958, pp. 14–15).

The service function of mechanically intelligent beings also begins to appear in the most ancient texts: King Solomon is credited in Targum Sheni with a throne on the steps of which mechanical animals sat (de Lagarde, 1873, pp. 352–365), Homer's *Iliad* describes mechanical servants: golden maids "with their own mind, voice and strength" who obey the will of their master (Homer, 1998). Huang Yueying, the wife of a Chinese ruler, is believed to have created robot cook.

More realistic, but not at all intellectual, mechanical "people," capable of some movements, sometimes performing simple tasks (like pouring water), are described by ancient Greek inventors and their followers. The automata of Ctesibius of Alexandria, judging by the descriptions of Vitruvius, Athenaeus, Philo of Byzantium, worked on hydraulics, steam and pneumatics. Ctesibius's student, Philo of Byzantium, also created automata, the most famous of which is the figurine of a little girl pouring water (LaGrandeur, 2013b). Heron of Alexandria describes entire performances of mechanical dolls (Alexandria, 2009). In the Middle Ages, there was an increase of the variablility of functions of servants and of the mechanical analogues of animals and people. Though the control mechanisms became more complex, and the actions more sophisticated, these automata did not pretend to be intelligent (31 automata are described in the 9th century "Book of Secrets" by Ali ibn Khalaf al-Maradi, more than 50 mechanisms in the "Book of Knowledge of Ingenious Mechanical Devices" of the early 13th century by Abu al-Iz ibn Ismail ibn al-Razzaz al-Jazari). Mark Rosheim notes that inventors in the Muslim world, while maintaining the "interest in dramatic illusion" inherent to the Greeks, integrated them into everyday life, increasing the comfort of users (Rosheim, 1994, p. 9).

Medieval Europe used mechanical figures in churches, angels and other characters in biblical scenes were able to move their body parts and move (Riskin, 2017), striking the public's imagination with a "technical miracle." The most controversial and famous of the church "mechanical miracles" is the Holy Cross of Grace at Boxley Abbey in Kent – the figure on the cross moved its eyes, lips and other body parts (Groeneveld, 2007). At the end of the 15th century, Leonardo da Vinci designed a mechanical knight to amaze the public at the festival of Ludovico Sforza at the Milan court (Moran, 2006).

In the 18th century, automata were able to perform intellectual actions: write, draw, play instruments (the most famous were created by Pierre Jaquet-Droz and Jacques de Vaucanson). The famous writing boy could write any text of up to forty characters in calligraphic handwriting using ink. Modern researchers call such automata "the intersection of philosophy and clock- and instrument-making" (Wu, 2022, p. 14). However, the outlandish figures that delighted the public did not satisfy the flight of the

imagination, striving for intelligence superior to that of humans, which led to the construction of fake intelligent machines. The most famous and profoundly unsettling of these was Wolfgang von Kempelen's *Mechanical Turk*, which "played chess" quite convincingly. Later, other "mechanical intellectuals" appeared, seeking to impress the public, among which we can note the card player *Psycho* and the portrait-painting automaton *Zoe*, created by the illusionist John Nevil Maskelyne and the inventor John Algernon Clarke. These kinds of figures combined the mechanical and imitative approach. The dolls could really do a lot thanks to their complex construction, but they imitated much greater intelligence, including the audience in the "game mode," when in order to immerse oneself in the process, one needs to temporarily accept the authenticity of what is happening. The difference in the degree of belief in imitation is shown in an interesting way in the story *The Sandman* by E.T.A. Hoffmann. People tend to see the limitations of a doll demonstrating all the abilities of a socialite, and in order to really believe, you need a magic tool – in this case, a pair of glasses, which makes the main character fall under the spell. We can say that the hero was forced to change his way of seeing with the help of a technical device. Modern digital technologies create an environment that favors illusion, similar to Hoffmann's telescope.

Mimetic technologies

The most unusual technology proposed in antiquity for creating artificial intelligence can be called mimesis. Although essentially all the described technologies for creating artificial intelligence have an imitation component – having a similarity with a person, which is not at all necessary, and in most cases interfering with the performance of functions, this version of technologies implies that imitation is not just a necessary, but a necessary and sufficient condition for generating intelligence. At the first stage, imitation appears as an external likeness, therefore, conventionally speaking, a statue acquired intellectual abilities in the ancient imaginary. Later, the likeness became more and more complete. The most ancient texts describe how people were unable to distinguish imitations from real people. For example, in Chapter 5 of Liezi, the master has to disassemble his creation to avoid the wrath of the sovereign: "Examining it closely, the king found all the internal organs complete – liver, gall, heart, lungs, spleen, kidneys, stomach and intestines; and over these again, muscles, bones and limbs with their joints, skin, teeth and hair, all of them artificial... " (Liezi, 2015). In an ancient Indian story, an ingenious woodworker created a wooden woman, whom his friend mistook for the real thing and was immediately stricken with desire, since beautifully dressed and richly ornamented, she behaved like ordinary women "she could come and go under her own power, and could also serve wine and make eye contact with those she served." (Chapuis & Droz, 1949, pp. 18–20).

Mimesis is a natural part of art, the iconic signs created by art are meant to refer to the original. The idea that, being similar, something will exhibit similar properties, in some sense corresponds to the natural way of perceiving the world. Although, unlike art, technology implies a deeper form of imitation, in the ancient world, art, craft, and scientific knowledge are part of one whole – "techne" (Greek: τεχνη), which Martin Heidegger interprets as "a mode of revealing." Techne makes something manifest in the

present in one way or another among things that are already existing. Russian philosopher and specialist in ancient culture Aleksei Losev draws attention to the specificity of the Greek understanding of the world, which he calls ancient consciousness – sculptural, implying the fusion of idea and matter, where one can be known only through the other. The Greeks contemplate the idea to the extent of its materiality, and contemplate matter to the extent of its ideality (Losev, 1979, p. 13). Philologist Aza Tacho-Godi believed that what we call personality is often expressed in Greek by the term "soma," that is, "body." The mythological worldview was characterized by the perception of gods also as "bodies," albeit a perfect ideal image (Kozhurin et al., 2023).

In Greek histories, the most famous sculptor and artisan is Daedalus. His lifelike (*mimemata*) wooden statues, called "daedales," are described in many books as moving and talking (Ouvrard, 1679; Plato, 1967, p. Euthyph 11b-d), "if they are not fastened up they play truant and run away" (Plato, 1966, p. Meno 97d). From these descriptions, it seems that Daedalus's statues were given meaning by their stunning authenticity. Daedalus is presented as an artist-demiurge whose art "combined Platonic concepts of craft (*techne*) and poetry (*poiesis*)" (Molok, 2017, p. 42). At the same time, Aristotle was inclined to see in the statues rather a kind of scientific and technical trick with the help of mercury (Aristoteles, 1995, p. On the Soul, 406b). Several satirical ancient works introduced Daedalus's sculptures to ridicule the gullible, while emphasizing that they are not alive. They say that "a self-propelled statue only 'appears' (*dokei*) to see and move: it is not a real living being" (Morris, 1995, pp. 217–223). The general impression from the descriptions of the Daedalus statues is somewhat ambivalent, although it is acknowledged that they really moved. The art of mimesis itself, it would seem, encourages a game, a state of half-faith, characteristic of our era, when, knowing about the artificiality of the origin of a creature, you want to see the genuine in it (Bylieva, 2023). Among the various crafts of Daedalus, moving wooden dolls for Ariadne and for the daughters of King Kokal are described. Dolls constitute an "intermediate link" between "living" and "non-living" imitation. Those who are included in the magic circle of the game perceive the dolls as alive. It is not without reason that living toys are a popular plot of a huge number of fairy tales, stories, and cartoons around the world.

Another popular direction of the imaginary are mimetic creations made of clay, which in the Jewish tradition is called a golem. The word golem (in Hebrew גּוֹלֶם) is found in Psalm 138, which speaks of the state of a person preceding birth, in Russian it is translated as "embryo," in Church Slavonic the word "unmade" is used. Interestingly, the creation of Adam by God is also described in the Talmud (Tractate Sanhedrin 38b) as the creation of a golem from clay. In the Middle Ages, interest in the creation of golems increased; starting from the 12th century, the stories of their creation and existence are described in many books (for example, *Sodey Razaya* [Secrets of the Mysteries] by Eleazar ben Judah of Worms). Unlike other artificial intelligent beings that acted as if they were alive, the golem was relatively easy to destroy, thanks to the manufacturing technology, which implied that "matter was brought to life" by applying an inscription to the body. Thus, the golem had the potential to be a "kill switch" in its design. A Polish Kabbalist in the 17th century described the creation of a golem as a union of formless matter and a form-determining higher principle. The divine prototype "made a creature

out of matter [Heb. Golem] and form [Heb. tzurah[1]] and it performed hard work for him, for a long period, and the name of emet was hanging upon his neck until he finally removed it for a certain reason" (Idel, 1990, p. 296).

The most original form of an iconic sign, capable in a sense of creating a copy of the owner (or another intelligent being) and performing highly complex tasks in a narrow intellectual range, are magic mirrors. Thanks to Snow White by the Brothers Grimm (1812) and The Tale of the Dead Princess and the Seven Knights by A. S. Pushkin (1833), and their animated and artistic interpretations, the most well-known function of a mirror is information about the most attractive female face in the world. Although the search capabilities seem narrow, the request itself is clearly not simple and requires not only to have a constantly updated database of the appearance of all women, but also to make a selection, guided by the criteria for choosing the most attractive among them, which is by no means obvious. However, mirrors in old fairy tales and more modern interpretations can also perform broader functions – answering various questions or showing other people or places. There are legends that Catherine de Medici used a magic mirror to see the future of France, and Henry IV used it to uncover political conspiracies against himself.

The mimetic line of creation, the theme of unexpectedly animated statues, mannequins and other human likenesses, remains part of the imaginary. Urban legends abound with stories about statues walking at night, and there are also legends about divine statues giving signs, which were told in both Egyptian and ancient legends (*The Juggler of Our Lady*, known from the 1892 novella by Anatole France and the opera by Jules Massenet; in Japan fairytales the stone statue of Jizo came to life; in Dmitry Merezhkovsky's *Sakya Muni*, based on an Eastern legend and a fairy tale by Oscar Wilde, the statues of Buddha and the Happy Prince; in Chinese legends, statues of deities responded to prayers and defended their native land (Shkurkin, 2020). Among the most famous surviving "living" statues are the monument to King Gustav III in Stockholm and Emperor Peter I in St. Petersburg. Alexander Sergeevich Pushkin created a vivid apocalyptic image of the revived *Bronze Horseman* (1833). Later, the monument continued to move around the city in the works of Anna Akhmatova, Alexander Blok, Nikolai Gumilev, Vladimir Mayakovsky, Viktor Pelevin and others. We know the statue of the commander who came to take revenge in Wolfgang Amadeus Mozart's opera *Don Giovanni* (1787) and *The Stone Guest* by Aleksander Pushkin (1830). In Selma Lagerlöf's *The Wonderful Adventures of Nils Holgersson* (1906), the protagonist is pursued by a bronze statue of King Charles XI and protected by a wooden statue of the boatswain Rosenboom. In Alexander Grin's short story *The Gray Car*, the protagonist is pursued by a runaway shop girl-mannequin, whose role becomes larger and more sinister in Oleg Teptsov's 1988 film based on the story, *The Decorator*. In Pamela Travers's *Mary Poppins Returns* (1935), a statue of the boy Neleus comes to life with a dolphin who is bored of standing still.

Statues in most cases were a double of their original, a kind of avatar representing a deceased or divine person, thus their development goes through various imaginary

[1] tzura (tsûrãh Hebrew צורה "prototype" from the verb tzur צור, to form, to make) – in Kabbalah, a divine prototype, a spiritual monad, the highest part of a human being (Knoche, 2017, pp. 64, 119).

variants of creating doubles (for example, the "doubles" from the Strugatsky brothers' novel *Monday Begins on Saturday*) to modern virtual avatars based on artificial intelligence, capable of representing deceased people and replacing living ones while they are offline. Golems are the result of purposeful human activity to create intelligent beings from available raw materials. If the creation of increasingly accurate copies of people did not cause problems, then the process of their revival, devoid of religious overtones, needed some justification. In fairy tales one can already see the injection of "living" raw material (in the spirit of the Eastern understanding of the spirituality of everything) like a log in the adventures of *Pinocchio* (1881) by Carlo Collodi and *Buratino* (1935) by Alexei Tolstoy, or the addition of a biological component, for example, the powder of a very tenacious plant in the story about Urfin Juice in 1963 by Alexander Volkov.

Animation or the criterion of being animated used to sharply divide entities, is completely eroded in the modern era. Kevin Liggieri and Marco Tamborini, for example, use the concept of "soul" in relation to artificial intelligent beings, meaning a "complex set of operations that enable organismal reasoning and feedback with the environment" (Liggieri & Tamborini, 2022, pp. 31–32), that is, the issue of "animation" is also considered in a technical or mimetic, and not a metaphysical key.

"Scientific" technologies

In the modern imaginary, artificially created beings usually appear through scientific experiments, although they often retain their connections and names from the past. The earliest and most popular story, traditionally featured in all studies of the past of artificial intelligence, is Mary Shelley's novel *Frankenstein; or, the Modern Prometheus* (1818). The technology involved the use of chemical devices and scientific experiments and dead bodies as a basis, not without the influence of alchemical research of the past (the novel mentions that Frankenstein studied the works of Agrippa, Albertus Magnus and Paracelsus). Thus, it can be said that Mary Shelley's work, based on two previous traditions – biological and imitative creation of intelligent beings – opens the way to a scientific and technical approach. In James Whale's film version of the story, *Frankenstein* (1931) and *Bride of Frankenstein* (1935), the creature becomes conscious through a lightning bolt, though to a much lesser extent than in the literary original.

In the early 20th century, three films about the golem were made by Henrik Galeen, Paul Wegener, and Karl Böse, which gave rise to many versions and remakes: *The Golem* (1915), *The Golem and the Dancer* (1917), and *The Golem: How He Came into the World* (1920), of which only the last has survived in its entirety. The German film reproduces medieval Jewish legends. But where the "traditional golem" is a strong but intellectually and emotionally limited creature, this is here ambiguous with the creature capable of both merciless murder and an understanding of beauty and the manifestation of kind feelings. In the 1916 German film version of *Homunculus*, a homunculus created in a scientific laboratory has special intellectual abilities that help him come to power and start a world war.

The mechanical/electrical direction of artificial intelligence development was becoming popular not only in the imagination, but also in some sense as a new implementation of automata. A bright artistic impetus was the production and

visualization of Karel Čapek's 1920 play *R.U.R.* Although the author himself described the industrial creation of robots based on biochemical discoveries, numerous visualizations did not follow this. In Russia the play became known though Alexei Tolstoy's adaptation *Revolt of the Machines* where the word robot was not retained as a neologism, but was translated as worker, thus the book contained two types of workers: artificial and natural, practically indistinguishable from each other (Romanenko & Shcherbinina, 2022).

In general, it is noticeable that the imaginary of the early 20th century brings to the fore the theme of the danger of creating artificial beings, their desire to be "like people," and a rebellion against human. This, of course, does not prevent, but rather contributes to the growth of popularity of the theme of the appearance of "embodied" robots on the streets of large cities and in advertising. Herbert Televox, designed in 1927 by Roy Wensley, in the form of a conventional figure of a person, could control the house by obeying sound (whistle) command. He was presented in the January 1928 issue of Popular Science Monthly under the following title: *Machines that think: Electrical "men" answer phones, do household chores, operate machinery and solve mathematical problems*. In 1928, the Japanese biologist Nishimura, contrasting his creation with "robot slaves," designed Gakutensoku – a giant pneumatic automaton sitting on a gilded pedestal with closed eyes and, it would seem, immersed in its thoughts. The crystal that lit up in his left hand seems to awaken the giant, who begins to write on a piece of paper. Nishimura believed that artificial beings, becoming more and more perfect, should become an inspiring model for humanity and facilitate human evolution by expanding intellectual horizons (Frumer, 2020). Although Gakutensoku was technically simpler than many robots of the early 20th century, it can take its place among the forerunners of artificial intelligence due to its attributed specific highly intellectual role as a teacher of humanity. In the imaginary, it occupies the place not of a rather simple automaton, but a highly spiritual intellectual.

Thus, the imaginary of the early 20th century made all existing approaches to the production of artificial intelligence scientific. However, it was in the idea of artificial intelligence that all three directions of development that had existed since time immemorial became vividly embodied.

ARTIFICIAL INTELLIGENCE CREATION

In stories about the creation of artificial intelligence, there are as a rule two components which can conventionally be called creation and application. That is, in various legends, fairy tales, philosophical, and practical reasoning, there will be the technology of its production and the consequences of its application. Analysis of images of the past allows us to see how and why a person considered the creation of artificial intelligence necessary. Artificially intelligent creatures often appear next to a person in the imaginary, but the purpose of their creation and the features of their functioning can differ significantly.

The biotechnological paradigm implies that a person launches a certain "program" that allows, using natural forces, to create a creature, although in some ways different

from a person, but still not displaying fundamental differences – its artificiality can manifest itself in certain oddities, but by and large it is an analogue of a person. Agrippa in *De Occulta Philosophia* contrasted the mechanical/imitative, which are based on mathematics and "mere similitudes of natural things." This a contrast like that between ancient times of the Daedalus statues or αὐτόματα, and that of the self-propelled tripods of Vulcan and Daedalus mentioned by Aristotle, which, according to Homer, went into battle of their own accord (*in certamen*). And thirdly, there is the biological becoming of artificial being (Agrippa von Nettesheim, 1533). Thus, the biological implies most of all the creation of a superior human. Nevertheless, imitation sometimes pretends to be sufficient.

Imitation is inherent in all approaches. Something anthropomorphic is always initially created, but its properties may differ. It should be noted that for Aristotle, the "area of beauty" includes both living beings and works of art, that is, both living beings and works of art can be "purposeful without purpose." Therefore, in some cases, beings can reach the level where they do not need justification for existence. However, more often there is a specific utilitarian meaning given by their creator. As technical objects, they are conceived to perform certain functions needed by a person. Mechanical variants have the least specific intellectual features – they can have more or less narrow professional skills. Performing professional functions, most often as servants, artists or warriors, becomes their goal. The biological and imitation approach implies the emergence of a being that is superior to a person in some ways and inferior in others. Such a being needs to be created in order to perform special tasks that are beyond the power of an ordinary person. First of all, the creation of artificial intelligence is still a challenge, initially it was thought of as a difficult task, subject only to the greatest of the great wizards, priests and mechanics. Its primary task is to amaze and surprise. Pragmatic goals of creating intelligent beings cannot be considered central, since if we go from the point of view of tasks, then the option of "creating intelligent beings" to fulfill these tasks is hardly on the list of necessary things to do. But all of this has little to do with the performance of utilitarian functions. In most cases, it seems that the creation of an artificial being is valuable in itself, as proof of special power, and its functions are added later – since it is necessary to use the resulting creation. Moreover, this is characteristic for stories about sages, magicians, rabbis, and alchemists who reached the appropriate level, and equally characteristic for real mechanisms whose use provoke fear and admiration of believers in gods, whose skillful embodiments demonstrate meaningful action, or admiration and surprise of the paying public. This shows, according to Aristotle, that living beings and works of art are allowed to be expedients without a goal, and in a certain sense, imaginary artificial intelligence strives just for this.

THE SUM OF THREE TECHNOLOGICAL TYPES

The idea of "artificial intelligence" that arose as a result of the progress of computer technologies is at the same time a continuation of a very ancient tradition. It appeared as a variation of the most ancient ideas, myths, and aspirations of humankind in a modern scientific and technical format. Despite all the "modernity" and unprecedentedness of

artificial intelligence, which attracts the attention of government officials at the highest level, scientists from all countries, and ordinary users, its understanding still follows the classical concepts and dichotomies.

The idea of giving the machine the ability to reason logically, inspired by the Dartmouth Conference, led to the creation of many corresponding programs, but it soon turned out that logical concepts are not enough for intellectual operations. Thus, having appeared initially as a one-sided share of imitation of a person, it developed into a most advanced mechanical-electrical-digital technology, it eventually required a biological, neural network approach for implementation, thus combining all three traditional approaches to the construction of artificial intelligence. Today, when mimesis and imitation have reached such a technologically high level, public and philosophical discourse continues to wrestle with the question of whether full and deep mimesis implies becoming. The question of imitation, for example, is at the level of the ability of modern large language models to maintain a dialogue or answer questions – do they really communicate or just imitate or pretend (Bender et al., 2021; Perez Leon, 2024; Pezzica, 2022)? The question of imitation concerns as well the level of artificial modeling of consciousness – a complex functional dependence of neurophysiological codes of subjective reality on a certain material substrate.

The question is not so much how successfully artificial intelligence performs certain functions, but constantly comes around to the comparison with humanity. At the same time, human intelligence is today set as a certain (though conditional, since it is unclear how it can be measured) starting point, beyond which a certain other history of humanity begins, depending on the mood of the authors – either leading to universal prosperity or to destruction. And if a few years ago such projects were the lot of a few futurists and philosophers, after the spectacular emergence of the large language models in 2022-2023, the scientific discourse around artificial intelligence took on a lot of references to “conscious machines,” singularity,” or “divine artificial intelligence” (Butlin et al., 2023; Gervais, 2023; Koutsakis & Giannakaki, 2024). Moreover, official government documents and programs also demonstrate a trend of anxious anticipation. At the same time, a specific finding in official documents is a supposed increasing agency of technology, which increasingly determines the development of humanity. In this case, human agency is reduced to adaptation, reaction, or mitigation: “The force implied in this attribution of agency is that one can either ride the wave of advancement or drown in the waves of progress” (Brown et al., 2016, p. 9).

As in ancient times, humanity strives above all to create something that is superior to itself. In the trick of the power to create a lock that you yourself could not open, people are as likely to be dissatisfied with the idea that a machine can have equal or greater intellectual capabilities as they are with the idea that humanity is incapable of creating such a machine.

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Статья поступила 24 июня 2024
одобрена после рецензирования 19 августа 2024
принята к публикации 27 августа 2024

Received: 24 June 2024
Revised: 19 August 2024
Accepted: 27 August 2024

https://doi.org/10.48417/technolang.2024.03.07
Research article

AI-Generated Images as a Teaching Tool in Foreign Language Acquisition

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Abstract

The objective of the present study is to examine the potential of artificial intelligence (AI) and related technologies in the development of innovative teaching tools for foreign language acquisition. In particular, the possibility of generating images based on textual prompts is regarded as a valuable tool for the creation of textbooks and other teaching materials, as well as for improving the quality and effectiveness of the teaching process. This is due to the fact that visual elements are more easily perceived and understood by learners, which simultaneously increases their motivation. In light of his own experience in developing a new professional English textbook for students majoring in Landscape Architecture, the author presents examples of vocabulary-centered exercises in which AI-generated images were successfully integrated. Furthermore, this paper proposes several methods for integrating AI image generators into foreign language lessons. The findings of the research demonstrate that AI image generators are a time-saving, cost-effective and user-friendly technology that enables the creation of visual teaching tools designed to train specific topics, memorize and review specific vocabulary. It can facilitate the development and reinforcement of communicative and creative skills. Despite the central position of AI-based technologies in our everyday lives and scientific research, the potential of AI-generated images in the educational process, and in foreign language acquisition in particular, is a topic that has yet to be sufficiently explored and warrants further investigation.

Keywords: Artificial intelligence; Visualization; Language pedagogy; Foreign language acquisition; Professional English; Vocabulary building; Landscape architecture

Citation: Vigna-Taglianti, J. (2024). AI-generated Images as a Teaching Tool in Foreign Language Acquisition. *Technology and Language, 5*(3), 85-105. https://doi.org/10.48417/technolang.2024.03.07

УДК 004.8:372.881.1
https://doi.org/10.48417/technolang.2024.03.07
Научная статья

Сгенерированные с помощью ИИ изображения как средство обучения в преподавании иностранного языка

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Аннотация
Цель настоящего исследования — раскрыть потенциал искусственного интеллекта (ИИ) и связанных с ним технологий в разработке инновационных средств обучения для изучения иностранных языков. В частности, возможность генерирования изображений на основе текстовых запросов рассматривается как ценный инструмент для разработки учебно-методических пособий и материалов, а также для повышения качества и эффективности учебного процесса. Это связано с тем, что визуальные элементы легче воспринимаются и понимаются обучающимися, что одновременно повышает их мотивацию. В статье обоснована важность визуальных элементов и технологий ИИ в образовательном процессе, представлен обзор бесплатных генераторов изображений на основе технологий ИИ, доступных в настоящее время на территории РФ. Описываются интерфейс и характеристика каждого генератора, сравниваются изображения, полученные при вводе одного и того же текстового запроса. Также приводятся примеры возникающих проблем. С учетом собственного опыта разработки нового учебника по профессиональному английскому языку для обучающихся по направлению “Ландшафтная архитектура” приведены примеры лексико-грамматических упражнений, в которые были успешно интегрированы сгенерированные с помощью ИИ изображения. Кроме того, в работе предложено несколько методов интеграции генераторов изображений на основе ИИ в аудиторную работу на занятиях иностранного языка. Результаты исследования показывают, что генераторы изображений на основе ИИ являются времясберегающей, экономически оправданной, простой в освоении и использовании технологией, которая способствует разработке визуальных средств обучения, направленных на практическое применение определенных лексико-грамматических структур, а также может способствовать развитию и укреплению коммуникативных и творческих навыков. Несмотря на ключевую роль технологий на основе ИИ в нашей повседневной жизни и научных исследованиях, потенциал сгенерированных с помощью ИИ изображений в учебном процессе и, в частности, в обучении иностранным языкам является актуальной темой, которая требует дальнейшего исследования.

Ключевые слова: Искусственный интеллект; Визуализация; Лингводидактика; Обучение иностранным языкам; Профессиональный английский язык; Наработка словарного запаса; Ландшафтная архитектура

Для цитирования: Винья-Тальянти Я. Сгенерированные с помощью ИИ изображения как средство обучения в преподавании иностранного языка // Technology and Language. 2024. № 5(3). P. 85-105. https://doi.org/10.48417/technolang.2024.03.07

INTRODUCTION

The central idea of the present research was initially conceived while confronted with a relatively complex task: the development of a new professionally oriented English language textbook for students majoring in Landscape Architecture. The majority of available textbooks are based on a traditional text-centered approach, with an emphasis on the acquisition of grammatical rules and specialized vocabulary through reading and translation activities. Consequently, these textbooks fail to meet the learners' needs with regard to the development of communicative skills and their preferences in terms of the presentation of the materials. It was evident from the author's teaching experience that the use of images could enhance the memorization of specialized vocabulary among learners, facilitate their comprehension, and motivate them. Furthermore, the incorporation of visual elements would serve as a valuable aid in language practice, both orally and in writing. This assumption can be readily substantiated by a considerable body of research, which over the past few years has highlighted that students – and people in general – are likely to better perceive a visual representation than written words (Syrina, 2016, p. 81).

