



Editorial Introduction

In the Beginning was the Word

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Abstract

The problem of modernity haunts the Western tradition of philosophy and moves us from disenchantment and disempowerment of the word to its re-enchantment. If critical reasoning exorcised the magic power of the word, technological achievements of control reinstated it. More straightforwardly, perhaps, Russian thought traditionally viewed the word as a “technical” or “magical” artifact capable of changing the world. In the beginning was God’s word but are also the words which open the world of nanotechnology and the digital worlds of software engineering. It is shown how the contributions to this special issue probe various aspects of the word as a technical artefact with technical functions.

Keywords: Modernism; The redeeming word; Disenchantment and re-enchantment; Words and things; Creativity of language

Аннотация

Проблема современности преследует западную философскую традицию и проводит нас от разочарования из-за бессилия слова к повторному очарованию им. Если критическое мышление изгоняет магическую силу слова, технологические достижения контроля восстанавливают ее. Говоря более прямо, русская мысль традиционно рассматривала слово как “технический” или “магический” артефакт, способный изменить мир. Вначале было слово Бога, но это также слова, которые открывают мир нанотехнологий и цифровые миры разработки программного обеспечения. Показано, как в материалах этого специального выпуска исследуются различные аспекты слова как технического артефакта с техническими функциями.



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In the Beginning was the Word

By dedicating the first regular issue of Technology and Language to the word as a technical artefact we enter the drama of modernity. „In the Beginning was the Word“ refers to the creative and productive power of the word to produce a corresponding world. This is a magical, pre-modern conception which kept haunting, ghostlike, the modern age and which is resurfacing today.

I. THE WORDS AND THE THINGS

The archetypically modern hero of Western literature is Goethe's Faust who finds his mystical bond with nature severed and reinvents himself as a tireless seeker of experience and truth as he is trying to translate the biblical text:

I feel, this moment, a mighty yearning
To expound for once the ground text of all,
The venerable original
Into my own loved German honestly turning.
"In the beginning was the Word." I read.
But here I stick! Who helps me to proceed?
The Word – so high I cannot – dare not, rate it,
I must, then, otherwise translate it,
[...] The spirit helps! At once I dare to read
And write: "In the beginning was the deed."¹

He cannot rate the word so highly, writes the poet, and elsewhere despairs altogether of the meaning of names. Goethe denies the power of words to redeem a lost soul and forge a unity of mind and world:

THE METAMORPHOSIS OF PLANTS.

You are confused, my love, by the thousandfold mixture
Of this jumble of flowers dispersed through the garden;
You hear their many names, and with a barbarian ring
One name displaces the other as you listen for them.
All their shapes are similar, yet none is like the other,
And thus, the entire chorus hints at a secret law,
At a sacred riddle! Oh, dearest friend, if only for you
I could solve it happily and convey the redeeming word!
[...]²

Goethe here addresses a lover of plants who can identify them by their various names and still knows nothing of them, nothing of the natural order among and between them. The secret word which would (dis)solve the mystery is „*das (er)lösende Wort*“ (the redeeming word) but there is no such salvation or redemption through the word. Instead, Goethe famously envisioned another language altogether, namely the language of the

¹ Translation by Charles T. Brooks, compare <http://www.einam.com/faust/index.html>

² Translation by A.N., compare www.everypoet.com/archive/poetry/Goethe/goethe_the_metamorphosis_of_plants.htm



plants themselves which speak to us morphologically, that is, superficially through their form and by way of their arrangement side by side. Properly arranged they present a formal sequence or series that points to an archetypal plant as a point of origin from which emanates their visual ordering. As questionable or naive as this conception may appear, it testifies to the rejection of a truth that lies deeply behind the surface – and a rejection of the word that penetrates to the essence of things.

To dream of an elusive word that breaks the spell and sets us free, that unleashes natural powers and sympathetically resonates with the order of things (Foucault, 1970) was now a matter for romantic poets with their anti-modern aspirations. Novalis might be cited here or this short poem by Joseph von Eichendorff:

Divining Rod

Might a song be sleeping in all things
That are dreaming on and on
And the world lifts up to hum and sings
If the magic word you hit upon.³

It was said of Orpheus that he could draw song and tears from rocks, and still today it is the prerogative of lovers to find the right word that can transform a situation, that can attain forgiveness and surrender. But as denizens of the modern world we are sure of one thing – that the magic word is lost, irretrievably, that we have forgotten how to be so eloquent. Speaking with Ernst Cassirer (2012), the technologies of wishing – the oracles, prophecies, invocations, rituals and spells – had to yield to the realization that wishing does not make it so. Instead, it requires technology as an exercise of will to gain the cooperation of a recalcitrant world. In the absence of any direct connection, we can only gain evidence by probing and experiment and modern science.

