



<https://doi.org/10.48417/technolang.2025.02.07>

Research article

Hermeneutics of Science: New Metapolitics of Institutional Order

Alina Kostina  

Inter-regional Non-Governmental Organization Russian Society of History and Philosophy of Science.
1/36 Lyalin Lane, Moscow 105062, Russian Federation

alinainwndrlnd@gmail.com

Abstract

This article examines the validity of the hermeneutic method in the analysis of science and technology. The scientific method is considered to be objective, rational and extra-contextual, which conceptually corresponds to the ideals of science since the Enlightenment. At the same time, the hermeneutic method, which presupposes dialogue, plurality of interpretation and deep embeddedness in the cultural context, has been considered exclusively in the methodological context of the humanities. The transformation of discussions in the philosophy of science, marked by the transition to the Kuhnian language of the self-description of science, led to a further deepening of research into questions of its institutional nature. Critical studies by Alfred Nordmann, Don Ihde, Robert Crease and Andrew Feenberg show from different angles show different facets of using hermeneutic within and beyond academia. Hierarchies, especially those that regulate institutional scientific life, use the mechanisms of metapolitical control. Notions of the institutional order of science are a result of the hermeneutic method applied to it in an obscure way. The outcomes are sociotechnical imageries, habits of thought, certain models of technological design and the public image of science as a neutral and operationally autonomous institution. The study demonstrates that this is caused by the use of the hermeneutic method as an instrument of metapolitics. Its legitimation within the framework of scientific practices, embodied in the projects of sociology of science, feminist philosophy of science and critical theory of technorationality has borne its first fruits. It is also leading to a drastic shift in the application of control mechanisms. The change in attitude towards cultural embeddedness, contextuality and the possibility of hermeneutic analysis of scientific objects and processes fundamentally restructures the scientific ethos.

Keywords: Institutional Order; Systematics; Scientific Institutes; Hermeneutics; Taxonomy of Science; Metapolitics; Technoscience

Acknowledgment The research was supported by the Russian Science Foundation grant No. 24-18-00183, <https://rscf.ru/project/24-18-00183/>

Citation: Kostina, A., (2025). Hermeneutics of Science: New Metapolitics of Institutional Order. *Technology and Language*, 6(2), 81-90. <https://doi.org/10.48417/technolang.2025.02.07>



© Kostina, A. This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)



УДК 167.7

<https://doi.org/10.48417/technolang.2025.02.07>

Научная статья

Герменевтика науки: Новая метаполитика институционального порядка

Алина Костина  (✉)

Межрегиональная общественная организация “Русское общество истории и философии науки”,
Лялин пер., д. 1/36, стр. 2, комн. 2, 105062, Москва, Российская Федерация

alinainwndrln@gmail.com

Аннотация

Статья посвящена исследованию вопроса о допустимости использования герменевтического метода при анализе науки и технологий. На протяжении длительного периода развития исследовательских практик научный метод рассматривается как объективный, рациональный и внеконтекстуальный, что концептуально соответствует идеалам научности. В то же время герменевтический метод предполагающий диалогичность, множественность интерпретаций и глубокую укорененность в культурном контексте, до последнего времени рассматривался исключительно в методологическом контексте гуманитарных наук. Трансформация дискуссий философии науки, отмеченная переходом к кунианскому языку самоописания науки, привела к дальнейшему углублению исследований в вопросах ее институциональной природы. Критические исследования А. Нормана, Д. Айде, М. Криза и Э. Финберга с разных сторон демонстрируют, что ограничение на использование герменевтического метода связано не с внутринаучными, а социальными причинами. Общественные иерархии, в частности регулирующие институциональную научную жизнь, обладают механизмами метаполитического контроля. Институциональное упорядочивание науки при этом является следствием применения герменевтического метода в отношении нее самой. Результатом становится создание и воплощение социотехнических образов, привычек мышления, определенных моделей технологического дизайна и публичный имидж науки как нейтрального и операционально автономного института. В заявленном исследовании показано, что все это является результатом скрытого использования герменевтического метода как инструмента метаполитики. Показано, что его легитимация в рамках научных практик, воплощаемая проектами социологии науки, феминистской философии науки, критической теории технорациональности, приводит к смещению механизмов контроля обозначенных иерархий в реальные научные практики. Смена отношения к культурной укорененности, контекстуальности и возможности герменевтического анализа объектов и процессов науки принципиально перестраивает научный этос.