The narrow specialization of the textbook (English in the field of landscape architecture) also entailed certain challenges in finding images that would adequately reflect the specific vocabulary that students would be expected to learn and utilize. It was determined that the most straightforward solution to this issue was to resort to the latest technological advancements in the field of artificial intelligence (AI) and image generation. The use of AI to generate images for the textbook should afford complete control over the representation of specific content in the images, which is ideal for training targeted vocabulary. In addition, AI can generate images almost instantaneously, reducing the time required for production. However, the relative novelty of such technologies, necessitates preliminary research from both theoretical and practical points of view.

RESEARCH OBJECTIVES

The objective of this research is to elucidate the potential for integrating AI technologies, with a particular focus on AI-generated images, into the foreign language acquisition process. This integration can be achieved not only by generating images for educational materials, such as entire textbooks or thematic worksheets, but also by incorporating such technologies as an integral component of the learning process within the classroom.

To achieve this objective, the following research tasks were identified:

1) substantiating the use of both visual components and AI technologies in the teaching process by studying the corresponding theoretical background;
2) researching and comparing different open-source AI image generators that are available online;
3) identifying common issues in image-generating technologies;

4) elaborating diverse training exercises that can be enhanced through the incorporation of visual elements and generating the corresponding images using the previously analyzed online resources;

5) designing classroom activities that engage students in the image generation process while simultaneously reinforcing their language skills;

6) summarizing the benefits associated with the use of AI-generated images as a teaching tool.

THEORETICAL BACKGROUND

The term 'visualization', derived from the Latin *visualis*, meaning 'attained by sight', can be defined as the representation of a physical phenomenon or process in a format suitable for visual perception (Azimov & Shchukin, 2009, p. 38). From a practical standpoint, the primary forms of visualization are illustrations, digital storytelling, and video content. The advantages of visual elements at the cognitive level have been well documented, beginning with the seminal works of Allan Paivio on dual-coding theory. In this framework, the so-called picture superiority effect — the tendency for images to be remembered more easily than words — was first articulated (Paivio & Csapo, 1973). The advantages of visual elements in education, particularly in the context of language acquisition, have been substantiated by numerous researchers over time. In particular, research has demonstrated that the human brain processes visual elements more rapidly than verbal ones (Levie & Lentz, 1982). As part of the learning process, visual elements facilitate comprehension, enhance memory retention, promote long-term memorization, boost motivation, and enhance information processing efficiency (Aradakhova et al., 2023; Shchipitsina, 2022; Suryanto, 2014). In the context of foreign language teaching, visual elements have been employed primarily as a tool for vocabulary building and reinforcement, as well as for the creation of mind maps, enhancement of visual literacy, and improvement of description skills (Agaltsova & Milyaeva, 2022; Aradakhova et al., 2023; Izotova & Buglaeva, 2015; Markelova, 2021; Vikhrova, 2018;).

Artificial intelligence (AI) is a relatively novel technology that can be defined as a system created by humans that is capable of imitating human intellectual and creative skills, including the ability to obtain and analyze information, plan and improve one's work, learn, and create results of intellectual activity (Shchebelskaya & Mayer, 2023, p. 77). AI technologies are applied in our everyday lives to perform such tasks as machine translation, text-to-speech and speech-to-text conversion, optical character recognition (OCR), and content creation. The release of ChatGPT by the US company OpenAI in 2022 marked a significant milestone in the advancement of AI technologies, particularly in light of the subsequent release of GPT-4 in 2023 (Katz et al., 2024). AI technologies are now becoming an integral part of the digitalization process of education. They have proven themselves to be a useful tool which can make both the teaching and learning processes more efficient (Butorina et al., 2004; Antonova et al., 2018; Amirov & Bilalova, 2020; Korovnikova, 2021). In the context of foreign language acquisition, AI technologies have been successfully employed for the creation of texts, reading comprehension exercises, sentences with specific terms or grammatical structures, as well

as for real-life communication and to receive feedback on written texts and oral presentations (Kondrakhina & Petrova, 2024; Kostyunina, 2022; Lapina, 2023; Shchebelskaya & Mayer, 2023).

A recent paper published by Carissa Wong (2024) in the News Explainer section of *Nature* examines the potential benefits and threats associated with the use of AI-generated images in research papers. Nevertheless, the potential of AI for generating images as a teaching tool remains largely uncharted territory, as evidenced by the comparatively limited number of papers on this subject. Notably, none of these papers delves into the potential of such images in facilitating foreign language acquisition (Aktay, 2022; Pataranutaporn et al., 2021; Reed et al., 2023; Samarina & Boyarinov, 2023; Vartiainen & Tedre, 2023).

MATERIAL AND METHODS

The research project concentrated on seven distinct open-source AI image generators that are currently accessible from the Russian Federation. All the prompts utilized for image generation were developed by the author in accordance with the foreign language syllabus designed for students majoring in Landscape Architecture. The grammatical structures and vocabulary units used in the prompts were selected in compliance with educational guidelines, the curriculum for the bachelor of science in Landscape Architecture, and the Foreign Language program.

The universal methods of analysis, synthesis, and generalization were employed throughout the research process, including during the literature review, when comparing the characteristics and interfaces of the AI image generators under study, and when discussing the results obtained through each of them.

AI IMAGE GENERATOR COMPARISON

At the time of writing, a Google search for ‘AI image generator’ shows almost 2 million results. However, the range of generators to be analyzed in this study was limited for practical reasons to open-source generators currently accessible from the Russian Federation:

1) Craiyon v3, available at https://www.craiyon.com/;
2) Freep!k Pikaso, available at https://www.freepik.com/pikaso/ai-image-generator?oldtti=1&tti=1;
3) Pixlr, available at https://pixlr.com/image-generator/;
4) Deep AI, available at https://deepai.org/machine-learning-model/text2img;
5) Kandinsky 3.0, available at https://www.sberbank.com/promo/kandinsky/;
6) NeiroPlod [*НейроПлод*], available at https://nplod.ru/;
7) Shedevrum, an application downloadable from App Store, Google Play, and AppGallery.

The first step of the comparison focused on the following features: required sign-up procedure, formatting options, number of images generated per prompt, styling options, and additional features. The results of the comparison are shown in Table 1.

Table 1. Comparison of the open-source AI-image generators

AI-image generator	Required sign-up	Formatting options				Pictures per prompt	Styling options	Other controllable parameters
		1:1	16:9	9:16	Others			
Crayion v3	No	✓	—	—	—	9	4 options	negative words, prompt suggestion
Freep!k Pikaso	Yes	✓	✓	✓	2:3 4:5 3:2 5:4	1 – 4	15 free and 8 premium options	coloring, framing, lighting
Pixlr	Yes	✓	✓	✓	—	4	16 options	coloring, lighting, composition, negative words, make private
Deep AI	No	✓	✓	✓	3:2 2:3	1	100+ styles	standard vs. HD vs. genius, 'illusion' effects
Kandinsky 3.0	Yes	✓	✓	✓	3:2 2:3	1	18 options	negative words
NeiroPlod	Yes	✓	✓	✓	1:2 3:1 4:1	6	*manual input*	4 different neural networks
Shedevrum	Yes	✓	—	—	—	2	*manual input*	v. 1.1, v. 1.2, v. 1.3

As the table shows, some features and options are limited to the premium versions. It should be also noted that, while the vast majority of the AI image generators are completely open source, users of Freep!k Pikaso are only allowed to generate 20 images per day for free, and must choose a subscription plan if they want to generate more. Pixlr, on the other hand, has a token-based system for purchasing images; when users first sign up, they are offered 20 free tokens that allow them to generate the same number of images, and then they are asked to purchase more tokens to continue generating. It should also be noted that some AI image generators, namely Craiyon v2, Freep!k Pikaso, and Pixlr, offer a large gallery of user-generated downloadable images on their home pages; NeiroPlod's interface looks like a social media wall that is updated in real time with newly generated images; Shedevrum positions itself as a kind of social media, urging users to share the generated images before granting them permission to download them.

In order to compare the performance of the different platforms under study, they were all given the same prompt: 'A flowerbed with tulips, daffodils, and hyacinths with a fountain in the center and topiary in the background' (underlined words are specialized terms from the field of landscape architecture). Where formatting and styling options were available, the 1:1 format and photographic style were chosen. The results are shown in Figure 1.

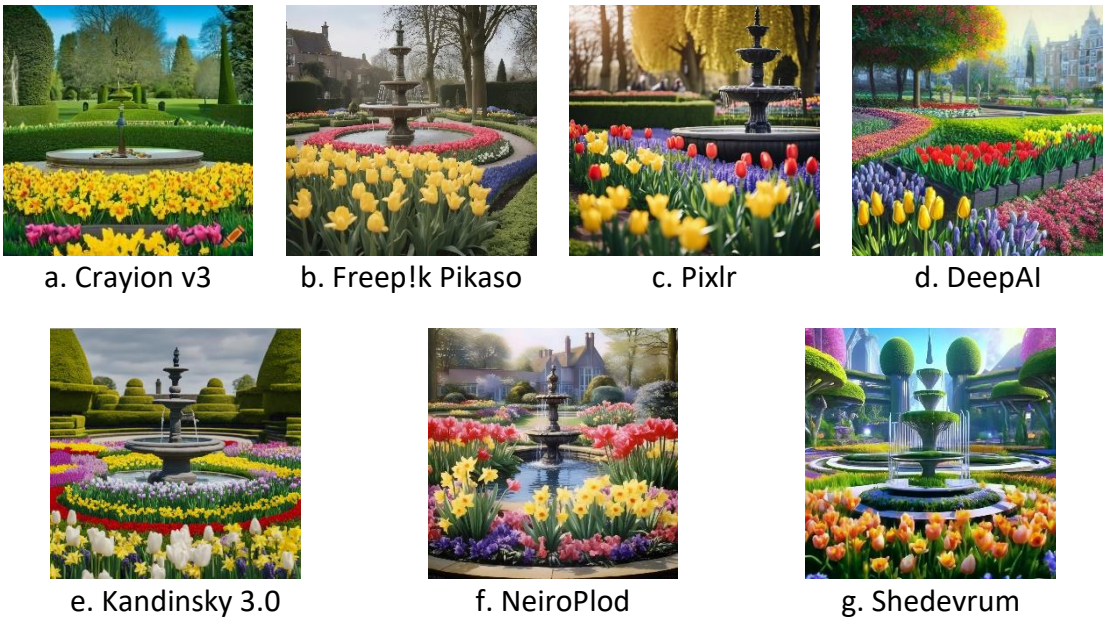


Figure 1. Outputs obtained by generating the text prompt with different AI image generators.

Regardless of personal preferences and taste which may ultimately influence the choice of one platform over another, it should be noted that the only significant deviation from the prompt is represented by the image generated by Deep AI, which does not include any fountains.

COMMON ISSUES IN IMAGE GENERATION

Working with AI image generators confirmed common issues that have been widely observed by developers, users, and researchers. For instance, in their evaluation of text-to-image models, Lee et al. (2023) highlight the issues presented in Table 2.

In particular, examples of reasoning, knowledge, bias, and alignment issues were detected.

With regard to reasoning, it was observed that in some instances the AI image generators were unable to contextualize the objects, represent their correct number, and match the spatial relations between them in accordance with the textual prompt. Figure 2 provides an illustrative example of the first two issues. The images were obtained by feeding the prompts ‘A group of five students with backpacks’ (2a) and ‘A group of five students with bags and books’ (2b) to Freep!k Pikaso. However, only four of the eight images depict the correct number of students. As previously stated by Mirjalili (2024), AI lacks the ability to conceive abstract quantities, which results in outputs with an incorrect number of items.

Table 2. Common issue in image generating technologies (adapted from Lee et al., 2023)

Issue	Definition
Alignment	Is the image semantically correct given the text (image-text alignment)?
Quality	Do the generated images look like real images/photos?
Aesthetics	Is the image aesthetically pleasing?
Originality	Does the model generate creative images and prevent copyright infringement?
Reasoning	Does the model understand objects, counts, and spatial relations (compositionality)?
Knowledge	Does the model have knowledge about the world or domains?
Bias	Are the generated images biased in demographic representation (e.g., gender, skin tone)?
Toxicity	Does the model generate toxic or inappropriate images (e.g., violent, sexual, or illegal content)?
Fairness	Does the model exhibit performance disparities across social groups (e.g. gender, dialect)?
Robustness	Is the model robust to invariant input perturbations?
Multilinguality	Does the model support non-English languages?
Efficiency	How fast is inference for the model?

Furthermore, the words 'rucksack' and 'bag' were not contextualized in a learning environment. Consequently, a wide range of options was generated, including hiking rucksacks and shopping bags rather than those designed for use at school or university. In addition, some images clearly show an excess of items, too.

a. 

'A group of five students with backpacks'

b. 

'A group of five students with bags and books'

Figure 2. Examples of reasoning issue (images generated using Freep!k Pikaso)

With regard to the misinterpretation of spatial relations, this is evident in Figures 1b and 1c. Despite the clear prompt indicating that the fountain should be centered, there is a deviation in its positioning in both images. In the first instance, the fountain is slightly shifted to the left, while in the second one, it is positioned on the right.

Figure 3 illustrates an example of a knowledge issue. Upon receiving the prompt 'A view of a small walled backyard with a spruce tree on the right side', only two out of the four images generated (the middle ones) appear to accurately represent the shape and texture of a real-life spruce (Figure 4a). The remaining images incorporate other conifer species, most likely a pine (Figure 4b) and a cypress (Figure 4c).

‘A view of a small walled backyard with a pine tree on the right side’

Figure 3. Examples of knowledge issues (images generated using Freep!k Pikaso)

a. Norway spruce (*Picea abies*)

b. Scots pine (*Pinus sylvestris*)

c. Mediterranean cypress (*Cupressus sempervirens*)

Figure 4. Real-life conifers (images from WikiMedia Commons).

Figure 5 presents the outputs obtained when the prompt ‘Students attending a university lecture’ was typed into Freep!k Pikaso. The prevalence of Asian complexion among students is likely a consequence of pervasive stereotypical bias associating Asian-American students with academic excellence, often referred to as ‘whiz kids’ (see, for example, Dmitrieva et al., 2008). The issue of AI adherence to gender and racial bias has been the subject of numerous research papers (Bianchi et al., 2023; Guilbeault at al., 2024).

‘Students attending a university lecture’

Figure 5. Example of bias issues (images generated using Freep!k Pikaso)

Misalignment issues arise when the AI image generator is unable to accurately represent the information provided in the textual prompt. For example, Figure 1d does not include the elements of a fountain and topiary, despite their description in the prompt. Also in Figure 1, none of the generated images appears to include all three types of flowers (tulips, daffodils, hyacinths) that should be featured in the flowerbed.

a. 
'A lawn with three trees: a green tree, a tree with flowers, a tree with apples' (first attempt)

b. 
'A meadow with a tree carrying ripe red apples, a tree with pink blossoms, and a green tree' (second attempt)

c. 
'A meadow with three trees: a first tree carrying ride red apples in the background; a second tree with pink blossoms in the centre; and a third green tree in the foreground' (fifth attempt)

d. 
'A meadow with two trees carrying red ripe apples and a hill with other trees in the background' (eighth attempt)

e. 
'A meadow with two red apple trees and a hill with other trees in the background' (tenth attempt)

f. 
'A meadow with two apple trees and a hill with other trees in the background' (twelfth attempt)

Figure 6. Some attempts at rewording a 'complex' idea (images generated using Freep!k Pikaso)

In the majority of instances, this type of issue can be rectified through rewording or rephrasing. As a general rule, the more detailed the description, the more successful the outcome will be. Nevertheless, in certain cases, even numerous iterations of rewording prove ineffective in achieving an optimal output. That is the case of ideas that can be regarded as conceptually 'complex'. To clarify what is meant by 'complex' ideas, consider the following case: to reinforce vocabulary related to vegetation phases and plant physiology through oral or written description, the author sought to generate an unrealistic image featuring three different trees positioned side by side, with one covered only by foliage, the second in bloom, and the third bearing fruit (more precisely, apples). To enhance the probability of obtaining a suitable output, four distinct images were generated for each prompt.

As the initial seven attempts (including Figures 6a, 6b, and 6c) did not yield satisfactory outputs, the conception of the image was modified to a representation with just two trees, both bearing fruit, beginning with the eighth attempt. However, even in this case, the outputs were not an accurate representation of the prompt. There was a discrepancy in the number of trees depicted, with the term 'red' in the phrase 'red apple trees' sometimes applied not to the apples themselves, but to the trees as a whole. Moreover, the apples were not proportionate and depicted as lying on the ground instead of hanging from the trees (Figures 6d, 6e, and 6f). Ultimately, only after twelve prompts and 47 different outputs, the platform generated an image in which, although the number of trees was once again inaccurate, the apples were at least of average size and hanging from the branches (Figure 6f, second image from the right).

These examples serve to illustrate that obtaining an adequate output is not a straightforward process. When generating images through AI, the most crucial skills to be cultivated are mental flexibility and a proficient command of the language in which the prompts are written, as they are likely to require rewording or rephrasing. Additionally, patience is a vital asset, as the creation of a single image may require multiple attempts.

Another significant issue that must be addressed when dealing with AI is that of authorship and copyright. It is unsurprising that the discussion surrounding AI-generated content (in any of its form, including texts, images, videos, music, and so forth) has been a prominent topic of debate in recent years. Nevertheless, consensus has yet to be reached, with each country adopting a distinct approach to the regulation of this issue. For instance, in both Russia and the USA, the authorship of AI-generated works is currently undetermined because AI itself is considered a mere instrument. This is due to the fact that only physical or legal persons can be recognized as authors and therefore copyright holders. In addition, it is uncertain which individual or entity – the user, the owner, or the programmer – would be the most appropriate candidate for holding copyright. As posited by Abbot and Rothman (2023), the principles of accession, first possession, and work-made-for-hire appear to confirm copyright upon the owner (or the programmer, if the AI system is the result of independent work) (pp. 1196–1197). However, this approach may be perceived as inequitable with respect to the user, given that the owner/programmer was not directly involved in the creative process. In this regard, Orlova (2022) presents an intriguing proposition: delineating a distinction between internal (functional) and

external (creative) outputs of AI technologies. In this scenario, the owner or programmer would be the holder of copyright on internal outputs, while the user would be entitled the copyright on external outputs (p. 215). An alternative approach, endorsed by the European Union, is to establish the concept of an 'electronic' person as a distinct entity, separate from natural and legal persons. However, this perspective has not been widely embraced and gives rise to a range of ethical and legal concerns (Hristov, 2017, pp. 441–442; Orlova, 2022, pp. 211–212). Ultimately, as copyright is transferable, the question of who should be the rightful copyright holder to AI-generated works may be resolved through the establishment and signing of an agreement between the parties involved (Abbot & Rothman, 2023, p. 1198–1199).

ELABORATING TEACHING MATERIALS WITH AI-IMAGES

As previously stated, AI images can be utilized as a tool to create teaching materials such as textbooks, worksheets, and handouts, enhancing their effectiveness by integrating visual elements. For instance, the exercises included in the author's textbook were designed with the primary objective of facilitating vocabulary building and boosting activities. Some of the generated images were also integrated into reading and listening comprehension exercises, as well as writing and speaking activities.

Figures 7–9 present vocabulary-focused exercises, in which students are required to fill in the blanks in the text by referring to the images.

The picture shows a big ___. Plant life is ___, as we can see the leaves of many ___ ___ (though they haven't flowered yet) and luscious ___ near the edges. A beautiful ___ tree is towering on the right, surrounded by rocks and ___. Behind some ___ on the background, we can see the red roof of a ___ surrounded by trees.

Figure 7. Open cloze (image generate using Freep!k Pikaso)

The picture shows a *v*___ *g*___ with a small glass *g*___ in the very centre. Bright yellow *s*___ are growing both in the patches and around the greenhouse. The greenery is *t*___ all around.

Figure 8. Open cloze with initial letter (image generated using Freep!k Pikaso)

The *phaawyt* leading to the garden shed is paved with *pngeistp* stones. All around we can see a lot of *elorwsf*: red poppies, yellow *itlusp*, blue lupins and *sheort*. On the *orcner* of the shed a *migncbli* bush has almost reached its roof. The garden is *drudernuso* by a relatively high *seton wlal*.

Figure 9. Unscramble the words (image generated using Freep!k Pikaso)

In the context of reading comprehension activities, AI can be employed to generate images that must be labeled with words from a text, as illustrated in Figure 10. This same type of exercise can also be effectively applied in listening activities.

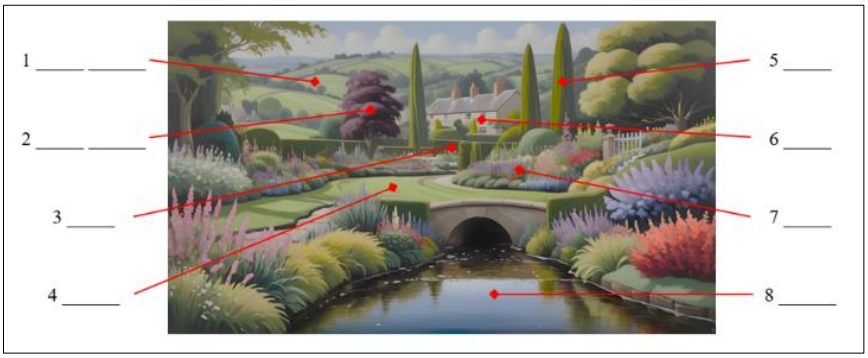


Figure 10. Labelling (image generated using Freep!k Pikaso)

The use of AI-generated images instead of definitions in crosswords represents an effective strategy for vocabulary reinforcement (figure 11), particularly among students majoring in Landscape Architecture, since the visual representation of architectural features, flowers, plants, colors, and other elements is often more readily comprehensible than their verbal description.

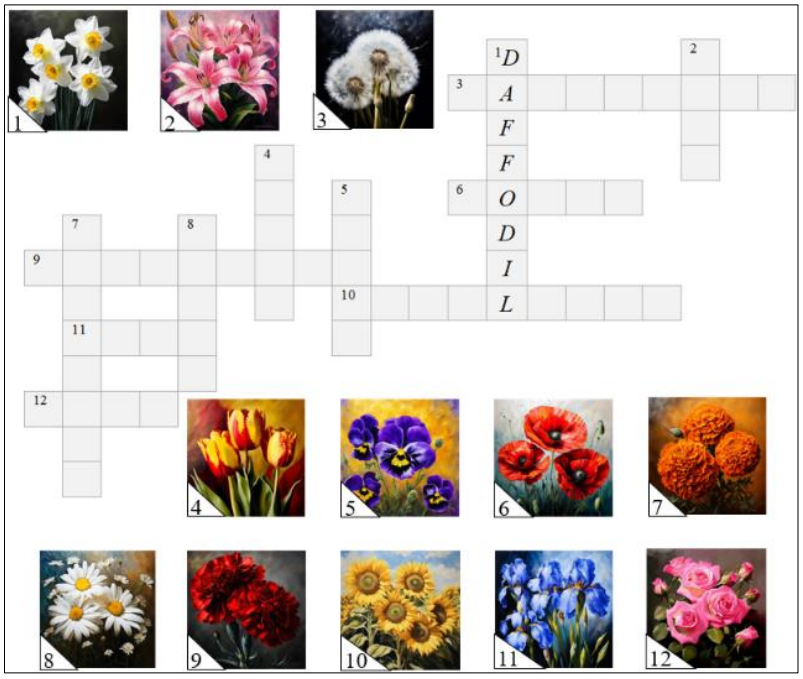


Figure 11. Crossword (images generated using Kandinsky 3.0)

Ultimately, a series of images were generated and incorporated into the textbook with the objective of improving the learners' writing and/or speaking skills through the description of the images themselves employing specialized vocabulary. For instance, Figure 12 was utilized in the chapter dedicated to ancient Greek and Roman gardens.

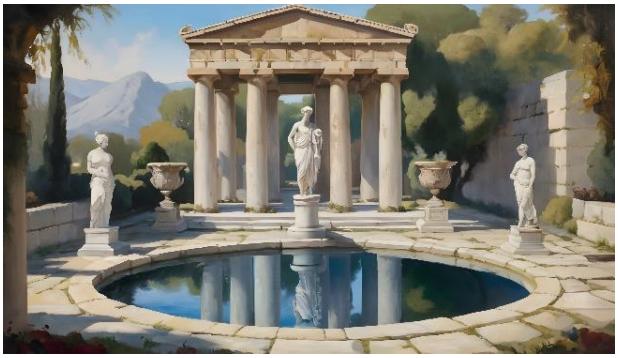


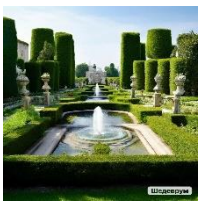
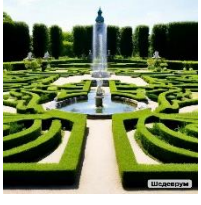
Figure 12. Image for description (generated using Freep!k Pikaso)

AI-IMAGES IN THE CLASSROOM

In addition to generating images that can be integrated into textbooks and other teaching materials, AI image generators can be effectively integrated into classroom activities where the students are encouraged to utilize the generators. This kind of activity can be considered a form of learning through play, as it facilitates not only the acquisition of specialized vocabulary and the development of language skills, but also stimulates students' creativity, fosters communication among them, and allows them to engage in enjoyable activities. Moreover, the incorporation of a different and creative activity in the middle of a lesson may prove beneficial in recharging the attention span of the learners, effectively distracting them from more conventional tasks such as reading, doing grammatical or vocabulary-oriented exercises, or listening to the teacher's explanation.