Francis Bacon's (1620/1878) *Novum Organon* showed that science cannot rely on the knowledge of symbols and names but always begins from a position of estrangement and ignorance. A fictitious letter to Bacon by the fictitious Lord Chandos was written by Hugo von Hofmannsthal. It provides a definitive expression of the modernist despair of ever finding the magic word.

[...] I experienced an inexplicable distaste for so much as uttering the words *spirit*, *soul*, or *body*. I found it impossible to express an opinion on the affairs at Court, the events in Parliament, or whatever you wish. This was not motivated by any form of personal deference (for you know that my candour borders on imprudence), but because the abstract terms of which the tongue must avail itself as a matter of course in order to voice a judgment – these terms crumbled in my mouth like mouldy fungi. [...] Gradually, however, these attacks of anguish spread like a corroding rust. Even in familiar and humdrum conversation all the opinions which are generally expressed with ease and sleep-walking assurance became so doubtful that I had to cease altogether taking part in such talk. It filled me with an in-explicable anger, which I could conceal only with effort, to hear such things as: This affair has turned out well or ill for this or that person; Sheriff N. is a bad, Parson T. a good man; Farmer M. is to be pitied, his sons are wasters; another is

³ Translation by A.N., compare https://en.wikipedia.org/wiki/Joseph_Freiherr_von_Eichendorff



to be envied because his daughters are thrifty; one family is rising in the world, another is on the downward path. All this seemed as indemonstrable, as mendacious and hollow as could be. [...] For me everything disintegrated into parts, those parts again into parts; no longer would anything let itself be encompassed by one idea. Single words floated round me; they congealed into eyes which stared at me and into which I was forced to stare back – whirlpools which gave me vertigo and, reeling incessantly, led into the void. [...] the language in which I might be able not only to write but to think is neither Latin nor English, neither Italian nor Spanish, but a language none of whose words is known to me, a language in which inanimate things speak to me and wherein I may one day have to justify myself before an unknown judge.⁴

Hofmannsthal's Lord Chandos experiences as a loss that in the modern world of modern science words cannot be understood as vessels of meaning. Instead, the word is an empty shell which serves as code when conventional signs become coordinated with real things and the relationship of "denotation" or "reference" is established – perhaps flattening the crucial distinction between the life of the spoken word and the notational framework of graphic signs (Ramming, 2021). The „critic of language“ Fritz Mauthner (1906) follows suit when he calls for the death of a language that distinguishes and alienates the world of objects from that of the speaker – since words belong to language and mind and merely denote the unspeakable things (pp. 72-73, 120). Instead of evoking things and letting them speak, words signify isolated, disconnected elements of experience. Having lost their power, one should think that words cannot effect things anymore, that they are only now becoming artefacts – artefacts that stand for something but that do not interact with anything, artefacts apparently without technical function. As Ulrike Ramming might point out in her contribution to this issue, these artefacts are perhaps no longer words properly speaking. On her account, they are no longer genuine linguistic entities as the fictional writer Chandos and the real critic Mauthner mistakenly view the spoken word – which weaves people and things together – through the spectacles of the written sign and how it functions conventionally (Ramming, 2021). For them the fluid, dynamic spoken words becomes reified, thinglike, and therefore crumbles meaninglessly in the mouth. In quite another vein, Joseph Wilson reflects in these pages upon the physical materiality and the withering of the written word as it turns into mouldy fungi (Wilson, 2021).

II. THE MAGIC OF MODERNISM

All philosophy is „critique of language“ (but not at all in Mauthner's sense).
(Wittgenstein, 1922, 4.0031)

If we were to look for a philosopher of language who exemplifies the modernist sentiment, Ludwig Wittgenstein comes to mind. According to his *Tractatus Logico-Philosophicus*, the world is not composed of things with their names, but of facts which correspond to sentences. Along the lines of Hofmannsthal's Lord Chandos, Fritz Mauthner's critique of language had despaired of words and their meanings. In contrast,

⁴ http://depts.washington.edu/vienna/documents/Hofmannsthal/Hofmannsthal_Chandos.htm



Wittgenstein's critique of language shows that language works beautifully when sentences represent facts but that it can do no more (Nordmann, 2013). The word is but an element of the sentence and to know a word is to know its referent and how it can occur in a sentence (Wittgenstein, 1922, 1.11, 4.0031, 3.3).

Though Wittgenstein somewhat modified his point of view later on, he subscribes throughout to a maxim derived from Goethe: "*Denk nicht, sondern schau* – Think not, just look." There is nothing hidden – no reality behind the appearances, no meaning behind the word. It is all right there in our language games and forms of life. Whatever meaning there is, it is in the use of signs and symbols, not prior to them.

And yet, this modern philosopher was looking for the „*erlösendes Wort*“ at the same time as he was looking to be saved from the quest for a word that will never be found. The discovery of this magic word would be the discovery that would allow him to stop doing philosophy (Wittgenstein, 1953, 133). For Wittgenstein, the *Erlösung* (salvation) from philosophy comes with the *Auflösung* (dissolution) of philosophical problems – but might this be effected through a word that brings peace of mind and does not raise problems of its own?

The philosopher strives to find the redeeming word, that is, the word that finally allows us to grasp what up until now has elusively burdened our mind.

(It is as if one had a hair on one's tongue; one feels it but cannot grasp/seize/ it, and therefore cannot get rid of it.)

The philosopher delivers the word to us by means of which I/one can express the thing and render it harmless. (Wittgenstein, 1995, p. 156-157, compare Klagge, 2014)

Does Wittgenstein actually pretend to be this kind of philosopher? The answer to this question doesn't matter much – one way or another, it is interesting that the liberating power of the word is still so recognizable, so closely within his reach. It is evidently not enough to be a critic of metaphysics and of the magic word. What is needed is a sustained exorcism that acknowledges its power and renders it harmless.

Philosophically and scientifically, the progressive intellectualization and disenchantment of the world has overcome the wonders and spirit, the magic word of an enchanted age (Weber, 1946). In the meantime, technology by its amazing feats has re-enchanted the world. As Viktoria Vorotnikova and Serge Karlin show, the magic word lives on, perhaps bastardized, in usernames and passwords, in codes that open doors and unlock mechanisms – codes that might forge new kinds of unity between words and things (Vorotnikova & Karlin, 2021). The fortune, happiness, salvation of bitcoin owners rests upon their knowing the password no less than did that of the miller's daughter rest upon her knowing the name of Rumpelstiltskin, or that of Richard Wagner's Siegmund naming the sword Notung. The world of fairy tales shares with a world of things which work like magic that in both worlds the word retains its power to redeem and liberate, to forge a unity between word and deed, sign and signified, mind and world. These words do not represent some referent, they also do not create or disclose reality, they are powerful instruments that can effect radical transformations.⁵

⁵ As Larissa Aronin points out in conversation, the story continues. Since passwords have to be just right without naming or denoting anything, we are told that we make our passwords unsafe by using names of people and places. The safest pass“words“ are no words at all but arbitrary strings of signs – which most people find impossible to do. Here, Vorotnikova & Karlin (2021) offer a perfectly arbitrary choice of perfectly referential signs.



III. TRANSCENDENCE OF CODES

Hitting upon the right word for something and discovering its true name is like finding just the right key that fits the lock and opens the door to a new world with new powers. This is a popular metaphor also for genetics and biotechnology when a specific enzyme engages a substrate and turns it into a new product. What might be the right design of locks and keys, grammars, geometries, and algorithms such that technology and language might create a new human body for a new kind of society? Christopher Coenen and Alexandra Kazakova discuss this utopian program of Alexander Gastev (Coenen & Kazakova, 2021).

The right word, genetic code, or enzyme can unlock something or lock it down. Not just for Rumpelstiltskin, to be sure, it serves to condemn and destroy, see again the modern fairy tales of Richard Wagner – *Lohengrin*, in particular. In Peter Handke's (1992) play *The Hour We Knew Nothing of Each Other* many actors playfully share a welcoming public place with no words spoken. Words introduce distinctions and the laws of hospitality no longer applies: As Thomas Froy (2021) suggests in this issue, nameless strangers are welcome but words will define them as potential enemies.