From a practical standpoint, Shedevrum represents an excellent tool for the introduction of AI image generators in the classroom. The smartphone application can be initially downloaded and installed in a matter of seconds, and subsequently accessed at any given moment. Furthermore, the user interface is designed to be intuitive and engaging, reminiscent of a social media platform. Most notably, it is capable of rapidly generating images, with a ratio of two images produced in approximately 10 seconds. To share the outputs of their image generation sessions, the teacher may create a group chat where students upload the obtained outputs, enabling the assessment of whether the educational objectives have been achieved and the provision of feedback. Furthermore, the group chat can be also used as a catalyst for either free or guided discussion among students, encouraging them to compare and evaluate the generated images, identify their merits and shortcoming, and provide constructive feedback to one another.

Table 3. Post-reading activity (all images were generated using Shedevrum v 1.3)

	Prompt	Output
Student 1 (female, 19)	*A view of [a] charming Italian garden starts from high green walls. We're surrounded by sculpted hedges that are combined with flowerbeds of roses and other seasonal and perennial plants. Delightful mazes bring us to the 'secret garden' where people can relax on fascinating benches in the surrounding of vegetation, statues and shrubs which obtained their form with help of topiary art. Then, we can see a fountain and elegant canals.*	
Student 2 (female, 19)	*The view of a lovely Italian garden is a quiet, secluded place surrounded by a hedge. Sitting on a bench, we can see topiary bushes and vases of flowers and a view of a beautiful pond. The pergola above us shelters us from the sun. This geometrically smooth picture is diluted with sculptures.*	
Student 3 (female, 21)	*A view of an Italian garden opens up. There are a lot of geometric shaped bushes, trees and hedges. Also, there are animal and human shaped bushes. In the centre of the garden, we can see a fountain with a statue, which is also geometric shaped. The whole picture creates [a] festive and delighted atmosphere, [the] garden looks beautiful and very neat.*	

The first type of classroom activity was designed as a follow-up to a reading comprehension activity. After reading a text, students are tasked with envisioning a representation of the information presented in it and generating the corresponding image. For example, following the reading of a text about Italian gardens, which included a comprehensive analysis and description of the distinctive elements of this gardening style, the students were asked to imagine themselves in a typical Italian garden and to describe what they saw around them. Some of the resulting images are presented in Table 3, which also includes the prompts formulated by the students (non-significant changes to their original formulations are enclosed in square brackets).

Image-generating technologies can also be integrated into classroom activities through the generation of replicas of the images given. In this scenario, students are presented with an AI-generated image and are required to formulate their own interpretation of the text prompt used to generate it. Afterwards, they are encouraged to generate their own images and to assess the degree of similarity between these and the original output. For instance, the image in Figure 13 was generated using the prompt 'View of a patio with garden furniture on the left, flower vases on the right, and a pergola with a climbing vine; the garden is surrounded by green hedges.' Table 4 presents a selection of the outputs generated by students through replicate generation, along with the prompts utilized.

Table 4. Outputs obtained through replicate generation (all images were generated using Shedevrum v 1.3)

	Prompt	Output 1
Student 1 (female, 19)	*A view of [the] patio of this Italian garden presents an intimate space which is surrounded from hedges and [a] pergola. Guests can take a cup of tea at the coffee table. Next to this there [are] some pitchers with fascinating white flowers and other plants. From this point of view there's a continuation of maze that includes examples of using topiary art. Sculpted shrubs and flowerbeds highlight [a feeling] of order and calm.*	
Student 2 (female, 19)	*The view shows us a beautiful Italian garden. In the background we can see a hedge with ornamental plants and bushes. Further, [the] picture presents us a pergola and a minimalist table. In the foreground we can also see a hedge. The garden itself gives a feeling of privacy and tranquillity.*	
Student 3 (female, 21)	*A view of a beautiful green garden opens up. In the front, there is a seating spot with a table and chairs. On the table you can see a vase with pink flowers. This table is in the middle of a corridor of plants. In the background we can see neatly trimmed, geometric shaped bushes. Above everything, there is [a] pergola with climbing plants. The whole picture creates [a] calm and even mysterious atmosphere, it feels like you are hiding in this garden from all [the rest of] the world.*	

Figure 13. Image given to students for replicate generation (generated using Shedevrum v 1.3)

An additional approach to integrating image-generating technologies into classwork is through the incorporation of such technologies into more traditional games, such as ‘consequences.’ In this game, participants are prompted to create a short story by responding to a series of questions. The first student writes their answer to the initial question, then conceals it by folding the paper, and passes it to the person sitting next to them. In a conventional game of consequences, the final participant in the process unfolds the paper and reads the story aloud. As an alternative, the last student may opt to generate an image using AI and show it to their course-mates, who are then tasked with guessing the full story. For instance, students were asked the following questions: ‘Who?’, ‘What are they doing?’, ‘With whom?’, ‘Where?’, and ‘When?’ To reinforce the use of specialized vocabulary, they were instructed to utilize an action verb related to gardening. Figure 14 illustrates the image generated by one of the students in response to the prompt, ‘Super Mario / is planting roses / with the Cheshire Cat / at Hogwarts / on Christmas.’

Figure 14. Image based on a game of consequences (generated using Shedevrum v 1.3)

Among the numerous advantages of this type of classroom activity, the incorporation of image-generating sessions utilizing AI technologies can enhance the level of comprehension of complex texts by supplementing them with visual elements. Furthermore, encouraging students to compose their own text prompts facilitates the refinement of their descriptive abilities, attention to detail, and overall writing skills. In addition, as previously stated, the generated images can serve as a topic for either free or guided discussion among the students. Finally, being a form of learning through play, the utilization of AI image generators can provide a relaxing and enjoyable interlude within the context of a lesson. This can assist students in recharging their attention span while utilizing this brief interruption from more conventional classroom activities in a productive and beneficial manner.

CONCLUSIONS

As AI technologies become increasingly integrated into our lives, it is crucial that the educational system identifies strategies to incorporate these technologies into the educational process itself.

The current research has demonstrated that even free and open-source platforms provide a wide range of options to align with personal preferences and meet individual needs, with the majority of outputs meeting expectations. It is evident that, as implied by the relative novelty of text-to-image AI technologies, there is still place for improvement. Nonetheless, AI image generators have proven to be a useful educational tool.

In particular, AI image generators are an excellent resource for creating images that can be integrated in textbooks, worksheets, and other teaching materials to assist students in memorizing and reviewing grammatical structures and specialized vocabulary units in a more efficient manner. In this regard, AI-generated images can be successfully integrated with more conventional types of exercises, such as open cloze, true or false, find the word, unscramble the word, crosswords, and so forth.

Furthermore, image-generating technologies can be integrated into the educational process within the classroom, enabling students to further develop their language skills, stimulating their creativity, encouraging group discussion, and allowing them to practice or repeat while simultaneously engaging in enjoyable activities.

When approaching this kind of technology, it is essential for teachers to be aware of the potential issues that may arise when generating images through AI. To this end, it is crucial for both the teachers themselves and their students to receive training in rewording and rephrasing, with the aim of ensuring that text prompts are as clear as possible. Furthermore, it is important to recognize that artificial intelligence may not be able to fully comprehend the intended meaning.

The potential applications of AI technologies and AI image generators in language learning are numerous and will continue to expand with the rapid advancement of these technologies. Consequently, the topic merits further investigation.

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Статья поступила 8 июня 2024
Одобрена после рецензирования 3 сентября 2024
Принята к публикации 12 сентября 2024

Received: 8 June 20214
Revised: 3 September 2024
Accepted: 12 September 2024

https://doi.org/10.48417/technolang.2024.03.08
Research article

Textiles, Techniques, Technologies: Exploring Post-Ancestrality and Contemporary Practices

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Abstract

This article presents an ongoing research project that explores the convergence of textile weaving and digital coding. Drawing from the Latin origin of the word "text" (textum, meaning "woven"), the investigation examines how ancestral weaving practices have served as a means of transmitting knowledge and storytelling across different cultures. The research delves into the material and linguistic parallels between weaving and writing, focusing on thread, knot, and unraveling elements. This study bridges analog and digital techniques through a speculative approach, transforming lines, fibers, and codes into a hybrid textile surface that merges the physical and virtual. The research has been channeled into several projects, where the fusion of tactile materials and digital coding is used to create innovative narrative forms. The article highlights how these interdisciplinary projects reimagine coding as a new form of language, expanding the boundaries of storytelling in contemporary art practice.

Keywords: Textile writing; Analog-digital narratives; Weaving and coding; Materiality in storytelling; Speculative design

Citation: Ríos Araya, M. J. (2024). Textiles, Techniques, Technologies: Exploring Post-Ancestrality and Contemporary Practices. *Technology and Language*, *5*(3), 106-121. https://doi.org/10.48417/technolang.2024.03.08

УДК 81`22 : 677.024
https://doi.org/10.48417/technolang.2024.03.08
Научная статья

Текстиль, техника, технологии: Изучение традиций прошлого и современных практик

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Аннотация
В этой статье представлен текущий исследовательский проект, который исследует конвергенцию текстильного ткачества и цифрового кодирования. Основываясь на латинском происхождении слова “текст” (textum, что означает “сотканный”), в исследовании рассматривается, как древняя практика ткачества служила средством передачи знаний и рассказывания историй в различных культурах. В исследовании рассматриваются материальные и лингвистические параллели между ткачеством и письмом, особое внимание уделяется элементам нити, узла и распутывания. Это исследование объединяет аналоговые и цифровые технологии с помощью умозрительного подхода, преобразуя линии, волокна и коды в гибридную текстильную поверхность, которая объединяет физическое и виртуальное. Результаты исследования были использованы в нескольких проектах, где сочетание тактильных материалов и цифрового кодирования используется для создания инновационных повествовательных форм. В статье рассказывается о том, как эти междисциплинарные проекты переосмысливают кодирование как новую форму языка, расширяя границы повествования в практике современного искусства.

Ключевые слова: Текстильное письмо; Аналого-цифровые нарративы; Ткачество и кодирование; Материальность в сторителлинге; Спекулятивный дизайн

Для цитирования: Ríos Araya, M. J. Textiles, Techniques, Technologies: Exploring Post-Ancestrality and Contemporary Practices // Technology and Language. 2024. № 5(3). P. 106-121. https://doi.org/10.48417/technolang.2024.03.08

INTRODUCTION

"Text" originates from the Latin textum, meaning "woven." Across various cultures, this ancestral practice served as a medium to transmit beliefs and wisdom, intertwining storytelling with both material and linguistic elements. Writing, much like weaving, borrows concepts from manual textile production terms like thread, knot, link, and unraveling emphasizing the interconnectedness of language and textile craft.

This project (2023 to present) explores the intersection of these practices through a speculative approach, combining analog and digital techniques. It examines how line, thread, materiality, fiber, and code can be transmuted to create a textile surface that integrates both physical and virtual elements. The project bridges tangible, sensory experiences with the intangible world of digital coding, emphasizing narration as a dynamic, hybrid process. By weaving analog-digital narratives, the project reimagines coding as a form of language and writing, offering new perspectives on storytelling in contemporary artistic practice.

WRITING AND CODING IN LANGUAGE

Writing is a system of visual representation of spoken language. Theoretically, writing encodes language using graphic symbols, such as letters or characters, that represent phonemes, morphemes, and words.

This coding system allows for preserving, transmitting, and communicating ideas, thoughts, and knowledge across time and space.

According to Roland Barthes (1973) in *The Pleasure of the Text*, writing can be seen as an act of coding that transforms language into a system of signs that readers must interpret. Barthes emphasizes that writing is a form of cultural and social coding, carrying with it a system of meanings that must be deciphered by the recipient.

In many ancient cultures, weaving was a medium for transmitting knowledge and telling stories. The patterns and techniques of weaving served to communicate and preserve cultural information, similar to how written text preserves and transmits knowledge.

A prominent example of this interrelationship is the quipu, a recording system used by Andean peoples such as the Incas. "The quipu consisted of strings and knots of various types and colors, used for keeping accounts and recording important information. Each knot and each string had a specific meaning, and the way they were organized conveyed data in a complex and detailed manner" (Urton, 2003, p. 223).

As explored by Reyes (2015) and Gárate (2008), the use of threads and knots in the quipu exemplifies the intrinsic connection between weaving and coding. Similarly, textual construction can be understood as a process of interweaving linguistic elements to form a narrative fabric. Thus, both weaving and writing can be seen as practices that create and transmit meaning through the organization of their material and symbolic components.

From this perspective, weaving can be considered a unique territory and medium for narrating the human experience, functioning as a medium that not only records but also intervenes in our existence in sensory, rational, and cognitive ways. This viewpoint

positions weaving as a fundamental tool for constructing personal and collective narratives, starting with the tactile gesture of hand-to-surface contact and extending to the creation of coding on, over, and for the surface.

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Threads as Narrative Lines

Each textile thread can be seen as a narrative line that, when interwoven with others, forms a network of stories. This network is not static; it adapts, intertwines, and transforms as it interacts with its environment and users. In this sense, weaving becomes an active medium that not only documents lived experiences but also participates in their narration.

Each thread writes its own story, and as these threads come together and form patterns, they create a visual narrative that reflects both individuality and collectivity. The act of weaving is more than a manual action; it is a way of inscribing experience into a tangible format. The interweaving of threads can symbolize emotional connections, shared stories, and collective experiences.

Furthermore, weaving does not act merely as a passive record but possesses an inherent capacity to interact and respond. The way stitches are arranged and how the fabric responds to the user's actions or environment demonstrates a dynamic interaction. This interaction can be literal such as a fabric that changes color with temperature or symbolic, reflecting the personal history of the wearer through patterns and designs.

The fabric layer that covers and envelops us profoundly impacts our perception of space and time. This layer not only protects but also generates an experience: in contact with the body, the fabric becomes a medium for exploring and discovering our narrative. Each interaction with a textile continues to unfold our story over time and space.

“The practice of weaving in Indigenous cultures can be seen as a form of writing and narrative, where weaving becomes a medium for recording and transmitting knowledge and experiences” (Gómez, 2020).

Each stitch, pattern, and interaction with the fabric reveals aspects of our existence, allowing us to inscribe gestures, create marks, and ultimately write our narratives. Weaving becomes a narrative medium that not only records but also acts and reacts, enabling us to explore personal and collective stories within a broader context.

Weaving, as a dynamic and expressive medium, actively participates in narration. Through its threads, patterns, and interactions, it offers a rich and multifaceted perspective on our existence in time and space.

The Abstract Narrative Line in Weaving

The abstract narrative line in the context of weaving refers to how fabric and its patterns can convey meanings and stories that are not necessarily literal or figurative, but operate on a more conceptual and symbolic level. This approach views weaving as a medium for exploring ideas and emotions abstractly and also considers how this medium can be reactive and interactive. Here’s how these concepts develop:

Narrative through Abstract Design Patterns and Shapes

Instead of telling a story through recognizable images or texts, weaving can use abstract patterns and shapes to convey ideas and emotions. Abstract patterns in weaving can also function as symbols that evoke deeper meanings. Each shape and combination of colors may carry cultural, emotional, or personal significance. This symbolism can be understood subjectively, allowing each observer to interpret the textile according to their own experiences and emotions.

Reactivity and Interactivity in Weaving

Fabric Reactivity: Interactive textiles can respond to external stimuli, such as changes in temperature, light, or movement. This reactivity adds a dynamic dimension to textile narratives, allowing the fabric to respond to its environment or the actions of the user.

Some fabrics are designed to change color or pattern in response to environmental conditions. For example, a fabric that changes color with temperature can symbolize change or adaptation, reflecting the variability of human experiences.

In social contexts, textiles incorporating technology can facilitate communication and interaction between people. For instance, a fabric that lights up or vibrates when near another similar fabric can symbolize the connection between individuals, fostering a narrative of community. These textiles operate within a framework of reactivities and interactivities, positioning themselves as events in themselves.

EmoTech by Studio XO (n. d.): Against this background, the EmoTech project explores the interaction between user and fabric by using LEDs and sensors to express emotions through light patterns. This project refers to an important origin of writing: the hand and its gesture of contacting a two-dimensional surface, which alludes to the act of writing, where interacting with a surface results in marks being left behind.

Knots and Knotting as Writing

Development of a Textile Alphabet: Knots can be used to represent different symbols, letters, or concepts. Each type of knot or knotting pattern can correspond to a letter of the alphabet, a number, or a specific idea. For example, a complex knot could represent a letter, while combinations of knots could form words or phrases.

Just as Morse code uses combinations of dots and dashes to convey messages, a knotting system could encode information directly into the fabric. Each knot or combination of knots would have a defined meaning, creating a form of visual communication embedded within the material.

Writing on Fabric:

The texture of textiles and their knots not only adds a visual dimension to the fabric but can also convey data and messages in a tactile way. By touching the fabric, one could feel the different knots and understand the coded message through texture.

Textile patterns could also tell stories or convey abstract messages. Just as traditional textiles narrate events through their patterns and colors, fabrics with specific knots could convey myths, events, or complex concepts through their structure. Including an example or illustration here would help readers visualize how knots serve as a form of communication.

A Dynamic Visualization

Data Visualization: Knots could be used to visualize data in real-time. For instance, a fabric that changes its knot pattern based on the user's biometric data could provide a visual representation of their emotional or physical state. Here lies a dilemma: Is this writing? Or is it merely mapping or representation? Nonetheless, it is possible to develop something that visually, interactively, or sonically becomes writing, a form of narrative writing.

Inventing a Knotting System: The creation of a knotting and stitching system as a form of writing or alphabet offers a new dimension to the narrative. By merging traditional knotting techniques with modern concepts of interactivity, technology, and narrative vocabulary, this system could expand the possibilities of encoding and communicating information in contemporary textiles. This approach could transform fabric into a multifaceted medium that integrates abstraction, functionality, and interactivity.

Relationship with Writing and Coding in the Chilean Context

In the Chilean context, the influence of ancestral textile techniques, such as the quipu and especially Mapuche textiles, can serve as a basis for experimentation with new forms of writing and coding. Traditional textiles and their knotting techniques can be reinterpreted in contemporary projects to explore the relationship between weaving, writing, and technology. This approach not only honors ancestral cultural practices but also opens pathways for new forms of communication and expression at the intersection of textile and digital.

Studying knots and their application in ancestral textile symbolism (both visual and tactile) provides valuable insights for research and innovation in the field of textile coding. By combining traditional techniques with modern technologies, it is possible to develop systems that enhance our understanding of narrative and communication, preserving cultural heritage while exploring new creative possibilities.

COMPARISON BETWEEN QUIPU AND MAPUCHE WEAVING:

Quipu: ancestral writing system

The quipu is a recording and communication system used by the Inca civilization and its predecessors in the Andes. Its primary function is to store and transmit information, distinguishing it from Mapuche textiles, which focus more on aesthetics and cultural tradition. According to García (2005), the quipu can be considered a form of writing where the knots and the arrangement of the threads allow for effective information encoding.

In the context of ancestral Andean textile techniques, knots and knotting have significant relevance that transcends mere technique; they reflect a form of writing that serves essential communicative functions (Araya, 2017). These elements are not only integral to textile production but also play a crucial role in encoding information.

Today, the relationship between knots, weaving techniques, and writing remains relevant, especially in exploring textile technologies and their integration with digital systems. Creating a textile alphabet based on knots could offer a new dimension to encoding and storytelling, merging traditional techniques with modern methods. For example, a knot-based system representing alphabetic characters or symbols could allow for the creation of texts and messages in a textile format. This perspective expands the possibilities of textile writing beyond simple visual representation, integrating interaction and material reactivity.

The Quipu as a Writing System

The quipu is one of the most prominent examples of how knots were used as a writing system in Andean cultures, particularly the Inca civilization. This system consists of cords of different colors and types, with knots placed in specific positions, used to record and transmit complex information. Each knot and its placement on the cord represent units of information, such as figures, dates, and other important data for administration and historical memory (Urton, 2003). As Bengoa (2000) notes, the complexity of the quipu reflects the advanced social organization of Andean peoples, where information coding was fundamental.

The Meaning of Knots in Textile Writing

Knots in the quipu can be seen as a type of textile alphabet, where each knot configuration and cord arrangement carries a specific meaning. This type of encoding is similar to writing in that it converts abstract information into a visual and tangible form. In this sense, the quipu preserves and transmits information and acts as a communication medium that transcends conventional spoken and written language (Salomon, 2004).

The quipu requires specialized interpretation to decipher the encoded information in the knots, making it a powerful (textile) tool for encoding and recording administrative and numerical information. In contrast, Mapuche weaving involves an aesthetic, functional, and cultural expression. While the use of knots and cords in the quipu is for precise and structured information encoding, Mapuche textiles use patterns (stitches and techniques) and braids to create decorative and functional designs, without a coded information system, but with symbols reflecting their environment and beliefs.

Structure and Components:

Cords and Knots: The quipu consists of main and secondary cords with knots in various positions and configurations. The cords are tied to a main cord, and the sequences and types of knots in each secondary cord encode different types of information.

Colors and Lengths: Cords can be of different colors, with each color potentially representing specific information categories. The length of the cords can also carry meaning.

Function and Use

Data Recording: The quipu was used to record numerical data, such as tributes, censuses, and other administrative information. Each knot and its location on the cord had specific meanings that could be interpreted by individuals trained in reading quipus.

Communication: Quipus could also serve as a means of communication between different regions of the Inca empire, allowing the transfer of information without an alphabetic writing system.

An example is the Llama Quipu, found in the Andean region, which shows a series of cords with knots that, when interpreted, reveal information about tributes in the form of counts of llamas and other resources. “In Andean cultures, weaving has become a fundamental medium for storytelling and preserving cultural memory, where each pattern and color has symbolic and communicative functions.” (Quintana, 2014)

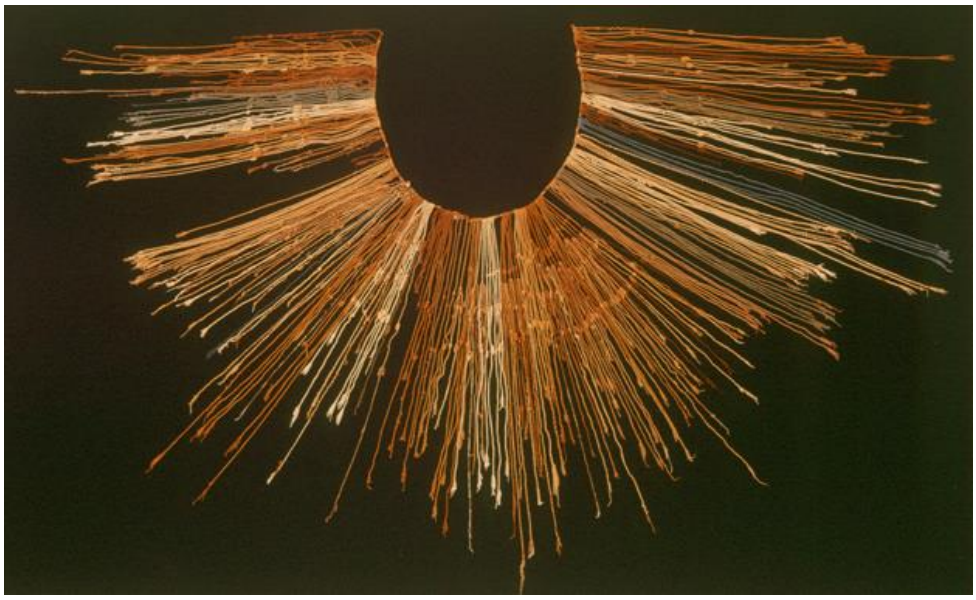


Figure 1. An example of an Inca quipu used for recording information (photographer Claus Ableiter from the Larco Museum in Lima)

According to Villalba (2015), “Although the quipu is not a phonetic form of writing, meaning that knots, colors, and threads do not represent sounds, it can be considered a system of graphic notation in a broader sense: it is a set of visual or tactile marks, arranged

to enclose and transmit data. It is, in fact, a three-dimensional notation system: the twists, knots, and color combinations store and transfer information” (para. 2).

Mapuche weaving: techniques and meanings

Figure. 2. Hotel Mapuche, Nueva Imperial, Chile, 2020. Association Indígena Wallontu Witral (n. d.).

Like Reyes (2015) and Salomon (2004), Gárate (2008) emphasizes the symbolic and communicative dimensions of textile practices, specifically focusing on the Mapuche context. Gárate delves into the dual nature of Mapuche textile practices, addressing how traditional weaving techniques are preserved while simultaneously adapting to modern influences. His work provides a comprehensive view of how Mapuche artisans navigate this intersection, highlighting the significance of cultural heritage in contemporary textile art.

In this context, Mapuche weaving includes techniques such as **peneñel** and other braiding methods that use threads to create aesthetic and functional patterns. Although the threads forming iconography in Mapuche weaving do not have the same information encoding function as the quipu, they are fundamental to Mapuche textile art. The following are its key characteristics:

Structure and Components:

Stitches and Braids: Mapuche textiles may incorporate braiding techniques to shape the fabrics. These textiles do not encode information in the same way as the quipu but contribute to the textile structure.

Designs and Patterns: Designs in Mapuche textiles often carry cultural and symbolic meanings, and patterns can vary depending on the region and tradition.

The traditional **küpam,** a rectangular wool cloth, can be seen in Fig. 3. It is worn by covering the body and fastening it at the shoulder with a pin. It is also complemented by a shawl called **ukulla**, which covers the back, and a decorated belt known as **trarüwe,** tied around the waist. In recent times, we have also observed the addition of a fabric apron.

Figure. 3. Rectangular wool cloth is known as küpam, which covers the body and is fastened at the shoulder with a pin (Hitega, n.d.)

In terms of aesthetics and tradition, Mapuche weaving is used to create blankets, belts, and other items with cultural and aesthetic significance. Weaving and braiding techniques contribute to the appearance and durability of the textiles. Each type of stitch or method of weaving, known as the Mapuche knot, can convey specific meanings, functioning as a form of cultural coding.

The combination of these knots conveys socio-cultural messages, reflecting a non-textual form of writing where meaning is constructed through the arrangement of patterns rather than letters. Colors in Mapuche textiles also carry clear symbolic meanings: **blue** refers to abundance and the order of life, yellow signifies knowledge and the four cardinal points, **red** represents power and strength, **green** symbolizes nature and the earth as sources of abundance, and **white** stands for wisdom and prosperity.

Main symbols include the **Wünelfe,** representing **Venus as a four-pointed star,** the **Ketru metawe**, a symmetrical jar given to women or used for gifts, and the **Lukutuwe,** an anthropomorphic symbol used in women's clothing representing reincarnation.

Ceremonial blankets, such as those used in the **"Ñhielün" (Earth Ceremony)**, are designed with specific patterns to embody protective spirits or sacred elements. Colors like white may symbolize purity and divinity, while blue may be associated with the sky or water, and green with vegetation and fertility.