Silence is a limit of speech, as is the expectation of the final word which will magically put the troubled mind to rest. At these limits, words cease to function as elements of sentences that picture the world – thus they cease to be tools or instruments in systems of representation and communication and take on another character entirely. Again, it was Wittgenstein who asked what happens when we keep speaking beyond the limits of language – where one speaks without saying anything, yet maintaining a ritualistic search for instrumental or technical meaning.

Two papers in this collection pursue a term which, in the modern tradition of Kant and Wittgenstein, would be subject primarily of a critique of pure reason. When the words or symbols we use no longer denote or conceptualize concrete things but reflect only on our representational systems themselves, it might not be legitimate to consider them meaningful – as when “causality” is extended beyond an empirical use to ask about first causes, or when “force” is to encompass material and vital forces, or when the mathematical series of natural numbers is bounded by “zero” and “infinity.” Walker Trimble and Chandrima Christiansen do not engage in a critique of pure reason but discuss how “infinity” begins to function beyond the limits of ordinary technical use. Their capacity as mathematical objects to take on theological meaning becomes a technical capacity in its own right (Trimble, 2021; Christiansen, 2021).

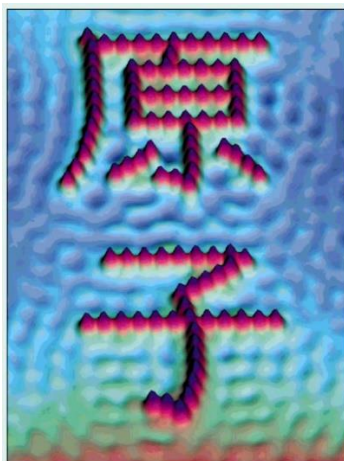
Transcendent features of our linguistic codes or numerical systems arise not only in conceptual matters that are taking on a life of their own, signifying nothing or everything, zero and infinity as if these were more than mathematical exigencies but ontological realities. They arise also materially through typography, through strokes, lines and curves, antiquated and industrial fonts, writing by hand or machine. As Tatiana Kazarina (2021) shows, these give rise to aesthetic programs for the convergence of word and thing or for releasing the word from authorial control that amplify or undermine not only the magic but also the visceral power of the word – words that might go “under the skin” as do tattoos.



IV. HELLO WORLD

In the beginning was the word. In recent time, this referred not to the word of God but to that of a company. It concerned not the beginning of the world but the beginning of nanotechnology with its promise to shape and reshape the world “atom by atom” (Amato, 1999). With nanotechnology human powers would expand from the scale of macro- and microelectronics to the even deeper and more pervasive molecular scale. We already knew that atoms are the building blocks of nature, but from now on they would be like Lego bricks the building blocks of engineers.

In April 1990, Don Eigler and Erhard Schweizer for the first time in human history positioned individual atoms at will to spell the name IBM from 35 xenon atoms. They were soon followed by Japanese researchers who learned to write the word “atom” at the atomic scale (fig. 1). At the IBM research facilities Eigler and Schweizer playfully instituted a gallery for nanotechnologically produced artworks. One hall of this virtual gallery was dedicated to the style of “atomilism” and there one could find the “IBM” image. It now had an official title – “The Beginning.” And as is customary in art galleries, information was provided about the medium – “Xenon on Nickle (110).”⁶



Writing With Atoms. Written literally with atoms, the Japanese Kanji above—each just a few nanometers across—means “atom.”

Figure 1. This image was produced by a Scanning Tunneling Microscope and appeared with this legend in the governmental brochure “Shaping the World Atom by Atom” which introduced the US-American public to nanotechnology (Amato, 1999).