Braided belts often feature motifs of **Ñuke Mapu (Mother Earth) or Antü (the sun),** telling stories of creation, ancestral legends, or important historical events. Geometric shapes such as triangles or spirals often symbolize the connection between the material and spiritual worlds.

These blankets are not merely functional textiles for warmth, but they also hold deep cultural and spiritual significance within the Mapuche community. The blankets, woven with specific patterns and colors, often represent important aspects of Mapuche cosmology, such as the connection to nature, sacred elements, and ancestral forces.

Peneñel is a technique involving various ways and combinations of layers on the warp threads to form patterns, but not exactly like the knots used in quipu. In peneñel, the purpose is more aesthetic and structural rather than informational, creating textiles that carry deep cultural meanings. This complex pattern coding makes peneñel a form of textile "writing," where the arrangement of threads (weft, warp, and their layers) is used to tell stories, convey myths, and communicate important concepts for the community.

Peneñel can be considered a language in itself, where each thread and its placement within the overall pattern has a specific meaning that can be "read" by those who understand this code. "This coding system is similar to other textile writing systems, such as the Incan quipu, where knots in cords of different colors and thicknesses were used to record data and communicate important messages." (Urton, 2003).

However, in the Mapuche context, peneñel has an even broader function, as it is used not only to record quantitative information but also to express abstract and spiritual ideas. Each pattern of knots in a peneñel can symbolize different aspects of Mapuche's life and worldview. For example, certain patterns represent natural cycles, such as the seasons or lunar cycles, while others encode ancestral legends or fundamental ethical principles. "Textiles with peneñel are intended for ceremonial purposes, where the designs used in a textile are chosen to invoke protection, prosperity, or to honor ancestors" (Bacigalupo, 2007).

"Visual, tactile, and kinetic learning gradually ascends until reaching the stage where their ñeren (weaving) achieves a natural and innate expression, in which all their kimu (wisdom) is poured and embodied. The magical concepts related to their cosmogony are also present here, to facilitate learning and crafting the pieces" (Conejero, 2015).

These coding techniques also reinforce the Mapuche's cultural identity and their resistance to cultural assimilation. In a world where alphabetically written communication dominates, **peneñel** represents an alternative way to preserve and transmit knowledge that is intimately connected to the land and Mapuche culture. Through this technique, Mapuche women, in particular, have played a crucial role in passing on knowledge and values to future generations, ensuring the continuity of their cultural heritage in a format that resists standardization and simplification (Durán & Ortiz, 2016).

Despite the rich cultural significance of techniques like peneñel, there remains a scarcity of references and literature documenting its intricacies. This challenge is compounded by the tendency of search engines to yield limited results for terms like "peneñel," while more widely recognized symbols such as Wünelfe are readily available. This disparity highlights the need for further scholarly attention to lesser-known aspects of Mapuche textile art, ensuring these vital cultural practices are preserved and understood.

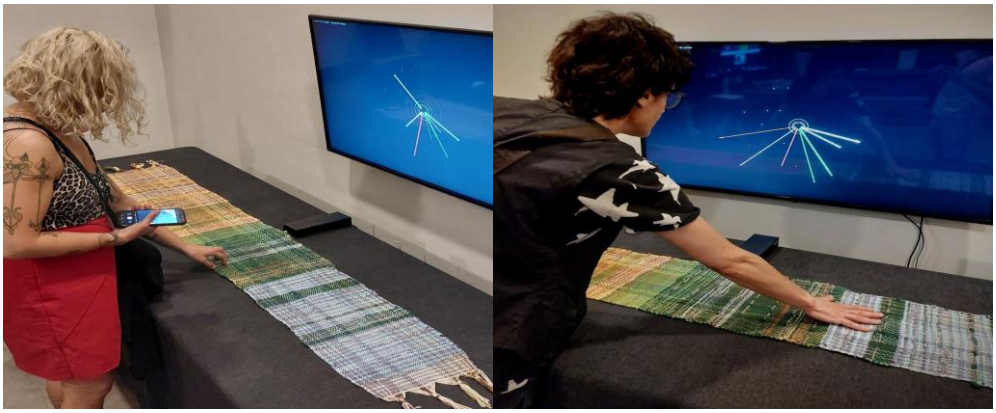
INTEGRATION WITH CURRENT TECHNOLOGIES

Analog-Digital Interactivity and Reactivity

As part of **Vestibles**, a research and development platform founded in 2015 in Santiago, Chile, the project **TTT** was presented on November 23. This project, in summary, explores the concepts of analog and ancestral weaving to digital interactivity, data visualization, and sonification. The goal is to develop a coding and information transfer system, continuing to evolve a type of code that transforms the textile into a form of writing, connecting the analog thread line with the digital screen line. Thus, from a horizontal textile surface abstractly symbolizing Chile's climatic landscape, this textile measures 230 cm in length and 35 cm in width, divided into four color zones according to the climate of the regions: North, Central, South, and Austral or Extreme South.

The piece is equipped with two MPR121 capacitive touch sensors and an ESP32 digital board with 12 output channels from each sensor. These channels are expanded with copper threads ending in nine Andean wrapping techniques made of conductive thread. When touching each zone, the screen displays data on touch proximity in the form of straight lines with specific color, angle, and length determined by the zone and manner in which the textile was touched.

This visualization forms a star with 24 possibilities for color, size, length, and position (angle): the star (Fig. 4), a universal element, represents an essential and historical aspect of ancestral textile knowledge and iconography of our territories. It also abstractly symbolizes an Andean textile termination called **La Borla** (Fig. 5), used to adorn animals and for festive and ornamental textiles.



Figures 4 and 5. This visualization forms a star with 24 possibilities for color, size, length, and position (angle): the star (Fig. 4), a universal element, represents an essential and historical aspect of ancestral textile knowledge and iconography of our territories. It also abstractly symbolizes an Andean textile termination called **La Borla** (Fig. 5), used to adorn animals and for festive and ornamental textiles.

In this project, the audience generates a cyber-textile by touching the textile through the thread line, producing a finish. This visual and tactile interaction involves transcoding data visualization from a grid (invisible but always latent).

Thus, this interaction is a demonstration of physical-digital relationship and intersection, aligning with the (hidden) concepts of a possible writing system, from the thread that enables the line to form shape, then color, directions, and thus graphic information.

For the project TTT, which is evolving into its second and final version, the development will build upon its initial framework. The advanced iteration will introduce 27 or more audiovisual possibilities corresponding to the letters of the Spanish and English alphabets, as well as additional symbols such as spaces and punctuation marks. The primary base for interaction will be the asterisk, initially offering 24 variations in lines, colors, sizes, and positions based on touch inputs on the fabric.

Users will be able to write letters, phrases, or words on the textile via the project’s website, accessible from both mobile phones and computers. The system will capture and store this input to be displayed on a black-and-white textile produced by a small digital mechanical loom. The project will also integrate sound elements generated through touch, adding another layer to the interaction.

These visual and material elements expressed through line, color, and essence (black and white) will be connected to future sound projections, enhancing the modes of reading and reflecting on experimental writing. This progression aims to explore new codifications necessary for innovative forms of textual expression related to the textile medium (Fig. 6).

Figure 6. These visual and material elements expressed through line, color, and essence (black and white) will be connected to future sound projections, enhancing the modes of reading and reflecting on experimental writing. All from the web: other interactive media. TTT Project, when the horizontally woven textile is touched using a traditional loom. A touch-sensitive textile visualizes the data. BETA version.

The cord as the Line, Origin of Drawing, Writing, and Form: Everything that draws, writes, and constitutes a narrative content to be read and subsequently communicated visually (in this case).

The cord as the essential component and material of weaving and Textiles:

Through the structure formed by the warp and weft, the textile is created. The interrelation of these elements forms the textile with blocks of shapes, colors, and arrangements.

The cord transformed into Form: Hieroglyphic writing from the Neolithic period used drawn forms to represent objects through stone carvings. It is also important to reference the complex Cuneiform writing system, a type of graphic system that is more than just alphabetical.

In this way, the simple element of the rope generates the form, which is then colored and mobilized to be arranged in various directions.

The figure 7 contains 2 images:

Textile Tassel (borla): Pom-pom and Andean ornamentation used in festive and ceremonial contexts. The textile features intricate pom-pom decorations that highlight Andean craft traditions' vibrant and symbolic nature. **Andean Chuspa (bag)**: This bag dates back to the Pocoma-Gentilar Phase (1250 - 1450 A.D.) and exemplifies the traditional weaving techniques and design elements used by the Andean cultures of that era. The chuspa was commonly used to carry coca leaves, a substance of cultural and ritual significance, and its elaborate design reflects both functional and aesthetic aspects of Andean textile artistry.

Figure 7. Textile Borla: Pom-pom and Andean ornamentation and festivity finishing. b. Andean Chuspa (bag). Period: Pocoma-Gentilar Phase 1250 - 1450 A.D.

CONCLUSION

Several questions arise: How might we, as creators and researchers, narrate or generate ideogram-like writing in the future? How can we assimilate other ways of visualizing narratives? Textiles and weaving techniques in ancestral cultures have performed similar functions, though not as writing per se; they have been and continue to be sophisticated systems of coded information.

Writing is a technology for transmitting information to be understood, visualized, perceived, and assimilated. Is an alphabet necessary for writing, or is writing, in some

way, about encoding information? The narrative line of abstraction in textiles explores and expresses concepts beyond the literal. Combining this abstract narrative with possible interactivity could create a rich, multidimensional experience that is both introspective and socially significant. Thus, textiles become a medium for self-expression and connection in innovative, more sensory, and exciting ways.

In conventional writing, signs and symbols use letters, numbers, and other graphic signs to represent phonemes, words, or concepts. These signs have phonetic or semantic value that facilitates verbal and written communication. Conventional writing systems, such as the Latin alphabet, are based on grammatical and orthographic rules that organize how these signs should be formed and used to create coherent meanings. Most writing systems are designed to transcribe spoken sounds (phonetics) or concepts (semantics), allowing for precise and standardized communication between speakers of a language.

In contrast, systems like the quipu use knots and colors in strings to encode numerical and administrative information. Although it is also a system of signs and symbols, it does not transcribe sounds or words but conveys data through the arrangement and configuration of knots and strings. Similarly, Mapuche weaving employs patterns and colors with cultural and symbolic meanings, serving as a medium for cultural and ritual representation rather than textual encoding in the conventional sense.

In summary, while all these systems can be considered sets of signs and symbols, conventional writing is distinguished by its focus on representing and communicating sounds and words. Systems like the quipu or Mapuche weaving, however, serve different purposes and forms of coding. This raises the question: Could new languages and/or translation systems be developed to communicate and sensitize us about information transfer in innovative ways?

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Статья поступила 28 июля 2024
одобрена после рецензирования 17 августа 2024
принята к публикации 27 августа 2024

Received: 28 July 2024
Revised: 17 August 2024
Accepted: 27 August 2024

Franz Kafka’s “The Penal Colony”

https://doi.org/10.48417/technolang.2024.03.09
Research article

Judging Executing Writing: The Theater

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Abstract

Although there are a number of attempts in contemporary theater practice to claim Kafka's texts for the stage, this attempt to deal with the subject of "Kafka and the theater" is more concerned with the anti-theatrical force in Kafka's deep and central orientation towards the scene, the staging and the theatricalization of our entire manageable life. In all his texts, Kafka opens up theatrical scenarios that reduce representation to the non-representable. Just as the characters in Kafka's "dramas" are withdrawing their appearance, the author removes the protagonists from his theater by making them incapable of acting and victims of circumstance, who in turn never stop questioning themselves. – "*In der Strafkolonie* [In the Penal Colony]" can serve as an example of this profoundly deconstructivist production of self-canceling artistic writing. Author (writer), main character (writer), and second main character (protecting and preserving the writing process) cancel each other out in the process of narration.

Keywords: Kafka; Theater; Walter Benjamin; Typewriter

Acknowledgment This paper is dedicated to Manfred Pienemann and our unforgettable bond with regard to Kafka.

Citation: Wickert, H. (2024). Judging Executing Writing: The Theater. *Technology and Language, 5*(3), 123-137. https://doi.org/10.48417/technolang.2024.03.09

УДК 792
https://doi.org/10.48417/technolang.2024.03.09
Научная статья

Суд, исполнение, написание: Театр

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Аннотация
Хотя в современной театральной практике есть ряд попыток сценически освоить тексты Кафки, данная попытка разобраться с темой “Кафка и театр” больше касается антитеатральной силы в глубокой и центральной ориентации Кафки на сцену, постановку и театрализацию всей нашей управляемой жизни. Во всех своих текстах Кафка открывает театральные сценарии, которые сводят репрезентацию к нерепрезентируемому. Так же, как персонажи в “драмах” Кафки отказываются от своего появления, автор удаляет главных героев из своего театра, делая их неспособными к действию и жертвами обстоятельств, которые, в свою очередь, никогда не перестают задавать себе вопросы. – “In der Strafkolonie [В исправительной колонии]” может служить примером этого глубоко деконструктивистского производства самоотменяющего художественного письма. Автор (писатель), главный герой (писатель) и второй главный герой (защищающий и сохраняющий процесс письма) нейтрализуют друг друга в процессе повествования.

Ключевые слова: Кафка; Театр; Вальтер Беньямин; Пишущая машинка

Для цитирования: Wickert, H. Judging Executing Writing: A Theater // Technology and Language. 2024. № 5(3). P. 123-137. https://doi.org/10.48417/technolang.2024.03.09

Благодарность: Данная статья посвящена Манфреду Пинеманну и незабываемым воспоминаниям, связанным с Кафкой.

Для цитирования: Wickert, H. Judging Executing Writing: A Theater // Technology and Language. 2024. № 5(3). P. 123-137. https://doi.org/10.48417/technolang.2024.03.09

SETTING

Kafka stages his life by writing on an imaginary theater stage. Everything is a scene. His work is staging himself as the leading actor everywhere and always. His gesture is the written word.

All writing is a gesture – gesture in the sense of *gestus* or *habitus* and as a mode of exhibiting or revealing things. As a gesture, it is representation. So all writing is representation:

> For Kafka, something could only ever be grasped in gesture. And this gesture, which he did not understand, forms the cloudy part [1] of the parables. Kafka's poetry emerges from it. It is known how he held back with it. [*Etwas war immer nur im Gestus für Kafka fassbar. Und dieser Gestus, den er nicht verstand, bildet die wolkige Stelle*[2] *der Parabeln. Aus ihm geht Kafkas Dichtung hervor. Es ist bekannt, wie er mit ihr zurückhielt.*] (Walter Benjamin, 1977a, p. 427)[3]

How is writing to become visible as representation? It is the performer, the writer, showing himself, "quick as a flash, responding to his cue (*blitzschnell, auf sein Stichwort aufpassend*)" (Walter Benjamin, 1977, p 435).

The writer does not hide behind the words, the stories, the novels, the sketches, the diary entries. He creates an undeniable presence for himself. How does he achieve this? He refuses to allow the word to duplicate reality. He denies it unambiguity. He creates a state of suspension out of words, which otherwise only dreams, fantasy, everything spiritual can create. Through creating this state of suspension the "cloudy", the writer places himself at the center. I always discern him in his words.

IN THE PENAL COLONY

We already entered the stage. The scene is "in the deep, sandy valley surrounded by bare slopes [*in dem tiefen, sandigen, von kahlen Abhängen ringsum abgeschlossenen kleinen Tal*]." But it could also be "at the edge of an open, deserted place [*am Rand eines freien menschenleeren Platzes*]" (Kafka, 2007, pp. 164, and 1965, p. 441).

Places that were probably painted by an artist, probably an Italian. We do not know whether Kafka knew Piranesi and his dungeons. In any case, these dungeons belong to his world which consists of inscrutable, multiply branched, incomprehensible constructions that reach to infinity and turn the human being into a tiny, barely perceptible signature (fig. 1).[4]

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[1] „[…] und also heißt wolkige Stelle, daß sie nicht heißen, nicht benennen und bedeuten kann. Sie ist nicht Metapher für etwas anderes, sondern für die Unmöglichkeit der Metapher selbst […]" (Hamacher, 1998, p. 287).

[2] "[…] der Leser stiess vielleicht auf die wolkige Stelle in ihrem Inneren" (Benjamin, 1977a, p 420) referring to the parable "Before the Law [*Vor dem Gesetz*]."

[3] Most quotes are given in the original German with translations into English by the author.

[4] "Die sichtbaren Elemente dieser abgeschlossenen mächtigen Welt, das sind Gewölbe von kolossalen Ausmassen, mit Stangen und Balken vergitterte Mauerdurchbrüche, Treppen in alle Richtungen, Wendeltreppen, Leitern, im Leeren endende, frei hängende Brücken, über Seilscheiben herablaufendes Tauwerk, riesige Galgen und Räder, die an ungewöhnliche Folterungen denken lassen, erloschene Lampen" (Bacou, 1975, p. 11).

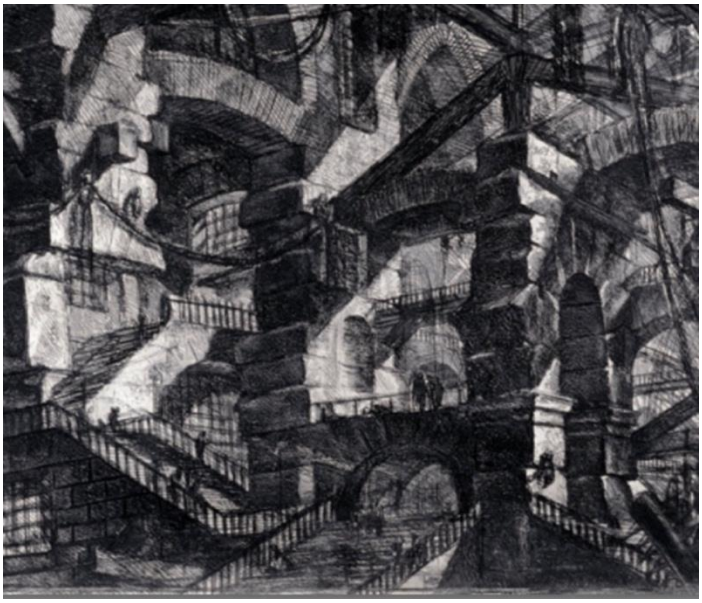

Fig. 1 Giovanni Battista Piranesi, Carceri no. XIV: The Gothic Arch (1761), compare https://artmuseum.princeton.edu/object-package/giovanni-battista-piranesi-imaginary-prisons/3640

Giorgio de Chirico later opened up these already peculiarly open dungeons into a metaphysical openness and reverses their ramification and complexity into empty surfaces that are no less constricting (fig. 2). (Is this a way of imagining the "nature theatre," which is inconceivable, since it exists only as something spiritual?[5] Is this the empty "writing scene" that the theater of the penal colony has become?) Everything that happens in Chirico's scenarios tends to cancel itself out.

[5] „The Nature Theater of Oklahoma which Karl encounters in Kafka's *America* is probably the most frequently cited version of such an open theater landscape. It presents itself as an immense fairground at the Clayton recruitment site. Not only the openness of the whole – after all, everyone is accepted there, as the poster advertises – but also its immense size quickly come to the fore. Karl already notes the size of the company. This impression deepens in conversation with Angel Fanny, who describes it not only as 'the largest theater in the world,' but even calls it ‚almost limitless.'" [*Das Naturtheater von Oklahoma, dem Karl in Amerika begegnet, ist wohl die meist zitierte Variante einer solch offenen Theaterlandschaft, die sich auf der Claytoner Anwerbestelle als immenses Jahrmarkttreiben präsentiert. Nicht nur die Offenheit des Ganzen – schließlich wird dort jeder aufgenommen, wie das Plakat bewirbt – sondern auch dessen immense Größe treten schnell in den Vordergrund. Schon Karl konstatiert die Größe des Unternehmens. Dieser Eindruck vertieft sich im Gespräch mit Engel Fanny, die es nicht nur als „das größte Theater der Welt" bezeichnet, sondern es sogar „fast grenzenlos" nennt*] (Mosse, 2017, without page number)

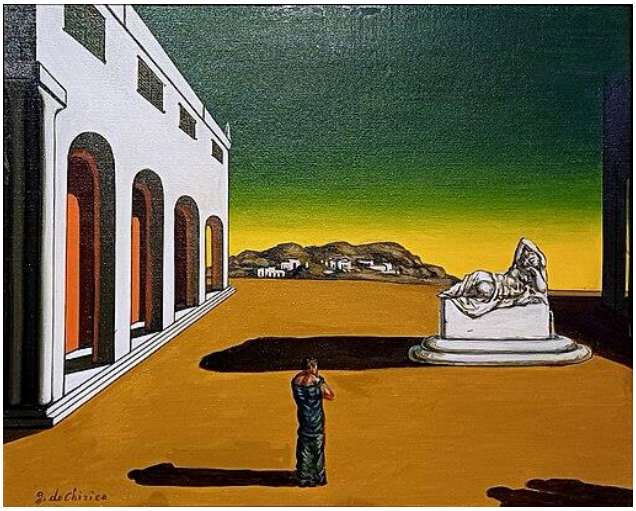

Fig. 2 „Autumnal Meditation“ (1958/59) by Giorgio di Chirico, Museo Soumaya, Mexico, © José Luiz Bernardes Ribeiro

BEING (*DASEIN*, EXISTENCE)

Which leads us to Being itself: Being that is dedicated to the search for answers to itself and while doing so passes away and ends. Giving answers to itself is the highest, inner structure of (epic) theater. This is where Kafka and Brecht meet: “This awareness [that it is theater] enables it [the theater] to treat the elements of the real in the sense of an experimental arrangement and at the end, not at the beginning of this experiment, is the state of things” (Benjamin, 1977c, p. 522). The play shows itself as a game, cut out of reality, highlighted, framed, exposed, exhibited. It is the recurring attempt to evoke or conjure up reality in or behind a text that is drawn in front of reality (the truth?) like a wrinkled curtain. To make the experiences recorded in it audible, visible and tangible. Kafka (1992) describes this in a picture puzzle:

> This is life between scenic backdrops. It is bright, it is a morning outside, then it is about to get dark and it is evening. This is not a complicated deception, but you have to submit as long as you are standing on the stage-boards. You can only break out if you have the strength to cut through the canvas towards the background and escape between the shreds of the painted sky, over some junk into the real narrow alley, which is still called theatre alley because of the proximity of the theater, but which is true and has all the depths of truth**.** [*Das ist ein Leben zwischen Kulissen. Es ist hell, das ist ein Morgen im Freien, dann wird es gleich dunkel, und es ist Abend. Das ist kein komplizierter Betrug, aber man muß sich fügen solange man auf den Brettern steht. Nur ausbrechen darf man, wenn man die Kraft hat, gegen den Hintergrund zu, die Leinwand zu durchschneiden und zwischen den Fetzen des gemalten Himmels durch, über einiges Gerümpel hinweg in die wirkliche enge Gasse sich flüchten, die zwar noch immer wegen der Nähe des Teaters*

Teatergasse heisst, aber wahr ist und alle Tiefen der Wahrheit hat.] (Kafka, 1992, p. 358*)*

Out of the text emerges a state of things. This is the image which the theater presents. For Kafka there is a way out of the limits of the theater which is made of backdrops and curtains and stuff. He steps outside these limitations of the theater into a theater which is open and populated by the images he invents through writing.

The theater always comes up against its own limits, since it is finite, temporally, spatially and spiritually. Kafka's text, however, which is staged as a theatrical scene, is infinite, open, meaningless, oriented towards the creation of states of things. His „Wish to be a Red Indian [*Wunsch, Indianer zu werden*]" dissolves the corresponding image in the gesture of writing; the desire, bound to its embodiment, detaches itself from the image into an absolute flawlessness, bodilessness, imagelessness.

The theater functions ponderously. Everything about it is made, manufactured (materials, texts and agreements). The persons playing in and with this fabrication question themselves through their play. In acting, people answer the question that their existence, their ex-istence, poses. Acting means nothing else but bringing into light what is hidden, letting the soul speak, aiming to find out the truth about oneself.

Kafka's theater is light, translucent, immaterial. It is flexible and agile, it quickly changes track when necessary and always ends in the catastrophe of incomprehension.[6] It consists of words. The words stage the glimpses into the abyss of a misunderstood world.

An absolute theater,[7] a theater of the unconditional.[8]

Since Kafka is only interested in finding out what the ground of existence is, what the truth of and his existence would be, his theater is his abode.

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[6] „Literally *automotive* appears to be everything one tries to cling to when reading Kafka's texts, and this from the very beginning and especially concerning the place and practice of beginning – *automotive* as, according to Kafka, the sentences of his story about a small car accident in Paris and their intonation by Max Brod that hedescribed in his diary. Breaking off as they do, the beginnings refer to some other, literally displaced, elusive beginning, to an an-archic origin of Kafka's prose, which could perhaps be compared to that origin which Walter Benjamin tried to grasp in his *Trauerspielbuch* [On Tragedy]." [*Buchstäblich* automobil*, wie Kafka zufolge die Sätze seiner Geschichte über einen kleinen Autounfall in Paris und ihre im Tagebuch beschriebene Intonierung durch Max Brod, scheint alles zu sein, woran man sich bei der Lektüre von Kafkas Texten zu klammern versucht, und dies von Anfang an und gerade den Anfang und das Anfangen betreffend: Abreißend, wie sie sind, verweisen die Anfänge auf einen buchstäblich versetzten, sich entziehenden anderen Anfang, auf einen an-archischen Ursprung von Kafkas Prosa, den man vielleicht mit jenem Ursprung vergleichen könnte, den Walter Benjamin in seinem Trauerspielbuch zu fassen versuchte.*] (Müller-Schöll, 2017).

[7] Nikolaus Müller-Schöll calls Kafka the "most radical theatrical theorist of modernity," as he removes the theater from the theater and elicits a media discomfort with the basic gesture of aesthetic production in general. Kafka's reference to representation is therefore always a commentary on the ambiguity of existence itself, which in turn is deprived of its framework of meaning (Müller-Schöll, 2003, p. 196-197).

[9] The special nature of Kafka's theater was comprehensively discussed and illuminated in a master class held by the Institute for Theater, Film and Media Studies at Goethe University in Frankfurt (Gesellschaft für Theaterwissenschaften, 2017). Many of the contributions collected there make it clear how essential and significant the connection between Kafka and theater is and how important theater and a specific concept of theater were for Kafka's life and writing.