Again, a powerful word was set to create or shape a world. And yet, even though some spoke of nanotechnology as “Second Creation” or “New Genesis,” this beginning is very different from the biblical one. It is not in the “nature” of atoms to write their own name, and there is no mystical union here between word and thing. On the contrary, there is now a deep awareness that names are completely arbitrary, a strictly human exercise of the will. What does “International Business Machines” have to do with molecular matters? The beginning in question is that atoms were prompted to perform a silly trick, devoid of natural and technical meaning – just to show what they can do and what

⁶ The website no longer exists. What is left of it can be seen at www.ibm.com/ibm/history/exhibits/vintage/vintage_technology.html



humans can do with them. If they can do something completely arbitrary, if they can be arranged to spell the name of the IBM research laboratory or spell the word “atom,” then there is no limit to what they can do. A world of new human powers has arisen, in the beginning a token of seemingly unlimited human willfulness (Nordmann, 2006).⁷

The word “IBM” spelled by deep blue xenon atoms was an epigraph of nanotechnology. It set the tone before the actual work would begin. It appeared in the header of its websites and texts. It was a token accomplishment, referring back to the beginning, signaling what is to come. As such it might become part of Irina Belyaeva’s history of the technology of epigraphs (Belyaeva, 2021). Even after the words have become disenchanted, even as they serve as technical elements divorced from their original context, they contribute to the technological re-enchantment of the world. They serve as reminders of what is to come, they evoke our powers to shape and reshape the world on the model of writing and rewriting it. As indeed, when software developers write a program that produces written or spoken text, there is a custom that the first test of that program will succeed when the machine awakens to say “Hello World.” Here again, in the beginning is the word and what it produces is an enchanted world with its amazing technical feats and the wonders of a technology that works like magic.

V. DIGITAL REALITY

The problem of modernity haunts the Western tradition of philosophy and moves us from disenchantment and disempowerment of the word to its re-enchantment. If critical reasoning exorcised the magic power of the word, technological achievements of control reinstated it. More straightforwardly, perhaps, Russian thought traditionally viewed the word as a “technical” or “magical” artifact capable of changing the world. The anticipation of the word is characteristic of different trends at the beginning of the 20th century: religious philosophers and “Name Worshippers” (Trimble, 2021), futurist poets (Kazarina, 2021), biocosmists and panarchists, and others.

Having devoted several fundamental philosophical works to the study of the word, Alexey Losev (1929/2008) wrote that the word is inherently magical, “after all, magic is nothing more than a changing of being by the power of word, the transformation and self-creation of things by the immaterial energy of the names” (p. 16). Priest Pavel Florensky (1920/1990) saw in the word a concentrated will, which “descending upon some object capable of receiving an impetus from the will, the word makes in it the change that this object is capable of receiving” (p. 255).

Behind the poetic search for words by the futurist Velimir (Viktor) Khlebnikov were dreams of a “star language” – the world language of the future which is used to write an equation that connects time and space (Pertsova, 2000). Biocosmists saw in the ranks of words living cells for created organisms (Svyatogor, 1921/2008), panarchists wrote about the creation through the word of a machine-planet that is freed from the need for death and waste (Gordins, 1919, pp. 43–45). Very far from anarchists and biocosmists,

⁷ To be sure, nanotechnology would not fulfill this sweeping promise. And upon closer inspection, the arrangement of the 35 atoms was difficult to accomplish and produced only a 2-dimensional arrangement of isolated atoms – a far cry from “Shaping the World Atom by Atom.”



the head of the Central Institute of Labor, Aleksey Gastev (1922), thinks about the transition from a complex of machines to a machine-state, and then, as a consequence of internationalization, “in the full sense of the mechanized globe”, to which he addresses orders in verse which command people, machines and celestial bodies.

Such bold reasoning about the magical or technical possibilities of the word would seem like a funny utopia if humanity hadn't in the meantime created a new world upon its words, a world based on information and communication technologies. With the word of numerous programs created by programmers in different programming languages from different parts of the globe throughout the history of the internet, a new digital reality has been created, which is becoming an increasingly important part of the life of a modern person.

Despite the fact that the highest programming-levels come very close to the spoken and written word, it would seem these are owned by the professional community. However, today there are technologies that allow persons to create with words in the digital world. In early 2021, neural network were shown to create images from text, no matter how strange the phrases were (DALL·E: Creating Images from Text, 2021). It can be assumed that in the near future a person will be able to create virtual reality with words. Already there are precedents of video games that turn the magic words of magicians into reality (for example, in the game *The Broken Seal* (2018): The player must articulate words in order to fight the forces of evil in magical ways (also *Typoman*, 2015)). In the end, then, as if by way of compromise, us moderns along with us pre-, post-, and antimoderns meet in the same digital world – a world in which we can cultivate faith in the creative word, a technical artefact with technical functions.

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