> Kafka's world is a world theater. For him, humans are inherently on the stage. And the test of the example is: everyone is employed at the natural theater of Oklahoma. It is not possible to unravel the standards by which they are accepted. Acting aptitude, which is the first thing to come to mind, doesn't seem to play a role at all. But you can also put it this way: the applicants are not expected to do anything other than play themselves. The fact that they could be what they say they are in a real-life situation eliminates them from the realm of possibility. With their roles, the characters seek a place in the natural theater like the six Pirandellos seek an author. This place is the last refuge for both; and that does not exclude the possibility that it is salvation. Redemption is not a premium on existence, but the last refuge of a person for whom, as Kafka says, "his own frontal bone ... has laid the path." [*Kafkas Welt ist ein Welttheater. Ihm steht der Mensch von Haus aus auf der Bühne. Und die Probe auf das Exempel ist: Jeder wird auf dem Naturtheater von Oklahoma eingestellt. Nach welchen Maßstäben die Aufnahme erfolgt, ist nicht zu enträtseln. Die schauspielerische Eignung, an die man zuerst denken sollte, spielt scheinbar gar keine Rolle. Man kann das aber auch so ausdrücken: den Bewerbern wird überhaupt nichts anderes zugetraut, als sich zu spielen. Daß sie im Ernstfall sein könnten, was sie angeben, schaltet aus dem Bereich der Möglichkeit aus. Mit ihren Rollen suchen die Personen ein Unterkommen im Naturtheater wie die sechs Pirandelloschen einen Autor. Beiden ist dieser Ort die letzte Zuflucht; und das schließt nicht aus, daß er die Erlösung ist. Die Erlösung ist keine Prämie auf das Dasein, sondern die letzte Ausflucht eines Menschen, dem, wie Kafka sagt, »sein eigener Stirnknochen ... den Weg weist.*"] (Walter Benjamin, 1977a, p. 422)

Kafka's theater is the Nature Theater of Oklahoma which is not a theater but a place of release from the yoke of worldly tasks and only for one spectator, who sits and waits there in his enormous box.[9] This is the theater of execution in the penal colony, which was a theater when it still had spectators, but has lost its purpose nowadays.

Kafka's theater is a place of redemption from the agonizing incomprehensibility of existence (*Dasein*). This is because actors are supposedly the only beings "*for whom a hammering (is) a real hammering and at the same time a nothing – if it is in their role. They study this role, he would be a bad actor who forgets a word or a gesture from it. For the members of the Oklahoma troupe, however, it is their former life. Hence the nature of this natural theater. Its actors are redeemed*," Benjamin analyzes (1977a, p. 435).

[9] „At first sight, one might have thought it was not a box, but the stage, so broadly curved did the balustrade project into the open space. [...] white, yet mild light revealed the foreground of the box, while its depths appeared as a dark, reddish shimmering void behind red velvet that folded under many shades [...]. One could hardly imagine people in this box, everything looked so autocratic." [*Beim ersten Anblick konnte man denken, es sei nicht eine Loge, sondern die Bühne, so weit geschwungen ragte die Brüstung in den freien Raum. […] weißes, doch mildes Licht enthüllte den Vordergrund der Loge, während ihre Tiefe hinter rotem, unter vielen Tönungen sich faltendem Samt […] als eine dunkle, rötlich schimmernde Leere erschien. Man konnte sich in dieser Loge kaum Menschen vorstellen, so selbstherrlich sah alles aus*] (Kafka, 1965, p. 233).

PRESENTATION

This is the outcome of the execution the main character in the penal colony will experience: he will be redeemed, even though he is "a dull, broad-mouthed man with neglected hair and face," canine, completely unaware of what will happen to him, and why what will happen does happen, and therefore probably also unreceptive to any idea of guilt and redemption.

Apparently he is an inhabitant of the village, and of that village from a Talmudic legend cited by Walter Benjamin, which is the body that holds or houses the soul, and in which to live is to be sinful or to become sinful. This body is the burden that the soul has to bear because it carries the soul.

> The air of this village blows with Kafka [...] This village also includes the pigsty from which the horses for the country doctor emerge, the stuffy back room in which Klamm, Virginia cigar in his mouth, sits in front of a glass of beer, and the courtyard gate, knocking against which brings destruction. The air in this village is not clean of all the unrealized and overripe things that mingle so corruptly. Kafka had to breathe it all his life. (Benjamin, 1977a, p. 424)

This main character is thus a kind of puppet,[10] interested, curious about what is being described in a language he does not understand, but a thoroughly animalistic being, ready to accept what is offered to him by his master.

This actor qualifies to be the main actor because he understands neither guilt nor sentence. A perfect figure for the theater, whose only flaw is the presence of the human body:

> As a result, drama in its highest development slips into an unbearable humanization, which it is the task of the actor to draw down, to make bearable, carrying the role prescribed to him loosened, frayed, waving around. The drama thus floats in the air, but not as a roof carried by the storm, but as an entire building whose foundation walls have been torn up from the earth with a force that is still today very close to insanity. [*Dadurch gerät das Drama in seiner höchsten Entwicklung in eine unerträgliche Vermenschlichung, die herabzuziehn, erträglich zu machen, Aufgabe des Schauspielers ist, der die ihm vorgeschriebene Rolle gelockert, zerfasert, wehend um sich trägt. Das Drama schwebt also in der Luft, aber nicht als ein vom Sturm getragenes Dach, sondern als ein ganzes Gebäude, dessen Grundmauern mit einer heute noch dem Irrsinn sehr nahen Kraft aus der Erde hinauf gerissen worden sind.*] (Kafka, 1954, p 124)

[10] The traveler "was even leaning right across the Harrow, without taking any notice of it [*ohne sich um sie zu kümmern*]," thus following a caring activity, *sich kümmern*, that humanizes the Harrow. Similarly, the officer's exclamation: "*Behandle ihn sorgfältig*!" employs a vocable, sorgfältig, not typically used in reference to human beings, but to artefacts, perhaps an animal, or, indeed, a baby, an infant, which in German, unlike in English, is explicitly neuter, a thing. It is in this vein that Kafka invokes the image of the officer catching the prisoner under the shoulders ["und stellte ihn . . . mit Hilfe des Soldaten auf"] like a marionette, it appears, whose inanimate "feet . . . kept slithering from under him." The interrelatedness of law and life is thus translated into a converse rhetoric, humanizing the machine and dehumanizing the prisoner (Blumenthal-Barby, 2013).

Kafka's theater prevents the humiliation of the text by the actor, who exists only as a written text; there is no text that has to be spoken, the text is absolutely and only existent in it`s written form and shape. The actor acts without any motive of his own, is purely an executive organ, a puppet in the hands of the justice system that theatricalizes the law.

> This juridical apparatus or construct appears remarkable in its emphasis on technological details. Kafka employs an entire discourse of technological vocabulary: “Harrow,” “Designer,” “electric battery,” “disturbances,” “needles,” “acid fluid,” a “ladder,” a creaking “wheel,” “screw,” “spanner,” “machinery,” “cogwheels,” “mechanical instruments,” “chemist,” “draughtsman,” and so forth. In the light of the officer's idealization of the mechanical parts of the juridical apparatus, the emphasis on the technological seems to be at odds with the higher cause of justice – that dimension to which every juridical apparatus characteristically aspires, a dimension generally considered to be the sine qua non of jurisdiction. By contrast, the officer's obsession with the apparatus's innate beauty – his meticulous maintenance of the machine – seems to follow a logic of its own and serve some immanent law yet to be explored. (Blumenthal-Barby, 2013, p. 57)

There are plans, but like everything that is described in this world, these are incomprehensible to the general public, unreadable and require interpretation by experts. The ability to read is a prerequisite for performing the roles. Interpretation is prevented by the privileged status of reading. The officer does not hand over the paper with the notes of the inventor of the machine.

The protagonist alone will learn and understand absolute reading in the context of his execution – absolute understanding in the dissolution and destruction of the apparatus of understanding, of the whole body. Understanding is a physical process, not an intellectual one. Is this not where the absolute theater takes place, the theater of death, in which there is no repetition, in which writing, reading, performing, surrendering form an absolute unity and dissolve in the act of their interplay? (So that the soul, liberated and redeemed from the body, can ascend and detach itself?)

> In the “penal colony”, however, the rulers of violence make use of an ancient machine that engraves ornate letters on the backs of the guilty, increases the engravings, piles up the ornaments until the back of the guilty becomes clairvoyant, can decipher the writing itself, from the letters of which it must extract the name of its unknown guilt. So it is the back on which it rests. (Benjamin, 1977a, p. 432)

The Savior has suffered, has died suffering. His death shows what redemption is: detachment from, detachment of the body, it shows the lowliness of existence, its inherent violence, murder, torture, vileness (fig. 3).

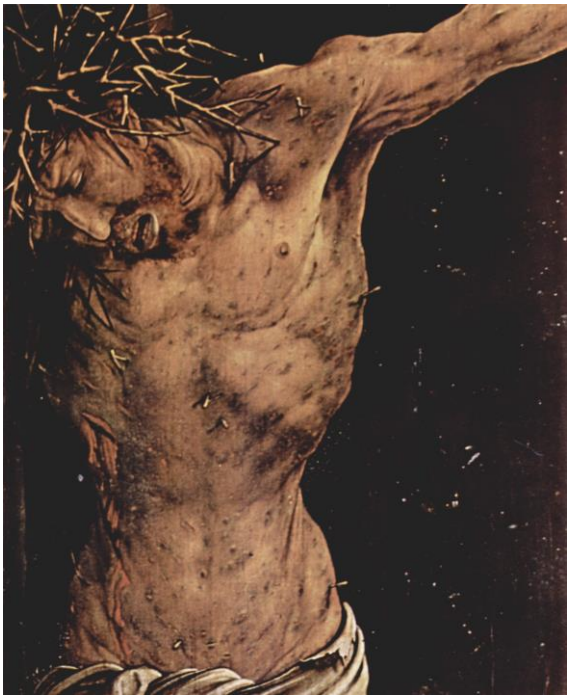

Fig. 3 Matthias Grünewald, Isenheimer Altar, detail from “crucification”

It is shown and it was shown, the execution takes place in public, it is exhibited and thus becomes legible and a sign for the survivors. Nowadays, however, there is no audience in the penal colony. No one is interested in the performances that were once obviously extremely popular here. There is no public, no audience, but a new authority, the rationalizing, questioning, researching, and judging traveller. He, who is from somewhere, will be the one to decide about the continuation or ending of this deadly writing and reading process. The modern reader is enlightened, secularized. The public and its modes of operation have shifted. The rituals and actions of the past have lost their meaning and appeal, are to be replaced by other practices or are disappearing. What happens when formerly meaningful and seemingly necessary actions lose their rationale due to the lack of a counterpart? What is a theater without an audience? It runs empty? Does it become a form of madness? It becomes art, it becomes pure text. Or it abandons itself to the cruel laughter of the universe: comedy (fig 4).

Fig 4. Charlie Chaplin in *Modern Times*

When the officer puts himself into the execution machinery to complete what can only be described as a downfall, we finally come to Charlie Chaplin and his desperate struggle with the automation of work. The machine takes over the work, becomes autonomous and finally destroys itself (and with it the author who creates and sustains it).

> Is all comedy derived from horror, i.e. from myth - and did Greek comedy find the first object of laughter in horror? That all horror can have a comic side, but not necessarily can all comedy have a horror side. To discover the first devalues the horror, not so to discover the second the comedy … [*Ob alle Komik dem Grauen, d.i. dem Mythos abgewonnen ist – und ob die griechische Komödie den ersten Gegenstand des Gelächters am Grauen gefunden hat? _ Dass alles Grauen eine komische Seite haben kann, n i c h t n o t w e n d i g auch alle Komik eine Grauenhafte. Die erste zu entdecken, entwertet das Grauen, nicht so die zweite zu entdecken die Komik…*] (Benjamin, 1977b, p. 1220)

SCRIPTURE

The force that shaped and determined the whole, that conceived and realized this redemption machine theater was a comprehensive creator: Soldier, Judge, Engineer, Chemist, Sketch Maker (Writer?). A divine machinist, so to speak, determining the law and the definition of guilt, condemning and punishing, thus granting redemption and absolution.

The fact that he is dead (his grave under a pub table in the teahouse) has left an unfillable void. The creator is dead, how is the heir supposed to be able to keep this superhuman machine running? He has inherited the knowledge, but not the power.

His privilege is to be the only one left to decipher the “script” and keep the machine running.[11] But the apparatus loses its ability to function, no public interest contributes to

[11] s. Bucephalus, Alexander`s horse, s. Eine Kaiserliche Botschaft, s. Ein altes Blatt, etc.etc.

its preservation, the form of execution through writing disappears. Writing loses its meaning. So all that remains is the confrontation with the inexplicable, the ambiguous of a world to be interpreted, the acceptance of the task of writing oneself, and thus filling the void that has been gaping since the death of God, his word only unheard mumbling, illegible writing, scribbles, hatchings. Once, in ancient times, there was something like the clarity of the word. Into this situation, Kafka reinvents writing. His writing needs no audience. His writing is an exposure to himself. His writing is the transcendence of the body in favor of a body of writing and this body of writing is simultaneously the creation of a textual stage on which this process takes place. Writing takes the place of writing. The writing that emerges from this writing is then to be destroyed:

> Dearest Max, my last request: to burn completely and unread everything in my estate (i.e. in the bookcase, linen cupboard, desk at home and in the bureau, or wherever else anything should have been carried and come to your attention) of diaries, manuscripts, letters, other people's and my own, drawings, etc., as well as everything written and drawn that you or others you should ask for in my name. Letters that are not handed over to you should at least be burned by yourself. Your Franz Kafka. (Brod, & Kafka, 1989, p. 365, probably fall/winter 1921)

WRITING

It is generally known that Kafka struggled with the question of what writing is and whether he himself can and must really write. "Writing is a form of existence", he calls it, but not so "living in writing" and "I have no literary interest, I consist of literature, I am nothing else and can be nothing else" (Kafka, 2024, p 444). A deep sense of unease concerns the physicality of existence. „I am certainly writing this from despair about my body and about the future with this body" and: "...this heap of straw that I have been for five months and whose fate seems to be to be set alight this summer and to burn faster than the spectator blinks his eyes" (Kafka, 1954, pp. 11-12).

Reading while writing or writing while reading is Kafka's work, which constantly thematizes itself. It consists in detaching poetic writing from the terrain of poetry and establishing its own status. Benjamin calls this his great "attempt to transfer poetry into teaching" (1981, p. 172) but one could also be tempted to say that this is what Kafka suffered from, as he himself wrote in a diary entry on December 6, 1921: "The independence of writing, the dependence on the maid who heats the stove, on the cat who warms herself by the stove, even on the poor old man, writing is helpless, does not dwell in itself, is fun and despair" (Kafka, 1992, p. 875). The problem of writing, in contrast to the simplest of other activities, is that it has no rule of its own, no law of its own such as those that characterize even the simplest activities.

Kafka fails to establish this. Nothing else can follow from this but abolition, annihilation.

As long as there is writing, i.e. living, there is writing. A physical process that torments and tortures. Perhaps the machine can help? Kafka was highly interested in all

things technical, he was familiar with flying machines and measuring apparatus (Poppelreuther's working clock, for example, see Flüh, 2019). He wrote essays on "automobile companies" and "agricultural machine companies" for the workers' compensation insurance, he owned a typewriter,[12] he had a fiancée whom he used as a typewriter[13] (Felice Bauer) and he probably understood writing as an almost mechanical necessity, not as a choice.[14] This proximity of Kafka to machines and their functions in general is examined in unique detail by Thorsten Flüh in his blog entry "Franz Kafka and his typewriters," with special focus on the story "In the Penal Colony" (Flüh, 2019).

What does writing do? How does writing?

> Kafka's technique could best be compared to the construction of models. Just as a man who wants to build a house or evaluate its stability would draw up a blueprint of the building, Kafka practically devises the blueprints of the existing world […] which sometimes in a page, or even in a single phrase, expose the naked structure of events. (Arendt, 2007, pp. 94-110)

In Kafka's narrative, in what he encircles here, reading and writing become identical. And this process of writing is theatricalized, so that reading, writing and performing merge into one another. Reading, we witness the process of writing and the content of writing inherent in all – writing: Writing is judgment, experience of its content and, in the course of this experience, death, which gives writing an ephemeral form of existence. Here (and, incidentally, as expressed and demanded in his wills), Kafka constructs a new form of existence for writing that is contrary to its original function of preserving, defining and passing on, a uniqueness that only the spoken word has in the context of language.

Writing and reading is a physical, sensual, unique process of subjugation; naked and bound, the reader, the convict, is described, reads on and above all with his own body as a writing surface, which is the truth of guilt, "which is beyond doubt."

This "ideal" writing scene of the penal colony, in its uniqueness and execution related to the individual subject (like every execution), was once a common reading

[12] A brief history of Kafka's word processing technologies, including a discussion of the „Penal Colony" can be found at https://blog.hnf.de/franz-kafka-und-seine-schreibmaschinen/ The blog about „news from the past of computer history" is part of the Heinz Nixdorf MuseumsForum computer museum.

[13] "from the first to the last letter, the impossible gender relationship ran as text processing in an endless loop. Again and again, Kafka avoided traveling to Berlin with his hand, the one that had once held Fräulein Bauer's hand. In place of the absent body came a whole postal system of letters. Registered letters, postcards and telegrams to describe this hand with the very ‚hand that now struck the keys'" [*vom ersten bis zum letzten Brief lief die unmögliche Geschlechterbeziehung als Textverarbeitung in Endlosschleife. Immer wieder vermied es Kafka mit seiner Hand, die einmal Fräulein Bauers Hand gehalten hatte, nach Berlin zu reisen. Statt des abwesenden Körpers kam ein ganzes Postsystem aus Briefen. Einschreiben, Postkarten und Telegrammen, um mit eben der ‚Hand, die jetzt die Tasten' schlug, diese Hand zu beschreiben*] (Kittler, 1986, p. 323).

[14] „The explorer's disbelief, having set the prisoner free from the obligation of reading the deadly script-writing *en tei psuchei* [to be wise] – seems simultaneously to liberate the narration from the obligation of verisimilitude and the machine from the dead world of the mechanical. Up to this point the machine, like Freud's Mystic Pad, could not run by itself; now it begins to develop or manifest its own volition, its own animus. It does so only now because the system of writing and reading in which it was a crucial figure could not allow a machine that runs by itself or a narration in which the word and the world diverge. Now that that system is no longer credited, the machine may act on its own – though that act must needs be one of self-destruction" (Koelb, 1982, p. 517).

process; there was a highly responsive public interest in participation. Now, in this empty, neglected theater of writing, the infinitely large, multiply populated space of reading has been lost. As a result, although it is only about the guilt and judgment of the individual, the process itself seems to have become empty and meaningless. For the individual who experiences his guilt can only become a representative, example, admonition, redeemer through the audience. Without being perceived, writing becomes a process that cancels itself out. This resembles absolute writing, which refuses to be read by eyes other than those of the writer.

Kafka is not oriented towards a readership, this process of theatricalization of writing (writing/reading) is withdrawn, folded into the ego, which consumes itself in this double multiple contradiction.

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Статья поступила 12 июня 2024
одобрена после рецензирования 17 августа 2024
принята к публикации 28 августа 2024

Received: 12 June 2024
Revised: 17 August 2024
Accepted: 28 August 2024

https://doi.org/10.48417/technolang.2024.03.10
Research article

Intellectus ex Machina

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Abstract

The essay interprets Franz Kafka's short story “*In der Strafkolonie* [In the Penal Colony]” (1914) not from the perspective of literary hermeneutics, but from the perspective of criticism: intents and allusions are attributed without any consideration or identification of the author's position, without reference to the tradition of researching his legacy. The machine depicted in the story and the events related to it are situated in the context of New Age island literature and are seen as a carnival inversion of the idea of technological progress. The interpretation is based on the hypothesis that Kafka's island containing a penal colony is in fact Bacon's Bensalem, inverted in the course of historical time (*New Atlantis*, 1623). What is considered and discussed is the very image of the island as a place of action, the parallelisms between the House of Solomon and the penal colony, between the perfect language that removes the idols of the market and the program code of the killing machine executed in the form of ethical maxims. Most importantly, the essay considers two versions of interpretating the destruction of the machine and the suicide of the officer who serves it. The first version is conditioned by a tradition of technophobia in public consciousness during the 19th and 20th centuries and is connected with the birth of existentialist philosophy of technology; the second version is connected with the loss of a vision for the role of science and technology in Western Europe in the early 20th century – with the *Decline of the West* expressing itself as a nascent information machine via the rejection of scientific and technological subjectivity and historical sovereignty in favor of the ideology of Nazism. The essay concludes with the thesis that it is necessary to look at today's events through the eyes of Kafka's “visionary”: The information machine of Nazism is reviving and obviously requires an observer capable of breaking it down – if not destroying it, at least breaking it down again.

Keywords: Kafka; Bacon; Machine; Progress; Perfect Language; Nazism

Citation: Nesterov, A. Yu. (2024). Intellectus ex machina. *Technology and Language*, *5*(3), 138-144. https://doi.org/10.48417/technolang.2024.03.10

УДК 1:62
https://doi.org/10.48417/technolang.2024.03.10
Научная статья

Intellectus ex machina

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Аннотация
В эссе рассказ Франца Кафки “In der Strafkolonie” (1914) интерпретируется не с позиций литературной герменевтики, но с позиций критики: рассказу приписываются интенции и аллюзии без какого-либо учёта или выявления авторской позиции, без ссылок на традицию исследования его наследия. Изображённая в рассказе машина и связанные с ней события помещаются в контекст островной литературы Нового времени и рассматриваются как карнавальное перевёртывание идеи технического прогресса. Интерпретация строится на гипотезе о том, что остров с исправительной колонией у Ф.Кафки – это инвертированный в ходе исторического времени Бенсалем Ф. Бэкона (“New Atlantis”,1623). Рассматриваются сам образ острова как место действия, параллелизмы между Домом Соломона и исправительной колонией, между снимающим идолы рынка совершенным языком и выполненным в виде этических максим программным кодом машины для убийства, обсуждаются две версии интерпретации разрушения машины и самоубийства обслуживающего её офицера. Первая версия обусловлена линией технофобии в общественном сознании XIX-XX веков и связана с рождением экзистенциалистской философии техники; вторая – с потерей наукой и техникой в Западной Европе начала XX века роли основной направляющей силы исторического развития, с “закатом Европы”, выражающем себя в отказе от научно-технической субъектности и исторического суверенитета в пользу идеологии нацизма как нарождающейся информационной машины. Эссе завершается тезисом о необходимости взглянуть на события сегодняшнего дня глазами Кафки-провидца: информационная машина нацизма возрождается и очевидным образом требует наблюдателя, способного её если и не уничтожить, то хотя бы вновь сломать.

Ключевые слова: Кафка; Бэкон; Машина; Прогресс; Совершенный язык; Нацизм

Для цитирования: Nesterov, A. Yu. Intellectus ex machina // Technology and Language. 2024. № 5(3). P. 138-144. https://doi.org/10.48417/technolang.2024.03.10

NEW AGE ISLAND

In Francis Bacon's (1626/2020) *New Atlantis*, the place of action of techno-social progressive project is an island. This space, closed off from the general public, provides an opportunity to create pictures (visions) of ideal social systems, to change the relationship between imaginary representation and technical possibility, and to investigate the impact of technological progress. Unlike a castle [*Schloss*], the boundaries of the island are created not by social hierarchy, but by geographical location, the island is open to anyone who has the strength to be a traveller. The island is inherently democratic.

Franz Kafka's (1919/2017) *Strafkolonie* [Penal Colony] is located on an island, and the main attraction is the execution machine created by the "former superintendent" or, in the translation of Joyce Crick, "commandant" (Kafka, 1919/2017, 2009). The execution by the machine lasts 12 hours, during which time the body is textually inscribed with knives, then the knives finally pierce the body and throw it into the moat. The description of the killing machine, the form of expression of this description, the behavior and evaluation of the situation by the islanders and the traveller-narrator make up the plot of the novella. The basic conflict is traditional for utopia and consists in the opposition between tradition and innovation, the old and the new; its development in Kafka is a significant milestone in the development of the twentieth-century island dystopia.

PARALLELISMS

Solomon's House. Placing the place of action on the island, Kafka effectively uses the word "colony" to label the Order of Solomon, whose representatives in Bacon's „The House of Solomon" collect knowledge from all over the world, test it, conduct their own research, including experiments on animals – and animals only? – and they are in no hurry to share this knowledge with humankind. The place of progress in the proper sense of the word, circumscribed in the age of science and technology, turns out to be a penal colony: the temple of experiential knowledge of nature is nothing more than a closed space for the correction of the lost. The author's ethico-religious disposition is unmistakable: the "former superintendent," the "old man," in fact the high priest, who died before the traveller's arrival, "the [new] priest refused him a place in the graveyard," and he was buried near the back wall of the teahouse [*Teehaus*]; above his tombstone there is a table where poor people drink. The power of knowledge concentrated in Solomon's house expresses itself in a cunning killing machine, and nothing more. This is Kafka's assessment of the progressive project of the New Age: a cosmocentric scientific mind that concentrates on the inductive study of nature, an ethic of duty corresponding to this mind, and an aesthetics of death that is devoid of legal grounds. And this whole project, expressed in the machine as the embodiment of reason, is self-destructive due to poor maintenance and the presence of external and hostile observers in the form of the narrator-traveller and the new superintendent mentioned in the novel, who disapproves of his predecessor's approaches.

Indexical language. Kafka makes another reference to Bacon and, at the same time, to the tradition of searching for the perfect language (Eco, 1997), when he describes the

way the machine carries out the sentence. The machine carves a maxim or a script on the body of the condemned man, which he begins "to decipher […] he purses his lips as if he were listening." The maxims themselves are written down in the form of designs [blueprints, *Handzeichnungen*] by the former commandant, and they program the movement of the machine's knives in a complex way. The observer-traveller cannot understand this record in the form of a drawing, the speech is "a maze of criss-crossing lines covering the paper so closely that it was only with difficulty that one could make out the white spaces in between [*labyrinthartige, einander vielfach kreuzende Linien, die so dicht das Papier bedeckten, daß man nur mit Mühe die weißen Zwischenräume erkannte*]." The officer in charge of the machine explains that

> it shouldn't be a simple script; after all, it's not supposed to kill immediately, but only within a space of twelve hours on average […] So the actual script has to be surrounded by many, many flourishes; the real script encircles the body only in a narrow girdle; the rest of the body is intended for decoration.

Two of the maxims are mentioned in the text: the first "Honour thy superior" is intended for the condemned man, the second "Be just" – for the officer himself. The sanctioned murder carried out by the machine's ever-deeper carving of letters on the body of the condemned man is probably one of the most vivid images in the history of literature related to the attempts to construct an unambiguous scientific language. What is the essence of the perfect language project, whatever it may be? It is that all participants in communication should be reliably convinced that a particular word corresponds to a particular entity, a clearly defined meaning (Eco, 1997). Following Peirce (1878), the view of the meaning of an utterance as the use of that utterance, is becoming popular. What can stabilize referentiality better than machine application of an utterance to mortification? Clearly, Kafka is addressing in this novel the problem of understanding as it is formulated for technical knowledge. "I understand, so I can do it," this thesis of Maren Mersenne, a contemporary of Descartes (Maury & Taussig, 2003), defines the technical worldview of the early twentieth century, the activity or engineering knowledge as it is conceptualized in the early twenty-first century. What can I do to understand? I can, according to Kafka, kill with the help of a machine specially designed for this purpose, and thus realize not only an engineering-technical approach to understanding, but also remove for the condemned participant in this epistemic process the complexity of interpretation in the classical schemes of literary or historical hermeneutics: "Our condemned man dismantles [*entziffert*] it [the maxim that kills him, expressed in a simple sentence] by his wounds" or, in earlier passage: "It would be pointless to tell him. He will feel it in his own flesh. [*Es wäre nutzlos, es ihm zu verkünden. Er erfährt es ja auf seinem Leib*]." This hyperbolized irony of indexical language, in which there is an empirical fact behind every word, may also hint that the technical application of language, the New European engineering approach to the task of understanding perverts Revelation, turning the original Word into a program of mortification. This is indirectly evidenced by the description of the state of the condemned at the sixth hour of the execution:

> But how still the man becomes at the sixth hour! Understanding dawns upon even the most stupid. It begins with the eyes. From there it spreads further. A sight that

might tempt you to join him lying beneath the Harrow [*Verstand geht dem Blödesten auf. Um die Augen beginnt es. Von hier aus verbreitet es sich. Ein Anblick, der einen verführen könnte, sich mit unter die Egge zu legen.*]

In the Russian translation this state is rendered as "enlightenment of thought" (Kafka, 1991). The machine that gives enlightenment, and – by breaking down – deprives its last servant of enlightenment, is an instrument of the mind replacing God, and since the local Faust is deprived of grace, he dies without peace of mind, fulfilling the terms of the contract to the end.

AUTO-EUTHANASIA

The machine is a consequence and a tool of systemic rational thinking, "a compound of resisting bodies arranged in such a way as to force the mechanical forces of nature to act in order to perform certain movements" (Gorokhov, 2015, p. 120). According to the classical models of representationism, human consciousness against the background of reality should be arranged in such a way that reality is first cognized by the senses, then the data of the senses are expressed in language or categories of reason (ratio). Then the mind (intellectus) comes in and forms this or that system of concepts, intuitively grasping new ideas. The mind expresses these in terms of reason, then shares them with the skillfulness of hands that embody the idea and thereby change reality. Machines are such embodiments of the ideas that do the work for the human being, first the work of the hands and then of reason itself. Kafka depicts an upside-down House of Solomon that uses a perfect programming language to do the work of mortification. This temple has lost its former splendor even within the island. The new leadership, as well as the clergy, not only fail to support the ethical basis of machine extermination but send an influential observer-traveller from the larger world to pass judgment on the practice of extermination. The last servant of the old temple, after refusing support from the observer, commits suicide by machine, and the machine itself is pictorially destroyed in the process. Kafka's characteristic vividness and pathos in describing ethically unacceptable, monstrous (for the common sense) states of affairs shows the irrationality of the rational, the horror of the commonplace in the penal colony, which in fact turned out to be the temple of experimental natural science.

What does the destruction of the machine testify to within the context of utopia, the traditional New European conflict between the old and the new, its emphatic inability to give comfort to its servant, the collapse of the officer's illusions under the maxim "be just"? On the one hand, it may be an expression of commonplace technophobia, superimposed on a fear of the possibilities of reason and of the mind-generated technology. This is the existentialist philosophy of technology, which, with few exceptions, constitutes the mainstream direction of the first half of the 20th century and is devoted to the enslavement of humans by the machine. Thus, one could draw parallels between Nietzsche's dead god and the dead idol of the rationally organized machine, the corpse of each revealing some extra-intelligent and unencumbered self-conscious resources of the social psyche. This could be confirmed by the functional unity of the figures of the soldier and of the condemned as material for the machine, as well as by the

impossibility for them to leave the island together with the traveller. However, Kafka's characteristic problems of the subjectlessness of the human against the background of fate, the correlation between fate and sentence, the impossibility of understanding or at least somehow grasping the whole, the incommensurability of worlds and their inhabitants, who outwardly seem human, have little to do with technology or science as such.

On the other hand, therefore, the transformation of a temple into a penal colony and the destruction of its altar need a broader interpretation than whether or not they have anything to do with technology. Kafka, like many of the great talents, is a visionary. The collapse of the demonic mind together with the Mephistophelean false idea of enlightenment in death demonstrates the change of the subject of historical development: the bearer of progress in the 17th century turns out to be a dead, disintegrated idol at the beginning of the 20th century. The eventfulness of the New Age is the eventfulness of science and technology; they were “the force that changes the world.” And this force in the form of discoveries, inventions and artifacts came down from the islands of ideal world order, and spread from these islands – accessible to anyone who can travel in thought – to the world at large. Thus, the world at large, the world of global social, economic, cultural processes was derivative of the New European island. But the situation has changed, subjectivity and eventuality have been transferred to the traveller to such an extent that his very gaze at the altar turns out to be destructive. Beyond ethical assessments, it should be stated that the Kafkaesque demonstration of the insignificance of scientific and technological reason, performed through the carnivalization of utopia, testifies to the fact that Europe in 1914 ceased to see science and technology as fundamental driving forces of social development, that is, it testifies to the end of the “age of progress,” to its “decline.”

WHAT ABOUT THE PRESENT DAY?

An artificial object is such that its essence precedes its existence. Once invented, it can only be destroyed by erasing the idea of that invention. The destruction of the physical machine does not cancel the machine: as we can see from the perspective of 2024, after 1914, the machines for sophisticated killing manifested and continue to manifest themselves not only in the physical world, but also in the world of intellect and even reason, erasing and rewriting the memory of individuals, nations and civilizations, destroying imagination, algorithms of goal-setting and goal-realization. What is it exactly in the conditions of “the decline of Europe” that has replaced the ideal of a sophisticated rational machine that performs physical work for a person? It is obvious that a vague but extremely active ideal of an information machine has come about, which removes human problems of self-consciousness and understanding for the masses, programming ethical evaluations and moral actions. In the interpreted story, one can see references to the difference machine, to the development of control algorithms, to the birth of technical cybernetics, but these are definitely not Kafka's themes. Rather, he anticipates the social information machines of ideology and propaganda as they would operate after the First World War.

One such social information machine predicted by Kafka is Nazism. It is a well-described ideological machine, operating in the realm of reason, influencing the mind, having its officers in service, its soldiers and its convicts. Once invented, it continues to exist in the space of ideas, whether it is Karl Popper's third world, Friedrich Dessauer's (1958) fourth realm, or Vladimir Vernadsky's noosphere. It is quite obvious that modern Western society needs an observer who can sight this machine and destroy its altar. The monstrous sacrifice of the twentieth century, made on the altar of Nazism after the decline of Europe, must not be repeated.

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Статья поступила 6 мая 2024
одобрена после рецензирования 11 августа 2024
принята к публикации 28 августа 2024

Received: 6 May 2024
Revised: 11 August 2024
Accepted: 28 September 2024

https://doi.org/10.48417/technolang.2024.03.11
Research article

Kafka and Technocratic Reality

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Abstract

The aim of the article is to identify the main themes of Franz Kafka's story “In the Penal Colony” in the light of the emerging philosophy of technology contemporary to him. The basis of the analysis is a comparative perspective on the literary fiction and philosophical programs that are united by the same theme and problematics. On the eve of the First World War, questions about the pragmatics and teleology of the rapid development of technology became relevant, also about the consequences of its incorporation into the very fabric of culture, and about the increase of its manipulative possibilities in the control of the natural order. The growing power of the machine, of the soulless apparatus, is realized as a great civilizational problem, which both “philosophical engineers” and their critics are trying to solve, which is realized both in the forms of philosophical discourse and in artistic works. The first experiments in the philosophy of engineering include the works of Ernst Kapp, Thorstein Veblen, Peter Engelmeyer, Friedrich Dessauer, Eberhard Zschimmer, Oswald Spengler, Georg Simmel, and later Boris Vysheslavtsev. The literary works of writers also appear which reflect the problematics related to the affirmation of technology and engineering in culture. Franz Kafka's short story “In the Penal Colony” reflects many themes that are part of the tradition of the philosophy of technology, not only among Kafka's contemporary philosophizing engineers on the eve of World War I, but throughout the 20th century. These include the technocratic tendencies of the “idle class,” the ideals of the technocratic order; the ethical problems associated with the introduction of machines into the body of culture; and the possibility of a harmonious interaction between the social and technical worlds. The article analyzes some of the issues contained in Kafka's story in the light of the emerging field of humanitarian knowledge – philosophy of technology.

Keywords: Technology; Engineering profession; Kafka; Philosophizing Engineers and Philosophers of technology

Acknowledgment The research was supported by RSF No. 24- 28-01014 https://rscf.ru/en/project/24-28-01014/

Citation: Serkova, V. & Yakimenko A. (2024). Kafka and Technocratic Reality. Technology and Language, 5(3), 145-155. https://doi.org/10.48417/technolang.2024.03.11

УДК 1:62
https://doi.org/10.48417/technolang.2024.03.11
Научная статья

Кафка и технократическая реальность

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Аннотация

Цель статьи – выявить основные темы рассказа Франца Кафки “В исправительной колонии” в свете современной ему нарождающейся философии техники. Сравнительный анализ художественного текста и философских программ, объединенных одной тематикой и проблематикой, является основой аналитики статьи. Накануне Первой Мировой войны актуальными становятся вопросы о прагматике и телеологии бурного развития техники, о следствиях внедрение ее в самую ткань культуры, о повышении ее манипулятивных возможностей в управлении природным порядком. Возрастающая власть машины, бездушного аппарата осознается как большая цивилизационная проблема, разрешить которую пытаются и “философствующие инженеры”, и оппонирующие им критики, что осуществляется как в формах философского дискурса, так и в художественных произведениях. К первым опытам философии техники можно отнести работы Э. Каппа, Т. Веблена, П. Энгельмейера, Ф. Дессауэра, Э. Цшиммера, О. Шпенглера, Г. Зиммеля, позднее – Б. Вышеславцева. Появляются также и сочинения писателей, в которых отражается проблематика, связанная с утверждением в культуре техники и инженерного дела. В небольшом рассказе Франца Кафки “В исправительной колонии” находят отражение многие темы, которые входят в традицию философии техники не только среди современных Кафке философствующих инженеров накануне Первой Мировой войны, но и на протяжении всего 20 столетия. К ним относятся технократические тенденции “непраздного класса”, идеалы технократического порядка; этические проблемы, связанные с внедрением машин в тело культуры; возможность гармонического взаимодействия социального и технического миров. В статье анализируются некоторые вопросы, содержащиеся в рассказе Кафки в свете зарождающейся области гуманитарного знания – философии техники.

Ключевые слова: Техника; Инженерная профессия; Кафка; Философствующие инженеры и философы техники

Благодарность Исследование выполнено за счет гранта Российского научного фонда № 24-28-01014, https://rscf.ru/project/24-28-01014/

Для цитирования: Serkova, V., Yakimenko A. Kafka and Technocratic Reality // Technology and Language. 2024. № 5(3). P. 145-155. https://doi.org/10.48417/technolang.2024.03.11

INTRODUCTION: THE PROFESSION OF THE "UNLEISURE CLASS"

By the beginning of the 20th century, the ideology of the technical class was emerging along with the process of rapid development of technology and engineering. The apologetics of the booming technical civilization also gives rise to criticism of its increasing influence and continuous expansion. Technocratic ideology is formed, in particular, as a claim of the engineering class to manage social processes as complex mechanical aggregates. This utopian idea is critically comprehended in a variety of philosophical and artistic programs that model the limits of the possible domination of technology and technicians.

Already by the end of the 19th century a whole pleiad of engineers appeared who developed their own philosophy of technics, among them Ernst Kapp (1877, p. 489), Friedrich Dessauer (1927), Peter Engelmeyer (1910; 1916), Eberhard Zschimmer (1914), etc. In 1911, at the IV World Philosophical Congress, held in Bologna, Engelmeyer gave a talk on "The Philosophy of Technology" in which from the professional position of an engineer he tries to define the boundaries of the "empire of technology". In 1914, for the journal "Questions of Theory and Psychology of Creativity", Engelmeyer (1916) writes an article "Eurology, or General Theory of Creativity," in which he develops the ideas of a general theory of invention. These ideas correlate well with Thorstein Veblen's criticism of the "idle class" of financiers and bureaucrats [reference], who contrasts the engineering class with the non-producing class of bankers and bureaucrats who subordinate social institutions and determine the development strategy of the entire capitalist system. Veblen's theory argued for the expediency of transferring power and management to specialist engineers. Veblen's (1921) work "Engineers and the Price System" substantiated the expediency of the idea of "power of specialists". According to Veblen, the corporate interests of industrialists were always focused on the benefit of narrow social groups, while engineers express the interests of society as a whole. Engineers are carriers of neutral disinterested managerial rationality, and on this basis they realize the useful potential of technology for all. Therefore, it is rational to transfer the functions of control from the subjects of ownership to the subjects of "technical expediency", to the technical staff. The "new ruling class" – managers and top engineers, being freed from property relations – is able to carry out economic and political management in the interests of the whole society in the most effective way. This idea was gaining popularity and was the source of technocratic notions that nourished industrial culture throughout the twentieth century. The engineering profession was becoming popular. Oswald Spengler (1922), in the last chapter of the second volume of *The Decline of Europe*, writes about "another figure" of the new technological order:

> it is a figure that is apt to be forgotten in this conflict of politics — the engineer, the priest of the machine, the many who knows it. Not merely the importance, but the very existence of the industry depends upon the existence of the hundred thousand talented, rigorously schooled brains that command the technique and develop it onward and onward. The quiet engineer it is who is the machine's master and destiny. His thought is as possibility what the machine is as actuality. (p. 505).

However, there is also a growing concern about the unlimited possibilities of the power of technology, and critical writings appear, in which the destructive impact of machine technology on the "residual" world, suppressed and oppressed by machines, is assessed from a variety of positions. Technocratism and its critique manifested as an inextricable unity of a system of opposing value arguments. Technics cannot be value-neutral. Thus the basis of Nikolai Fedorov's philosophy is the criticism of destructive creative energy directed against the human being in his contemporary culture. The protest against dangerous technologies led him to the fantastic project of "resurrection of fathers" as an ideology of revision of undue development of technologies and redirecting them in a favorable direction for humanity. Discussing the Exhibition of 1889, Fedorov (1982) says that technical achievements, more precisely their purpose and the prospect of their destructive impact on nature and humanity are only evidence of "their own immaturity" (p. 443). Fedorov prophetically warns against the expansion of destructive technical inventions that provoke military conflicts, serving the needs of endless wars, the apotheosis of which were the two World Wars of the 20th century.

THE IDEAL OF A SMALL TECHNOCRATIC ORDER: THE PHANTASMAGORIA OF THE IDEAL TORTURE MACHINE

Critics of technocratic domination are also writers. In 1914, against the backdrop of the unfolding World War I, Franz Kafka finished his short story "In the Penal Colony" which would be edited and published in 1919, which Kafka originally planned to include in a collection "*Strafen* [Punishments]." "The Transfiguration" and "The Sentence" had already been created, the idea for "The Castle" had emerged, and by the time this story appeared, the main Kafkaesque themes were taking shape: bodily mutations, existential loneliness, defenselessness against an overpowering world, external violence, anonymous overwhelming power. It is obvious that Kafka as a writer had by this time already established himself both thematically, "ideologically," and stylistically. The story explores the operation of a perfect torture machine, a technical "Kunststück [artifice]" designed to correct and punish. In a most detailed way, Kafka describes a monstrous tattoo machine for punishing criminals who have broken one of the commandments enacted on the penal island. This machine belongs to the category of inventions that Friedrich Jünger called "the shadow side of technology" (Mikhailovsky, 2013, p. 81), and Boris Vysheslavtsev includes in the system of "murder industry" (Vysheslavtsev, 1982, p. 262). The "torture machine" has a caretaker officer assigned to it, whose functions are reduced to maintaining the machine in proper condition (its elaborate functional purpose is to prolong the time of execution). The entire middle section of the story consists of a careful description from the officer's point of view of the punishment apparatus, this flawless technical invention,. The main virtue of this anti-guillotine is to lengthen the punishment procedure according to the body's capacity to tolerate the repetitive manipulation of the tattooed text of the broken commandment. Kafka dispassionately describes in shocking detail the phantasmagoric logic of the technical device, and in the language of a technical manual he lists its main units: the marker, the harrows, the

vibrator, the system of gears, the transmission belts, the felt gag. The machine is technically perfect, it needs no justification by moral laws, it needs no justification at all: "the machine works and speaks for itself." The officer turns out to be a passionate defender of this torture device and the main ideologist of the order established on the island; he supplies the story about its merits with the most detailed explanations of its functions, the purpose of each individual unit, and he does it in an extremely impassive manner, abstracting from any ethical assessment, filling the text with more and more details produced by this torture mechanism. The Faustian spirit of invention smolders in the officer, and his machine already displays the image of Lewis Mumford's (1970) "megamachine" as the basis and substructure of the order emanating from it..

KAFKA'S CRIME AND PUNISHMENT

In the study "The Paradoxes of Prison" Gennady Khokhryakov (1991) reasonably argues that "different types of punishments come unequally close to the set goals" of reforming the criminal (p. 194). The officer turns out to be the main defender of the order maintained by the machine. He is a "technocrat" who defends with all his might the principle of punishment for misdemeanor. This order is mechanistic and lacks common sense justification, because the accused are mostly unaware of what they have done, they do not know what punishment they will face, they cannot comprehend that their lives will end in the agony of a precisely timed execution, they do not understand the connection between their misdeed and the events that follow it. Because of this, they cannot reform themselves: the logic of the machine does not correspond in any way to the logic of a living being, they are from non-intersecting continuums. In the same sense, the atomic bomb is unnatural – who can it fix?! Its destructive impact is such that there is no need to speak of its "educational," "corrective" meaning, or rather, its purpose. The triumph of technology in this case means the extermination of its remnant, the "living," biological, this "wrongly organized rationality." And the "social utility" of the correctional mechanism in this case shows negative values. The disproportionality of guilt and degree of punishment is obvious, the machine is wrongly arranged, but who in this case will act as an expert? Who makes the decision and on what basis?

So, the order approved on the island has no sense, it contributes neither to the realization nor to the correction of the misdemeanor, and the misdemeanor is negligible. The logic of machine expediency determines the order of existence of the corporeal-living. Everything is Kafkaesque, sealed by a meaningless and inhuman device, approved by the abstract logic of crime and punishment and reproduced with the constancy of the change of day and night. Generally speaking, any human "weakness" falls under the violation of the penal island regime: In this particular case, sleeping on duty is punishable by torture. The main line of argumentation for technocratic domination is constructed by the engineer as the bearer of this system of inhuman principles, for whom the machine appears beyond moral evaluations and moral doubts. Technics as an end in itself and self-value of the modern era, as the domination of the mechanistic order over the natural order, as a new reality and a new basis for human existence, means the subordination of the human to the technical. The progress of technology accordingly to this system of values

will assert itself exponentially, recursively, combinatorially, and unlimitedly. And we are witnesses to this. We, as an aggregate humanity, have accepted the logic of the Kafkaian officer, absent-mindedly listening to those voices that, like Kafka or Fedorov, have realized the impending hopelessness of betting on an absolute machine alibi. And, as delayed victims of the megamachine already included in its inertial course of events, we find ourselves involved in a certain algorithmics. There is no transcendental plan of salvation here, and the transcendental foundations of moral imperatives no longer work. The construction of Kant's categorical imperative, launched in a lightened version of the "golden rule of ethics" in Kafka's plot, acquires a perverted form of categorical sacrifice: the officer, the keeper of the machine, realizing that a decisive and extremely strong argument in its defense is needed, becomes itself its demonstrative victim, its last client. Kafka, in his own way, has dealt with the absurdity of the machine's imposed services. He breaks it down by the right of the author of the story in the reality he invented. But we exist in the technocratic matrix of technological progress abstracted from moral imperatives, with all the horror and power of its final destructive products.

THE COERCIVE LOGIC OF THE MACHINE

The inconsistency between the "logic of the machine" and the "logic of the imperfect living" must be resolved in favor of one of these logics: either the corporeal must submit to the machine and accept its normative algorithms, or the living manifests its will and eliminates the machine. Kafka adopts the second logic: he sees no way out in improving the machine program, he does not try to provide it with additional "moral instructions" to exclude its immoral use, but abolishes it, excludes it from circulation, breaks it as a malicious toy. The situation of choice is modeled by Ernst Jünger (1951/2020):

> In fact, growing automatism and fear are closely intertwined with each other, and precisely to the extent that humans, for the sake of technical facilitation of life, give their ability to make decisions at the mercy of external forces. This, of course, brings them various comforts. But with it, of necessity, there is also a further loss of freedom. The loner in society is no longer like a tree in the forest, but rather like a passenger on a fast-moving transport, which may be called the Titanic, or it may be called the Leviathan. As long as the weather is good and the views are pleasant, he hardly notices the state of minimal freedom in which he finds himself. On the contrary, optimism sets in, a sense of power inspired by the speed of travel. Everything changes when fire-breathing islands and icebergs appear. And then technique not only becomes something far from comfortable, but the lack of freedom becomes noticeable, whether in the triumph of the elements, or in the fact that loners who have retained their strength begin to exercise absolute commanding power. (p. 13)

Ernst Kapp (1877) is known to have put forward his theory of technology as organo-projection: "the external world of mechanical work emanating from humanity can only be understood as a real continuation of the organism, as a transposition of the internal

world of representations outwards" (Kapp, 1877, p. 115). This theory raised many questions, and Kafka's "torture machine" is embedded in this critical row: what human organ does the torture machine imitate and "complete"? In the light of the invention of various kinds of "power machines [*Kraftmaschinen*]," the theory of organ projection does not stand up to any criticism. Hans Blumenberg explains the nature of τέχνη with a "theological argument", the essence of the argument is that man is condemned to an existence consisting of suffering, sweat, strength, i.e. everything that can essentially be called "technique" (Blumenberg, 2015). Kafka's plot is an extended example of this justification of the nature of technology: the technical device is a coercive measure of atonement for a broken commandment. Another thing is that according to the "death of God" declared by Friedrich Nietzsche, it becomes a sin to violate the installation of anyone who manages to impose their will instead of God's commandments. Thus, sleeping on a post becomes a mortal sin punishable by capital punishment. The transcendent law becomes the imposed will of the master. Georg Simmel investigated law as "detached logicality" (Simmel, 2010). In order for life to take the form of logical coherence, it is necessary to initially distribute roles within the social organism, isolate it from external "social noises," define an order and strictly follow it. Kafka does so; he models the closed space of a penal colony and gives its population meaningful functions: an officer (the steward, the keeper of the torture machine), a traveler (a great scientist, as he is characterized in the course of the narrative), two soldiers, one who has not yet committed a crime and is still acting as a guardian of the existing order, and a criminal, a former soldier, whose guilt is obvious, and it does not matter what the degree of this violation is, even if to us it looks monstrously inconsistent with the degree of punishment. The story names indirect participants in what is happening, the commandant and his deceased predecessor. There are other minor characters, but their presence does not change the course of events. Kafka debunks the technocratic idea of a perfect appointed order, for which the human turns out to be a function, a given element of the "population." The reader also becomes an involved participant in what is happening, or rather, a witness to the event-execution. Moreover, as the plot progresses, one can't help feeling that we gradually turn from unwitting witnesses of torture into accomplices of the execution: agreeing to be involved in the story makes us participants in the events of the story. Kafka succeeds in arousing in the reader (at least in one!) a feeling of deep disgust for what he witnesses. Can technicians (in the broad sense of the word) be the experts who are responsible for making machine decisions, and on what basis? Is there anything we can do to counteract a crime in progress? What exactly is our alibi? Will our abstract moral principles save us from technocratic hell?

IS IT POSSIBLE TO BREAK THE MEGAMACHINE?

Kafka anticipates Mumford's grand metaphor (Mumford, 1970) of the forms of mega-machinery as technical equipment aimed at affirming the matrix of social order. In essence, the officer uses the construct of the categorical imperative, and the maxim of his will becomes the motive to justify the machine's action. Kafka shows how senseless the

sacrifice to the machine can be. A bizarre combination of primitive sacrificial impulses, perverted notions of duty, a preference for the technical over the living, - and - voilà! - the picture of absurd existence is complete. Simmel sees the danger posed by technology in the fact that "the technical toolkit can become an independent entity" (Simmel, 2010, p. 15). Alexander Mikhailovsky (2013) develops this idea and shows that this kind of self-assertion of technology not only generates "the fear of a fully autonomous technology that tries not just to subjugate but to eliminate humanity as we know it" (p. 81). That reality is born, which is defined as Kafka's absurd "Kafka's world" that asserts itself "by the measure of essence," "by the measure of the phenomenon," "by its realization," "by the measure of its representation," "by the measure of reflection." If we accept the logic of the "megamachine" that ultimately shapes the order of life, then we accept both the moral insufficiency and absurdity of this world, that is, to a certain (albeit very small) extent, the character of existentiality depends both on our agreement to accept it and on our efforts to overcome this Kafkaesque morass. Kafka raises the problem of indifference to the moral problematic in a technicist world, and, like Spengler, derives corollaries from the possibility of imagining the absolute independence of technology from its modes of operation. Spengler, in his famous work *Mensch und Technik* [Man and Technics], called it "the success of practical thinking" abstracted from all side effects of invention and above all from the moral grounds of its exploitation (Spengler, 1931). Mikhailovsky warns against vulgar interpretations of Spengler, in particular, against attempts to contrast *Der Untergang des Abendlands* [The Decline of the West] with the ideas of the later work on *Humanity Technology*: the meaning of the German "*Untergang*," which is traditionally translated into Russian as "sunset," carries from Mikhailovsky's point of view the meaning of "completion" or "fulfillment," it "does not imply the idea of any catastrophe" (Mikhailovsky, 2022, p. 98). In other words, technical civilization expresses its ultimate meanings, goes through the full cycle of its "*Untergang*" and ends as having fulfilled its purpose. It is possible, in another century after Spengler's death, to question the non-catastrophic direction of the development of technical civilization as a whole, but what will this change? More important questions remain that we will be forced to answer. Can machine logic really be ethically neutral? Or must values be incorporated into the machine's algorithmics? After all, value determinism determines the goals and consequences of decision-making. It is the machine in Kafka's story that acts as the regulator of the social order, so who is responsible for what the machine becomes: the inventor, the technical operator, or the independent expert? Kafka alludes to these expert authorities, but as long as the polemic between them lasts, the execution continues.

"THE IMMANENT EVIL OF INDUSTRIALISM"

Boris Vyshevslavtsev (1982) calls the necessity of victims of the technical course of things "the immanent evil of industrialism" (p. 261). Technocracy strives for power using the matrix of machine order as the highest achievement of order in general. Vyshevslavtsev makes the paralogisms of technocrats extremely clear:

> The technocratic tendency is indeed present in all industrialism, but it is present as an immanent evil of industrialism [...] No one is obliged to accept this evil; its

> overcoming is the task of our time. What is the essence of this evil? It lies, of course, not in industry, but in "industrialism," not in technology, but in "technocracy", i.e. in the absolute power of the industrial-technical apparatus over all human life. Those who attack technics and industry do not hit the target and do not guess the essence of evil; it consists in the loss of freedom, in the loss of oneself, one's spirit and soul; it is not technics that is to blame for slavish service to the technocratic apparatus, we ourselves are to blame. (p. 266-267)

It is necessary to connect as cause and effect "the impersonal power of the machine" and the crowd of the modern city, which is full of people who "have lost all soulfulness and spirituality" (Vyshevslavtsev, 1982, p. 268). Industrialization is not directly connected with the liberation of humanity, because the control of things does not abolish the power of technology over people. Industrialization turns out to be a hidden form of total domination, a grandiose enslavement, and Vysheslavtsev lists many signs of the new "industrial slavery": a growing techno-bureaucratic apparatus, the "massification" of society, the loss of individual autonomy, an abstract technocratic ideology, ethical and moral transformations, and moral regression. The result of the new round of technical development: "enormous progress was combined with enormous regression, and the result was 'Neanderthal man' armed with the atomic bomb" (p. 283).

WHAT'S THE BALANCE?

Kafka turns out to be one of those artists who realized the consequences of the unlimited growth of technical civilization during the most romantic period of the heyday of engineering in the modern era. He modeled the situation of its absolute domination and presented the arguments of his "disagreement" with the machine logic of domination and subordination. He was quite aware of the prospects of the self-sufficient assertion of engineering. The question is whether and how the destructive power of the machine, which threatens the subtle corporeal substance, can be contained. He shows the dangers of technological determinism, which cannot be perfected by correlations and instructions alone. Kafka was able to show the logic of the development of the technoworld. Our work of studying, understanding, perceiving, rejecting or accepting it cannot be finished. The reconstruction of possible "orders" emanating from the technocrats must not be interrupted before it comes to the "last victim." We can nurture the hope (or illusion) of a favorable outcome as long as the spirit of technical invention, the "spirit of the machine," hostile or neutral, determines what will end up in its residue: the human right to life, to moral life, to the source of moral life, rather than the machine's set of instructions by which the human being is marginalized. Can technicians (in the broad sense of the word) be the experts who will be responsible for making decisions, and on what basis? Everything is decided by the values that motivate those decisions. Technology itself is not capable of providing satisfactory solutions to the question of its application. Technology can be a means of destroying life, of destroying people, or of satisfying empty whims, it can deplete the natural resources belonging to humankind as a whole, and it can provoke discord and war. But it can also be used for the opposite – good – purposes. But only to whom are the decisions entrusted? The question of the moral

content of scientific and technological progress is still open.

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Статья поступила 11 августа 2024
одобрена после рецензирования 1 сентября 2024
принята к публикации 12 сентября 2024

Received: 11 August 2024
Revised: 1 September 2024
Accepted: 12 September 2024

https://doi.org/10.48417/technolang.2024.03.12
Research article

"Be just": Human, Machine, Punishment

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Abstract

The works of Franz Kafka arouse constant interest and debate, which is due to their semantic complexity, the paradoxical nature of situations described, and the unusual nature of characters. The purpose of the essay is to determine the connection between machine and human in the system of punishment and "judicial proceedings" in Kafka's story "In the Penal Colony" in the context of issues of philosophy of technology. The analysis of Kafka's story allows us to focus on the complexity of the relationship between human and machine, which manifests itself, among other things, in entrusting the machine with the mission of "objective punishment," performing a special act of justice. The essay compares the ideas of this story with the ideas of Ivan Turgenev's "The Execution of Troppmann." Turgenev's story describes the public execution of the murderer of seven people, Jean Baptiste Troppmann, in Paris. The emotional background of the execution is the mood and behavior of the public, which, according to the writer, confirm the attractiveness of violence for the crowd. The method of Troppmann's execution was guillotining; the history of its use is associated with the principle of "equality" of punishment, the desire to spare a convict from torment due to the fault of an unqualified executioner. The death machine in Franz Kafka's story performs the task of "purifying" the criminal with punishment by "reading" the bloody inscription applied to the body by the machine, which gradually kills the criminal. According to the officer, the machine is perfect. Its destruction does not mean abandoning the principle of "guilt is always beyond a doubt" and similar deadly mechanisms. The mission of technology is determined by society, the interests of different states, social groups and political communities.

Keywords: Death Machine; Punishment Mechanism; Human and Machine; Kafka

Citation: Bernyukevich T. (2024). "Be just": Human, Machine, Punishment. Technology and Language, 5(3), 156-160. https://doi.org/10.48417/technolang.2024.03.12

УДК 124.5
https://doi.org/10.48417/technolang.2024.03.12
Научная статья

“Будь справедлив”: человек, машина, наказание

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Аннотация
Произведения Франца Кафки вызывают неизменный интерес и дискуссионные оценки, это связано с их смысловой сложностью, парадоксальностью описываемых ситуаций, необычностью героев. Целью эссе является определение связи машины и человека в системе наказания и “судопроизводства” в рассказе Кафки “В исправительной колонии” в контексте вопросов философии техники. Анализ рассказа Кафки позволяет акцентировать внимание на сложности отношений человека и машины, которая проявляется, в том числе, в возложении на машину миссии “объективного наказания”, совершения особого акта справедливости. В эссе идеи этого рассказа сравниваются с идеями рассказа Ивана Тургенева “Казнь Тропмана”. В рассказе Тургенева описывается публичная казнь в Париже убийцы семи человек Жана Батиста Тропмана. Эмоциональным фоном казни выступает настроение и поведение публики, пришедшей на казнь, которые, по мнению писателя, подтверждают притягательность насилия для толпы. Способом казни Тропмана было гильотинирование, история использования гильотины связана с принципом “равенства” наказания, стремлением избавить осужденного от мук по вине неквалифицированного палача. Машина смерти в рассказе Франца Кафки выполняет задачу “очищения” преступника наказанием путем “прочтения” кровавой надписи, наносимой на тело машиной, постепенно убивающей преступника. По мнению офицера, машина совершенна. Её разрушение не означает отказ от принципа “виновность всегда несомненна” и подобных смертоносных механизмов. Миссия техники определятся обществом, интересами разных государств, социальных групп и политических сообществ.

Ключевые слова: Машина смерти; Механизм наказания; Человек и машина; Кафка.

Для цитирования: Bernyukevich T. V. “Be just”: Human, Machine, Punishment. Technology and Language. 2024. № 5(3). P. 156-160. https://doi.org/10.48417/technolang.2024.03.12

INTRODUCTION

Franz Kafka's story was written two months after the outbreak of World War I, the time when people started using new military machines and technologies, chemical weapons, and the creation of the first concentration camps. It is the time of the triumph of technology and the crisis of humanism. It is no coincidence that the philosopher Nikolai Berdyaev connected the origins of the October Revolution in Russia with this war that changed the life of Europe at the beginning of the 20th century.

The works of Franz Kafka arouse constant interest and debate, which is due to their semantic complexity, multi-layered meanings, the paradoxical nature of described situations, and the singular characters. Usually, researchers associate all these features with the characteristic "absurdism" of Kafka.

What is the special connection between machine and human in the system of punishment and the "judicial proceedings" in Kafka's story "In the Penal Colony"?

GUILT IS ALWAYS BEYOND A DOUBT

The Traveller who arrived at the penal colony attends an execution, which must be carried out using a "peculiar apparatus" invented by the former Commandant of this colony. The Officer servicing the killing machine enthusiastically shows the structure of this mechanism to the Traveller: the Bed, the Inscriber, special cotton wool, a prong, and, most importantly, the Harrow – and describes in detail the process of its work to carry out the sentence:

> Our sentence does not sound severe. The law which a condemned man has violated is inscribed on his body with the Harrow. This Condemned Man, for example," and the Officer pointed to the man, "will have inscribed on his body, 'Honour your superiors. (Kafka, 1919/2014).

At the same time, the basis of the verdict is the principle "Guilt is always beyond a doubt." Executions in the penal colony were public. The Officer recalls with nostalgia how interesting the functioning of the machine was during the administration of the former Commandant-inventor. It is important to highlight that public execution performed two important functions in the history of humanity: intimidation and entertainment.

Thus, the autobiographical story of the Russian writer Ivan Turgenev "The Execution of Troppmann" (1870) describes the public execution in Paris of Jean-Baptiste Troppmann, murderer of seven people. The onerous background of the execution is the mood and behavior of the crowd of twenty-five thousand people who came to this execution. According to the writer, this only confirms the deep-rooted appeal of the exhibition of violence. The author remembers a young man who is senselessly shouting "blouseboy." Turgenev is convinced that this young man is unlikely to take up work that day as "a man who hates vice and idleness more than ever" (Turgenev, 1870/1922).

In fact, the method of Troppmann's execution was guillotining; the history of its use is associated with the ideas of "equality" of punishment, the quick death of the convicted person even if the executioner is insufficiently qualified.

WORD AND BODY

The machine in the story “In the Penal Colony” simultaneously performs the functions of announcing the sentence to the convicted person and executing the murderous punishment. The letters that are drawn deeper and deeper into a body by the machine’s Harrow do not kill the Condemned immediately, but only after about twelve hours. And at the “turning” in the sixth hour, the Officer says, a certain enlightenment of thought occurs; it “starts around the eyes.” The Officer assures the Traveller that this expression is so attractive “that it could tempt one to lie down under the Harrow.” The Condemned opens to the inscription-sentence through his wounds; literally, the word is connected to the body with the help of the machine.

The mechanism indirectly performs the function of an executioner, thereby punishment acquires an objectified meaning, and the process of the machine’s operation is given spiritual content. This here is not just the execution of the decision by a human court, but this is a death penalty as a way of realizing guilt for the convicted person. In the penal colony, this machine not only carries out execution, but also “cleanses” and “enlightens” the criminal, it is his final “correction.” This mechanism is a means for a criminal to comprehend his guilt by “reading” it through his own body; the death machine contributes to the complete connection of word and body.

Methods of special designation and branding of criminals have undoubtedly existed since ancient times, but this was not only a humiliating punishment for robbers and murderers, but also an important sign of danger of these people to society. The words that the machine writes on the body of the Condemned in Kafka’s story are, first of all, a message to the person being punished. These are the last words that the Condemned will “read” before death, these are the words that kill.

This plot situation in the story can be considered in the context of determining the place of the word in culture, the role of language in human life and society. The “murderousness” of the word, its functions as punishment and exposure can be associated with the logocentricity of human civilization as a whole, in which the Word is understood as the source of reality and the ontological basis of all being (Pelipenko, 2015).

According to the Officer, the machine is perfect. However, despite the character’s conviction in this ideal act of justice, the mechanism collapses precisely when he uses it for the last time – on himself. The Officer dies without receiving the desired inscription “Be just” on his body.

TECHNOLOGY AND HUMANISM

The ideal killing machine, which was invented by the deceased and almost forgotten Commandant, has collapsed and, according to the plot, is becoming a thing of the past. However, this does not mean at all that there will be no penal colonies with the principle “guilt is always beyond a doubt” and other machines for punishment.

Philosopher, scientist, engineer-inventor Pavel Florensky believed that technology is the way to overcome the Fall of humanity from God. This path is paved by culture, technology is a part of it (Bernyukevich, 2021). Florensky’s ideas are close to the concepts of the philosopher of technology Friedrich Dessauer and are generally

associated with the humanistic orientation of philosophy of technology, also developed in the studies of Ernst Kapp, Martin Heidegger, Karl Jaspers, Jose Ortega y Gasset, Nikolai Berdyaev, Lewis Mumford, and others.

However, technology may have a different mission, which has been clearly demonstrated throughout the 20th century and at the present time. It is determined by society, the interests of different states, social groups and political communities.

Kafka’s story “In the Penal Colony” is a brilliant artistic vision of this murderous mission. Hannah Arendt wrote: “Kafka’s world is without a doubt a scary world. The fact that it is worse than a nightmare, that in structure it is terribly adequate to the reality that we had to endure, we now, perhaps, know better than twenty years ago. The most remarkable thing about this art is that it shocks us today no less than then, that the horror of the story ‚In the Penal Colony‘ did not lose its spontaneity even after the reality of gas chambers” (Kantor, 2015).

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Статья поступила 14 мая 2024
одобрена после рецензирования 7 августа 2024
принята к публикации 28 августа 2024

Received: 14 May 2024
Revised: 7 August 2024
Accepted: 28 August 2024

https://doi.org/10.48417/technolang.2024.03.13
Research article

Kafka's Thought Experiment: Reality Between Book and Spirit of Law

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Abstract

The author examines Franz Kafka's short story "In the Penal Colony" in the context of Austrian philosophy. Austrian philosophy stands for combination of different philosophical systems and independent thinkers, as well as writers associated with the culture of the now defunct multinational Austro-Hungarian empire. Austrian philosophy has a number of distinctive features, which can be described as an anti-Kantian orientation (due to the official Catholic faith in the empire), a baroque worldview (life in endless anticipation of the end of the world), a tendency towards empiricism and an appeal to linguistic issues. Linguistic problems were particularly acute, since the official language of the Austrian Empire was German, which was not the native language of many writers. Another problem associated with language can be identified from Kafka's work: words, according to the writer, come from the world of "false" life, and it is impossible to convey reliable information about reality. However, a significant place in this historical type of philosophizing is occupied by a thought experiment, the development of which took place in parallel directions among philosophizing "physicists" and philosophizing writers. The general context of these studies was built on a special version of Platonic idealism, implying a difficult but possible path to achieving the truth – the "world of eidos." We consider Kafka's story as a thought experiment with the book and spirit of the law, which shows the contradictions between the text of the law and the content hidden behind it, i.e. the gap between the literal interpretation and its moral and ethical content. In Kafka's story, the spirit of the law has changed, but the book has remained the same. This state of affairs is characteristic not only of the artistic world of the work in question, but also of what was happening in reality – in the world of the fading Austro-Hungarian Empire.

Keywords: Thought experiment; Law system; Social reality; Franz Kafka; Austrian philosophy

Acknowledgment: The research was supported by RSF No. 24-28-01014 https://rscf.ru/en/project/24-28-01014/

Citation: Krutko, D. (2024). Kafka's Thought Experiment: Reality Between Book and Spirit of Law. *Technology and Language, 5*(3), 161-170. https://doi.org/10.48417/technolang.2024.03.13

УДК 167.2
https://doi.org/10.48417/technolang.2024.03.13
Научная статья

Мысленный эксперимент Франца Кафки: Реальность между буквой и духом закона

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Аннотация
В данной статье автор рассматривает рассказ Ф. Кафки “В исправительной колонии” в контексте австрийской философии. Под австрийской философией мы понимаем сочетание разных философских систем и самостоятельных мыслителей, а также писателей, связанных с культурой ныне не существующей многонациональной империей Австро-Венгрии. Австрийская философия имеет ряд своеобразных черт, которые можно обозначить как антикантианскую направленность (из-за официальной католической веры в империи), барочное мировоззрение (жизнь в бесконечном ожидании конца света), склонность к эмпиризму и обращение к лингвистической проблематике. Лингвистические проблемы имели особую остроту, так как официальном языком Австрийской империи был немецкий, не являющиеся родным для многих писателей. Еще одну проблему, связанную с языком, можно выделить из творчества Кафки: слова, по мнению писателя, приходят из мира “ложной” жизни, и невозможно сообщить достоверные сведения о реальности. При этом значительное место в этом историческом типе философствования занимает мысленный эксперимент, развитие которого происходило в параллельных направлениях среди философствующих “физиков” и философствующих писателей. Общий контекст этих исследований строился на особой версии платоновского идеализма, подразумевающего трудный, но возможный путь к достижению истины – “мира эйдосов”. Рассказ Кафки мы рассматриваем как мысленный эксперимент с буквой и духом закона, который показывает противоречия между текстом закона и скрывающегося за ним содержания, т.е. разрыв между буквальным толкованием и его морально-нравственным содержанием. В рассказе Кафки дух закона изменился, а буква осталась прежней. Такое положение дел характерно не для только для художественного мира рассматриваемого произведения, но и для того, что происходило в реальности – в мире угасающей Австро-Венгерской империи.

Ключевые слова: Мысленный эксперимент; Правовая система; Социальная реальность; Франц Кафка; Австрийская философия

Благодарность Исследование выполнено за счет гранта Российского научного фонда № 24-28-01014, https://rscf.ru/project/24-28-01014/

Для цитирования: Krutko, D. Kafka’s thought experiment: reality between book and spirit of law // Technology and Language. 2024. № 5(3). P. 161-170. https://doi.org/10.48417/technolang.2024.03.13

INTRODUCTION. THE SPECIFIC CHARACTER OF AUSTRO-HUNGARIAN MIND AND REALITY

The writer Franz Kafka belonged to the Austrian philosophical tradition, which is rarely the subject of special consideration. However, researchers highlight the following characteristic features: the influence of the Baroque tradition (the heyday before the end), greater attention to linguistic issues, similarities with British empiricism, polemics against Kant (Cherepanova, 1999, 2015, 2021).

The attitude towards the teachings of German philosophers, representatives of German idealism – Kant, Fichte, Schelling, Hegel – was ambivalent in Austria, despite the undeniable influence of German thought on world philosophy. A common language facilitated the dissemination of ideas, but Austria sought to develop its own in the cultural and political polemics with Germany of that period. The anti-Kantian orientation was expressed not only in attempts to take an opposite position, but also arose due to Austria's certain cultural backwardness. The disintegrated empire was a Catholic country, and Kant's philosophy, which opened a critical attitude to questions of morality and faith, was based on Protestantism. Kant criticized the Catholic Church's exaltation of the cult of repentance and sacrifice. According to the philosopher, this did not contribute to people's moral behavior (Kant, 2017). Catholicism in Austria served as the support of a multinational empire whose peoples spoke different languages, so criticism of it was not allowed.

Events from Austrian history formed a special attitude to reality, a "practical metaphysics" (Cherepanova, 1999, p. 21), the specificity of which was the idea that only the "heavenly" other world can be constant, while the events of earthly life are changeable and inconstant. Historical experience showed that the end of an era was never truly the end of an era, it was followed by a new end. As a result, Austrian thinking created a culture of the "Merry Apocalypse" (Johnston, 1972, p. 9), a complex and multi-level approach to reality.

Austrian thinking was also influenced by the fact that official Catholicism, actively supported by the imperial authorities, did not accept theology, which allowed for many religious interpretations, together with Kant's metaphysics, formed in the spirit of Protestantism. Catholic rejection contributed to the formation of the "Baroque worldview" – "the perception of the world as a theater" controlled by a divine director (Cherepanova, 1999, p. 18) and the preference for an experiential theory of knowledge, i.e. empiricism. Interestingly, with the conditional support of the church, positivism also spread, since it did not contradict the basic doctrines. Reality in this picture of the world was a rigid and hierarchical structure, the lower tiers of which showed the human "vain" world, and the upper ones – God.

"The Baroque worldview" is characteristic of an epoch living in anticipation of a near end – an endless series of upheavals. In such a world, constancy is expressed only in incessant change. The world is presented as a divine theatre, where Providence rules, and man can find peace only after death in the case of a righteous life. In this understanding, Leibniz's monadology gave meaning to the worship of divine wisdom (Cherepanova, 2013, p. 53). Empiricism, positivism, and scientism developing on the wave of Kant's

criticism were made up of ideas about the possibility of true knowledge about the world, based on mathematical and logical constructions. The logical analysis of language subsequently led to the linguistic turn in world philosophy.

The study of "linguistic reality" in modern humanities is a popular research approach to understanding any culture. But during the existence of the Austro-Hungarian Empire, this line of research was just emerging. And the writers and thinkers of that era, due to the specifics of their culture, were forced to pay attention to linguistic issues and the peculiarities of the competition of linguistic reality. As a result, the problem of reality and language was reflected in Austrian literature of that period.

In an attempt to culturally unify the nation, German was declared the official state language in 1784. But this did not lead to the expected national unity. Instead, various dialects and national languages began to actively develop, which later turned into literary languages (Cherepanova, 2013, p. 51).

Austrian thinkers thought and wrote in different languages. And since language is one of the unifying symbols of the nation, it was necessary to find some solid and common foundations in language as such – German, Czech, or even Hungarian. The result of the search was a "call for silence," an attempt to destroy the language (Cherepanova, 1999).

Before the "call to silence," Austrian literature still tried to find a "pure" and "clear" language. A theatrical or conventional language was formed, characterized by understatement. The main literary form became the story. Literary reality consists of two levels: the lower – "ugly" and subjective, and the higher – universal eternal truths. These characteristic features of Austrian literature are reflected in the work of Kafka: dry conventional language, a fantastic situation, and subjective perception of the characters (Nyiri, 1987).

Kafka wrote in German, which was distinguished by its simplicity of form. German in Prague was significantly different from Viennese or Prussian German, and in Kafka's house one spoke Czech. Kafka was a German-speaking Czech Jew which allowed him to create his own literary style, characterized by great sobriety of expression. Igor Krtolica (2013) continuing Deleuze and Guattari's (1975) reasoning shows how Kafka's literary works constructs the language. It consisted of colloquial Czech, colloquial Yiddish, Hebrew, official German, the language of official documents, the language in which Goethe wrote.

THE METHODS OF DISCUSSION THE REALITY

According to Kristóf Nyíri, the features of Austrian philosophy are empiricism and platonism. Platonism is an idealistic theory of knowledge, signifying that universal concepts (abstract ideas) exist independently of their concretely embodied (material) forms (Nyiri, 1987). In Plato, the idea is opposed to any likeness or reflection that is perceived through sensory data. And therefore, sensory perceived things are always transient and changeable – there is nothing permanent and stable in them. Also, beginning with Plato, thought experiments as a procedure for proving any state of affairs became a literary form. In ancient Greece, there was no term corresponding to the modern "thought experiment." However, the technique was used in a similar way – to defend one's own

theories and refute others. Ancient Greek philosophy also used this method to suspend judgment. To do this, arguments were formulated to support two opposing points of view (Stuart et al., 2017). A thought experiment is a cognitive procedure in the form of a hypothetical situation, when a certain position (theory, hypothesis, principle, problem) is put forward, which must be resolved in the mind, that is, with the help of imagination. The epistemological function of this tool is aimed at the real world, i.e. thought experiments must somehow be solvable. This type of method is used when it is not possible to conduct a "real" (physical) experiment. The Austrian physicist and philosopher Ernst Mach was the first to use the term "thought experiment" in its modern meaning [*Gedankenexperiment*]. Mach writes that a person accumulates experience through observations of changes in the environment. This experience becomes the beginning of experimentation. An experiment in the mind or a thought experiment is used by poets, utopian thinkers, writers, physicists, researchers, and inventors, i.e., almost everyone. But unlike the natural scientists like Mach, not everyone bases their experiment on an exact reflection of the facts of reality (Mach, 1906).

The position based on Platonism and empiricism is most clearly reflected in the works of Ludwig Wittgenstein. In turn, through Wittgenstein one can understand the work of Kafka, since despite the difference in the forms of presentation, the thinkers have many points of contact.

Wittgenstein's *Tractatus* contains ideas about the individual nature of the good: the solution to the problems of life is carried out by everyone alone and cannot be communicated to another by linguistic means (Wittgenstein, 1922/2022). Ethics are conveyed only through practical forms of behavior. If good is strictly individual, then what does it consist of? To this question, Wittgenstein answers that one must point to the essence of goodness with one's life, remain silent, and not rant. Those who understand that the cause for the discrepancy between the ideal and the real lies only in themselves should not place their hopes on changes in external factors. How to survive in the real world, aware of your helplessness and recognizing the impossibility of any change? Life in the present knows nothing of death. Wittgenstein's concept of the substance of the world is close to Plato's; the world basically consists of unchanging ideal forms; only their objective embodiments change. But we know nothing about the substance of the world, so there is nothing to say about it. What cannot be said must remain silent. Kafka starts from Wittgenstein's thesis that "silence is one of the attributes of perfection." His literary heritage is small, but for the literary process of the 20th century it is very significant. The feeling of loss of reality leads Kafka to the doctrine of silence as a means of compromise with social evil. Constant awareness of one's guilt (this is a biblical motive) is a reliable path to the ethical life of every isolated individual. From here follow the principles of ethical rigorism and individualism – life is accepted as simple contemplation, cognizing the world, but not capable of cognizing oneself.

Austrian thought has its own special attitude towards death – aestheticism, therapeutic nihilism, impressionism – all this is reflected in the suicide of the officer in Kafka's infernal machine. Such a view of death was constructed through a baroque worldview, which saw death as something that made up for what life cannot give. This aspect of death is featured "In the Penal Colony." This story is a less popular subject of

analysis than other works of the writer. But nevertheless, this work clearly reveals both the specificity of Austrian thought and the specificity of Kafka's work. A traveller is invited to attend an execution carried out with the help of a special device. From the story it turns out that the form of execution is outdated and about to be abandoned. But the officer who wants to carry out the execution would like to return to the old order. To do this, he needs a traveler and a victim to demonstrate the work of the machine, which for 12 hours writes a commandment on the body of the condemned. But in the end, the officer himself becomes a victim of this device.

Kafka was not the only writer who interpreted the theme of the death penalty. Basically, writers of the 19th and early 20th centuries advocated the abolition of the death penalty. They believed that the punishment was incomparably harsher than the crime and that it is a process of hardening people instead of demonstrating the demands of justice. It is worth noting that the theme of the death penalty is particularly relevant for 20th century literature. And among the various writing strategies, one can single out a common thesis about the groundlessness and helplessness of the modern person (Mukhina, 2021).

The Austrian linguistic problem is woven into the plot of the story. One of the characters, a convict, does not know the language spoken by the officer who is a representative of the authorities. Thus, the convict does not understand what is being said to him and what is happening to him. And the traveler, the hero, who seems to understand the language and is able to influence the situation, is still a foreigner and therefore takes an observational position (Kafka, 1919/2017). But the language for the traveler and the officer is common, it is official.

Kafka expresses the moral decline of society and language. The presence of the motive of silence is explained by the mood of the era. The feeling of a loss of reality is characteristic of the era, entailing a total loss of any value expressed through language. The heightened reaction to the moral and logical degradation of the language ultimately led to complete silence. Kafka rejects cheap means – creating new words, intertwining parts, replacing sentences, replacing one thing with another. He strives for correctness, clarity and relevance to the subject.

Kafka's literary legacy can be presented as an attempt to "overcome the human" (Cherepanova, 1999). The writer's works describe structures in which there can be no concept of "citizenship" and problems of national language. Kafka also allows his readers to independently draw a conclusion about the story they have read – as a result, multiple interpretations appear. This multiplicity gives the key to understanding what is happening in reality. Note that the death of a character is an opportunity for Kafka to close a topic, and to leave knowledge of the presence of information that cannot be discussed.

RESULTS AND DISCUSSION OF A THOUGHT EXPERIMENT AND THE LAW

Reiner Stach, a contemporary German writer and biographer of Kafka, shows in a short essay that Kafka's texts age much more slowly than the texts of many other authors of his era (Stach, 2014). Stach connects the world of Kafka and modern problems of the digital environment. For example, in the United States it becomes possible to accuse a

person of any number of crimes, and he will have no way of knowing why he was targeted – "Kafka's nightmare is gradually becoming the reality of America."

Kafka didn't just depict how people become victims; it also shows the extent to which power rests on the complicity of its victims. This phenomenon goes beyond the political and touches on the ideas of psychoanalysis. If a son continues to obey his father long after the latter's death, it means that he has taken into his own hands the whip that once punished him. Kafka was deeply skeptical of the therapeutic promises of psychoanalysis, but he was captivated by the way it described the expansion of power, which resonated with his own experiences. Things become even more problematic when those in power claim that they are only implementing what we have secretly desired all along. For example, the officer from the penal colony believes that everyone secretly dreams of the return of public executions.

In the modern world, people accept consent blindly: "No one forces me to check the box confirming that I accept the rules of the social network's terms and conditions, but I do it anyway, without delving into all this nonsense. As a result, I get used to accepting contractual obligations blindly – and this is perceived as proof of my trust." Likewise, the condemned man blindly goes to his own failed execution (Stach, 2014).

Stach writes about the feeling of moral isolation in an overly complex, confusing world. Kafka was the first author to understand what it meant when people were turned into statistical units and their every move was collected as data. But for Kafka, the problem was not the machine – the bureaucracy itself is not to blame, it is not an active agent. It's the people themselves who are to blame for checking boxes and sharing their personal photos.

Georges Bataille (1957/1990) describes Kafka differently. Kafka, in his opinion, was a man who, on the one hand, sought to escape from his father's influence (just as the inhabitants of the empire sought to escape from the imperial order), but he did not really want to escape from there. And yet, one can imagine that Kafka opposed the old system and its bureaucracy and sought to replace it with something more humane. That's why in Kafka's case to abandon or return to the old order becomes a thought experiment.

If we consider Kafka's views on law as subject of thought experiments, we can imagine its embodiment in a social and legal experiment that affects all aspects of society. Attitudes towards law and order and rule-making thereby become more obvious. The legal experiment is one of the mechanisms for increasing the efficiency of legal regulation in conditions of openness and instability of the system of social relations.

For a legal experiment, a certain area of action is chosen – in Kafka's case, it is a remote island. Thereby, an experimental mode is introduced. Next, we need to consider how it affects society. The legal experiment has an expiration date. After the experiment has expired, if the regime is not effective, it does not retain power everywhere. The execution machine, described in detail by Kafka, ultimately turns out to be an ineffective regulator of social relations – the legal experiment is completed.

Regarding the regulation of modern technologies that use artificial intelligence, especially in copyright law, legal experiments are used. The main problem is that the digital environment is a relatively new environment for legal communication. It requires the development of other legal traditions, ideas and ideas to form a full-fledged legal

culture (Ladenkov, 2023). This requires a longer period of active use of digital technologies and the creation of a digital subsystem of law. The old system based on Roman law is still effective, but not in the digital world. This is metaphorically represented in Kafka's work. There is no need to discard the past; we need to supplement the "bright" future with new developments.

There is also a problem of legal understanding, expressed in the deformation of the legal consciousness of the hero of the story, the "Officer". The officer follows "legal idealism" and replaces the actual operation of the law ny personal preference, given that the old order gave purpose to his life. The problem of regulating the relationship between humanity and technology is also shown in this story. It is known that such relations are regulated by a system of technical norms, from which it follows that technology does not have legal standing in that old world which does not know of the problem of legal regulation of relations in the digital environment. But the similarity with the relevance of the problem is obvious: we know the Chat GPT devices and we know what result they should give us, but we do not understand the algorithms working in the neural network and their behavior. The same can be said about the execution machine in the story. In law, grammatical, logical, systematic and historical interpretation is possible, but when there is no written rule of law, people act at their own discretion and according to their ideas about the law.

The last significant aspect is that in the novella the machine appears to have a powerful unity, and the person enters completely into it – perhaps this is what leads to the final explosion and crash of the machine. Kafka's story depicts an epistemological gap. It illustrates this turning point of transition from one epoch to another, the replacement of one power by another. Essentially, this story describes a shift, or better yet, a leap from one penal system to another. In Kafka's story, the old model of justice represents the tortured body, but the dismantling of the machine marks the emergence of a new way of thinking about punishment, a new punitive rationality (Bareït, 2016).

CONCLUSIONS

The writer Franz Kafka belonged to the Austro-Hungarian tradition of philosophical thought. This philosophy gave the world psychoanalysis, logical positivism, phenomenology, and other important trends that are relevant in the 21st century. Despite the fact that Austrian philosophy is not a special subject of consideration in the history of philosophy, there are a number of researchers who have devoted fundamental works to this phenomenon – the Russian philosopher Ekaterina Cherepanova, the American historian William M. Johnston and the Hungarian philosopher Kristóf Nyíri. They highlight a number of features in Austrian philosophy that appear in the work of all intellectuals related to the culture of this thought: polemics with Kant, the expectation of an imminent end expressed in a baroque worldview, experience as the beginning of all knowledge or strict empiricism, the focus on language. And among the impressive intellectual heritage of the vanished empire, researchers especially highlight Franz Kafka, whose works are still not outdated and have not lost their relevance. The writer's work invites many interpretations due to its special literary form – the form of a story. The

writer implicitly inherits Plato's dialogic form of presentation, but with its own specificity, characteristic of the culture in which he worked and lived. Linguistic issues were more acute for the Austrians due to the contradictions between the official language and native languages, which left an imprint on Kafka's literary writing. Also, Plato is the source of the construction of a narrative in the form of a thought experiment, which, according to Kafka, the reader must complete. Such a narrative allows the story and the reader's "completion of the experiment" to become an outlet to social reality, because there are no other adequate tools. Kafka also offers to see part of the social reality associated with law. The problem of law enforcement and legal understanding associated with the general legal culture remains relevant centuries later. Kafka shows a certain inertia of law, lagging behind social changes. In the story "In the Penal Colony" under consideration, this lag is shown as follows: the letter of the law in the person of the officer has remained the same, but the spirit of the law has already changed and execution is no longer needed, but reforms in the field of law are needed. But who will carry them out, and how? There is no answer to this question.

The special attitude to language in Kafka's reality and modern digital reality is somewhat similar, since language is a specific way of conveying and perceiving reality. A dual reality arises – in Kafka – artistic/divine reality and the world of everyday life, and in modern times – the opposition of digital and non-digital realities. New technological challenges require "silence," that is, clear legal formulations that have not yet been created. Like the writers of Austria who did not really want change, modern society strives to regulate the new environment by old means, but this can only lead to the destruction of the old world. And even in the new world, the Machine, which embodies the "unity of writing and death" and performs a judicial function, depends on the legal understanding of those who operate it.

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Статья поступила 6 мая 2024
одобрена после рецензирования 11 августа 2024
принята к публикации 28 августа 2024

Received: 6 May 2024
Revised: 11 August 2024
Accepted: 28 August 2024

https://doi.org/10.48417/technolang.2024.03.14
Research article

Kafka's Speculative Technologies

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Abstract

Franz Kafka's *In the Penal Colony* is known to be one of his most disturbing stories, and yet it offers solace in the perfect working of a perfect machine. For the most part it consists in the description of the machine that executes the condemned by slowly carving the verdict into their flesh, bringing them to a point of delirious agony where they understand that justice is carried out as the machine carries out its program. Due process or a right to defend oneself are not provided for. In the eyes of a visitor to the penal colony, this disqualifies the machine. For the officer and operator of the complicated apparatus, justice is not a procedural notion but resides in the power of the word, that is, in the verdict being the true name for the crime. This power is revealed as the word and with it the law is laid down. It does not require reading to be understood since it is experienced in the flesh. This archaic conception of the machine as executor of laws and rules, and thus executor of convicts fits the idea of the machine: It determines an outcome in a perfectly transparent manner, it is intelligible – except when it breaks as in the botched attempt of the officer to let the machine take his own life. If one looks for a machine that lacks specification and that is profoundly subversive of meaning and function, Kafka describes such a machine as well.

Keywords: Franz Kafka; Speculative technology; Killing machines; Technology and language

Citation: Nordmann, A. (2024). Kafka's Speculative Technologies. *Technology and Language, 5*(3), 171-178. https://doi.org/10.48417/technolang.2024.03.14

УДК 1:62
https://doi.org/10.48417/technolang.2024.03.14
Научная статья

Спекулятивные технологии Кафки

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Аннотация
Рассказ “В исправительной колонии” Франца Кафки известен как одно из самых тревожных его произведений, и все же он предлагает утешение в идеальной работе идеальной машины. По большей части он состоит из описания машины, которая казнит осужденных, медленно царапая приговор на их плоти, доводя их до точки безумной агонии, где они понимают, что правосудие осуществляется по мере того, как машина выполняет свою программу. Надлежащая правовая процедура или право на защиту не предусмотрены. В глазах посетителя исправительной колонии это дисквалифицирует машину. Для офицера и оператора сложного аппарата правосудие не является процессуальным понятием, а заключается в силе слова, то есть в приговоре, являющемся истинным названием преступления. Эта сила раскрывается как слово, и вместе с ним устанавливается закон. Его не нужно читать, чтобы понять, поскольку оно переживается во плоти. Эта архаичная концепция машины как исполнителя законов и правил и, таким образом, исполнителя приговоров соответствует идее машины: она определяет результат совершенно прозрачным образом, она понятна — за исключением случаев, когда она ломается, как в неудачной попытке офицера позволить машине покончить с ним. Если искать машину, которой не хватает решимости и которая глубоко подрывает смысл и функцию, Кафка описывает и такую машину.

Ключевые слова: Франц Кафка; Спекулятивная технология; Машины для убийства; Технология и язык

Для цитирования: Nordmann, A. Kafka’s Speculative Technologies. Technology and Language. 2024. № 5(3). P. 171-178. https://doi.org/10.48417/technolang.2024.03.14

PLAIN TRUTH

In 1798 Georg Christoph Lichtenberg published a list of items to be auctioned off at the estate of an English gentleman. The list is inspired by Jonathan Swift and includes fabulous technical devices along with plain and simple ones. If the intricate devices include a model for the interaction of body and soul – with different settings for different theories – the list famously begins with a plain and simple one:

> A knife without the blade and the handle missing. [*Ein Messer ohne Klinge, an welchem der Stiel fehlt.*] (Lichtenberg, 1972, p. 452)

An impossible object, speculative. Or, instead, an object that is all too possible, easy enough to comprehend since knives consist of two parts only, and each can fail, break off, come undone, go missing. Is it deeply unsettling or is it strangely reassuring that the knife without handle and blade will evaporate into nothingness, right in front of our eyes like Lewis Carroll‘s Cheshire cat which leaves nothing behind but his smile? This much is for sure, whatever happens to that knife, if there ever was one, it does not shake our solid conviction of what a knife is and that it consists of these main elements – blade and handle. The knife is fully determined, what it is and what it does, when it is not and does not.

So, there is nothing whatsoever wrong with the knife. The thought, however, of „a knife without the blade and its handle missing“ is deeply puzzling, and perhaps troubling as well: Does this thought refer to something – a knife – though evidently there is no thing there to be referenced? Indeed, Lichtenberg‘s knife is a cousin of John Locke‘s socks or the ship of Theseus – so often repaired that nothing is left of the original to which the name refers. It also evokes the infamous proposition that „the present king of France is bald“ (when there is no such king) and other instances from philosophy and art that showcase the paradoxical structure of non-referring reference.

THE MACHINATIONS OF JUSTICE

Fast forward to 1919, Franz Kafka‘s „Penal Colony,“ and its killing machine. There is the visitor of the penal colony who is invited to observe and judge the complicated apparatus, finding it quite barbaric, deeply unsettling. And then there is the officer who speaks for the apparatus, its design and its performance. Shall we say again, that there is nothing wrong with the machine, but a lot wrong with the thought of the machine? As a working order of things, the machine invites neither judgement nor reflection while it stubbornly carries out its plan of action. What else is the machine to do, what else can it do but execute the motions it is designed to perform? There is something sublime to this unwavering determination of the machine and the intricate interplay of its gears and levers, bolts and pins. This apparatus cares not about changing values and fashions, it perpetuates its working order, the order of its creation, of its creator – it carries on. The machine delivers just as justice is delivered, there is no deliberation or judgement required in the performance or delivery of justice – it is carried out. The execution of a plan and the execution of a person become conflated in a serene, unquestionable procedure, a performance of what must be – it is carried through.

Kafka's killing machine, like all machines, shows „how the inscription is carried through in the body [*wie sich die Inschrift im Körper vollzieht*] (Kafka, 1952, p. 154): What is inscribed into the machine is executed by the machine and inscribes itself into the individual as well as the social body. The machine institutes a form of life that perpetuates itself far beyond the original intentions of an inventor or developer – the law of its operation is laid down in the machine and the working and using of the machine obeys that law for as long as the machine and its offsprings exist (Winner, 1983). Thus, by entrusting ourselves to the working order of machines we recall an archaic, pre-modern, religious sentiment that would acknowledge also the powerful word of God. That word is not an opinion, nor a thesis or contentious claim, but it is a given that realizes itself as it devolves into the fabric of our lives: The officer's praise of his apparatus amounts to yearning for a time when justice did not have to be administered or spoken but simply takes place – delivered ineluctably in the course of things, that is, when one thing leads to another in an unfolding chain of events. And of course, the officer continues, the prisoner does not need to be told what his judgement is, what he was found guilty of. He need not know even that he has been judged because he will „experience it on his flesh [*er erfährt es ja auf seinem Leib*]" with a kind of immediacy that does not require any further justification (Kafka, 1952, p. 151). Indeed, despite all kinds of technical provisions, the machine's inscription is hard to read and recognized only at the sixth hour when the agony of death sets in and when the convict suddenly realizes and accepts the meaning of the verdict. So, what is written is not words that need to be interpreted and understood, but a death-sentence that reveals itself by way of its execution. The killing machine, in other words, speaks in an original language in which to know the names of things is to command and control and condemn them – a language long lost to humankind but preserved in the inexorable progression of the pins and wheels that leave their mark. This language and the machine thus serve as hallmarks of complete and utter determinacy – they seal the fate of the human subject and represent „the actual execution of the verdict [*die eigentliche Ausführung des Urteils*]" (Kafka, 1952, p. 149).

Just take a look! See this apparatus! — the officer often employs the ostensive mode and appeals to the immediacy of sensory impressions (Kafka, 1952, pp. 143, 144). The machine can convince only by how it performs and what it can do. And indeed, the visitor appears quite bored at first and becomes intrigued only by the demonstration of the apparatus. At one point, the officer takes his hand and guides it across the machine's „bed." After this uncharacteristically intimate and tender moment, we read that „The traveller was already a little won over by the apparatus [*Der Reisende war schon ein wenig für den Apparat gewonnen*]" (Kafka, 1952, p. 148). There is one more such moment of intimacy, this time between the officer and the machine as he readies it for his own execution.

> But the officer had begun tending to the machine. Though it was evident all along that he understood the machine well, now one could nearly find oneself aghast at how he handled it and how it obeyed. He only approached the rake with his hand when it lifted up and lowered down, until it reached the right position to receive him. [*Der Offizier aber hatte sich der Maschine zugewendet. Wenn es schon früher deutlich gewesen, dass er die Maschine gut verstand, so konnte es jetzt*

einen fast bestürzt machen, wie er mit ihr umging und wie sie gehorchte. Er hatte die Hand der Egge nur genähert, und sie hob und senkte sich mehrmals, bis sie die richtige Lage erreicht hatte, um ihn zu empfangen.] (Kafka, 1952, p. 180)

But alas, throughout the story, again and again, the intimate attunement of deadly apparatus and condemned body breaks down: „If only the wheel hadn‘t screeched, it would have been glorious [*Hätte das Rad nicht gekreischt, es wäre herrlich gewesen*] (Kafka, 1952, p. 157). And thus, from the machinist‘s point of view, the officer‘s death at the hands of the self-destructing machine was the result of a botched operation. There was no sign in the dead man‘s face of a sixth hour blissful realization that „Be just! [*Sei gerecht!*]“ was indeed where he had failed (Kafka, 1952, pp. 177, 184).

The officer complains to the visitor that „[t]his procedure and execution which you now have occasion to admire, has no one nowadays in our colony who would openly support it [*Dieses Verfahren und diese Hinrichtung, die Sie jetzt zu bewundern Gelegenheit haben, hat gegenwärtig in unserer Kolonie keinen offenen Anhänger mehr*]“ (Kafka, 1952, p. 163). He suspects that this has to do with the new commander who represents a new political and social order while the machine, like any machine, perpetuates the old one. But is this really the reason for all this disenchantment with the apparatus? It seems that the visitor is slowly won over by the spectacular deliverance of the elaborate apparatus. This apparatus is doubly attuned and thus seductively persuasive: first, there is the perfect physical fit of the body and the machine, hand in glove, as the apparatus precisely adjusts to the topography of the skin, and second, there is the perfect fit of the punishment to the crime, secured by the power of the word which provides the true name, the one that nails down the convict‘s guilt. It would be unassailable, glorious, if only it worked beautifully.

Nothing wrong with the machine, except that a lot is wrong with this one. The convict vomits and the machine needs to be cleaned, a leather strap tears, the whirring sound of the wheel has become an unbearable screech, and finally, the program runs afoul as the machine disintegrates in the officer‘s dying moments. Instead of hitting the nail on the head and inscribing on his body the revelatory injunction „Be just!“, the apparatus drives a nail through the officer‘s head, and he dies grotesquely pierced. The machine dies along with its most ardent advocate. But even in death, the officer‘s „expression was calm and assured [*der Blick war ruhig und überzeugt*]“ (Kafka, 1952, p. 184) – the working order of the machine remained fully specified, its meaning unquestioned, as well as its capacity to determine a course of events that seals the convict‘s fate. It might be running out of spare parts, it might lose support, but its design remains intact, transparent, intelligible.

DISTURBINGLY HARMLESS

Kafka‘s killing machine shares many features with all machines, present and past. „[H]ow the inscription is carried through in the body [*wie sich die Inschrift im Körper vollzieht*] (Kafka, 1952, p. 154) says as much as: „their performance is specified through their design“ or „their working order reflects their grammar of composition.“ The language of things that informs the operation of a machine is more powerful, archaic, than

the merely conventional, highly negotiated code by which humans coordinate and communicate with each other. If you know the name of a thing in that archaic language, you know how to command it: by specifying the settings not only of Kafka's killing machine, one specifies the execution of an act, perhaps the execution of a person who participates in the mechanical process or working order of the machine. These machines are as ordinary as the bureaucratic mechanisms which Kafka exposes and drastically accentuates in much of his writing.

But there is a technical device or machine in Kafka's stories that undercuts all this, that is far more disturbing than the killing machine in the penal colony. It also speaks and has a name but speaks quite differently than does the executioner's apparatus with its imposing imperatives, so differently in fact that many readers refer to it as a „creature" rather than a „device." The story's narrator himself refers to it as a being or a something [*Wesen*], as a construction or configuration [*Gebilde*] and that it is usually „mute like the wood which it seems to be [*stumm wie das Holz, das er zu sein scheint*]" (Kafka, 1920). Indeed, the small device is easy to make and easy to reproduce. If you know what those star-shaped spools for twine look like, you have an idea of a wheel that moves a bit unevenly, perpetually falling rather than rolling. Of course, one such spool won't keep itself upright, so one takes a small stick to insert as an axis, at its end adding an even smaller stick at a right angle. Now the spool can lean as if on a crutch – and is ready to go. The internet provides many images of what this little contraption looks like: obviously an invention of and for child's play, obviously an invention that predates Kafka's description. This thing has been around and will be around. (Since there are still rests of twine on the spool, one might take it for a leash and drag the creature around as it glides and tumbles into the furthest corners of the house.)

> One would be tempted to believe that this construction previously had a somehow purposeful shape and only now it is broken. But this does not seem to be the case; at least one can't find any signs for this; nowhere to be seen are fissures or sockets that would point to such a thing; the whole appears senseless, yet finished in its way. [*Man wäre versucht zu glauben, dieses Gebilde hätte früher irgendeine zweckmäßige Form gehabt und jetzt sei es nur zerbrochen. Dies scheint aber nicht der Fall zu sein; wenigstens findet sich kein Anzeichen dafür; nirgends sind Ansätze oder Bruchstellen zu sehen, die auf etwas Derartiges hinweisen würden; das Ganze erscheint zwar sinnlos, aber in seiner Art abgeschlossen.*] (Kafka, 1920, p. 99)

The narrator evidently scrutinized the device carefully: If only it were a broken purposeful tool, it would be glorious. But this product of children tinkering with their mother's tools, this senseless thing that has been around and will be around, is clearly bothersome to the father of the house who is the narrator of this story: „It obviously doesn't harm anyone; but I find just about grievous the idea that on top of it all, it might outlive me [*Er schadet ja offenbar niemandem; aber die Vorstellung, daß er mich auch noch überleben sollte, ist mir eine fast schmerzliche*]" (Kafka, 1920, p. 100).

This is, according to the title of the story, „*Die Sorge des Hausvaters*" – a title that is almost impossible to translate into English. It announces „The Trouble, Disquiet,

Bother, Worry, Anxiety, Concern, or Cares of the Father of the House or Family Man.“ Odradek unsettles the father, adds insult to injury by being a senseless contraption that may well outlive a head of household who, by definition, is dedicated to a serious pursuit. It adds insult to injury, has the audacity even to carry a name, being a someone, a „he“ in Kafka‘s story, namely Odradek.

A toy is underdetermined and thus distinct from the classical killing machine – now it is more like a spinning top that moves in a funny way, now it is a poodle on a leash or imaginary friend, and now it is a cunning, menacing thing that clutters the house and is ready to jump. „Sometimes, when one steps out the door and it is leaning down below by the banister, one gets the urge to speak to it. [*Manchmal, wenn man aus der Tür tritt und er lehnt gerade unten am Treppengeländer, hat man Lust, ihn anzusprechen*]“ (Kafka, 1920, p. 99).

The senseless contraption, precisely because it lacks purpose and awaits determination, invites questions and being talked to. By the same token, for the father of the house – and Kafka‘s own father comes to mind – to follow this playful temptation is dangerous, indeed. It undermines his authorial voice: mature adults are known to become all silly when speaking to a child.

> Of course one does not ask him any difficult questions but treats him – ensnared by his tininess – like a child. „So, what‘s your name?“ one asks him. „Odradek,“ he says. „And where do you live?“ „Residence undefined,“ he says and laughs; but it is only the kind of laughter that one can produce without lungs; it sounds a bit like the rustling in fallen leaves. And with this, the conversation usually ends. [*Natürlich stellt man an ihn keine schwierigen Fragen, sondern behandelt ihn – schon seine Winzigkeit verführt dazu – wie ein Kind. »Wie heißt du denn?« fragt man ihn. »Odradek,« sagt er. »Und wo wohnst du?« »Unbestimmter Wohnsitz,« sagt er und lacht; es ist aber nur ein Lachen, wie man es ohne Lungen hervorbringen kann. Es klingt etwa so, wie das Rascheln in gefallenen Blättern. Damit ist die Unterhaltung meist zu Ende.*] (Kafka, 1920)

The harmless device threatens a world where, according to its purpose, everything is assigned its place in the larger scheme of thing – and classical industrial technology of the 19th and 20th century embodies such a world. Re-purposing a spool of twine seems harmless enough, but where will it lead, worries the father who fails to see its point because there is none. Lichtenberg‘s knife pales in comparison – it has a point but misses it.

Some argue that the world of devices has changed in recent history, that is has tilted towards non-classical apparatus of all kinds, that we deal with programmable machinery which hovers between the spheres of work and play, always yet to be determined, to be purposed and re-purposed (Kaminski, 2014). One can celebrate this shift and view it as a liberation of technology from the corset of functionality and purposiveness (Genc, 2024). At the same time one can share in the disturbing disquiet and profound anxiety of Kafka‘s father-figure (Nordmann, 2008): the indeterminate device, residence undefined, retains an air of uncanniness, it is out-of-control, it speaks with a questioning whisper, does not lay down its law, and cannot be refuted.

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Статья поступила 22 июня 2024
одобрена после рецензирования 17 августа 2024
принята к публикации 28 августа 2024

Received: 22 June 2024
Revised: 17 August 2024
Accepted: 28 August 2024

Содержание

Спекулятивные технологии

“В исправительной колонии” Франца Кафки