Ключевые слова: Научные институты; Герменевтика; Систематика; Институциональный порядок; Таксономия науки; Метаполитика; Технонаука

Благодарность Исследование было профинансировано Российским научным фондом № 24-18-00183, <https://rscf.ru/project/24-18-00183/>

Для цитирования: Kostina, A. Hermeneutics of Science: New Metapolitics of Institutional Order // Technology and Language. 2025. № 6(2). P. 81-90. <https://doi.org/10.48417/technolang.2025.02.07>



© Костина А. This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)



INTRODUCTION

The natural, technical and human sciences are known for their mutual enrichment and borrowing of metaphors. The latter are interpreted differently in various fields of scientific research and undergo changes of meaning, which is the very idea of interpretation. The crisis of a “key metaphor” (and we can name a few) and the exhaustion of its use often coincide with the crisis of research itself (as happened with the use of the metaphor of the brain as a computer). At the same time, the sustained practice of such exchange is not taken seriously in terms of its contribution to the methodology of science and technology. More radically, it is devalued. Similar mechanisms are at work when researchers seriously claim the fruitfulness of applying of the hermeneutic method in science and technology research. The use of the method associated with the names of Friedrich Schleiermacher, Paul Ricoeur, Hans-Georg Gadamer, Wilhelm Dilthey has not been taken seriously in relation to sciences other than the humanities until recently. The familiar but rather crude division into fields of research and methods that characterises them conceals a deep institutional conflict as well as complex mechanisms that maintain the stability of existing social hierarchies. Here we will address the issues of “habits” of institutional thinking and sociotechnical formation of imageries. In addition, a brief excursion into the twentieth century's “history of methodological confrontation” will help us to understand its impact on the ethos of science and the design of technology. Using the tools of the critical theory of technorationality, we will try to uncover the hidden metapolitical mechanisms that ensure the public neutrality and operational autonomy of science and technology. The final task of this study will be an attempt to show how the methods of democratisation and humanisation of science and technology correlate with the basic principles of hermeneutics.

IMAGINATION IN ACTION: THE 'THINKING' OF INSTITUTIONS IN RELATION TO SOCIOTECHNICAL IMAGINARIES

In one of her most important works, “How Institutions Think”, Mary Douglas begins by identifying a key complexity in relation to the proposed study. She begins with the fact that the sole definition of collective behaviour is problematic, despite the existing examples of class behaviour, given by Marxist theorists, or collective will, presented in theories of democracy. Nevertheless, Douglas resolutely constructs her in-depth analysis by showing the application of the hermeneutic method to and by the institutions themselves. Scientific organisations are ascribed certain qualities and behavioural strategies that are different from those of their independent members. Thus, an institute does not have a “mind of its own”, but it assigns identities, categorises, “remembers” and “forgets”, and makes “life and death” decisions. Institutions also classify, creating their own scientific frameworks and behavioural strategies. They interpret the scientific world, its objects, discoveries, debates and extra-institutional realities, and build models of interaction with internal and external actors of science – scientists and their collectives, the state, political and civil associations and the economy. Institutions interpret all kinds of realities around them, and this is a key factor in their survival, prosperity, competitiveness and right to participate in public life. Discursively and institutionally



sedimented “habits of mind” are what shape and transmit sociotechnical imaginaries, as Nordmann points out with reference to Sheila Jasanoff (Grunwald, et al., 2023 p.39). Sociotechnical imaginaries ultimately become significant not only for theoretical reflection on the philosophy of science and technology, but also lead to the implementation of specific behaviours, or as Jasanoff notes, “our sense of how we should organise and govern ourselves profoundly influences what we make of nature, society, and the “real world”” (Jasanoff, 2015, p. 3).

The sociotechnical imaginary is used, on the one hand, methodologically – to fill a gap in research on image construction in political and cultural theory. On the other hand, it is used in STS to mark the circumstances that make it possible to refer to these imaginaries and their constitutive elements in the course of analysing the interrelation of technology and social life.

Let's turn to an alternative account of imagination offered by Appadurai (2002). He draws attention to its systemic organisation and form of social work, deliberative practices, and sees them as multiple and diverse attempts to negotiate how we imagine a world of optimal social order. This radicalised model of imagination as a stable source of social and technological change demystifies the category of imagination itself while instrumentalising it. As will be shown below, the category of instrumentalisation is of great importance in the context of the critical theory of technorationality. According to its basic tenets, primary instrumentalisation severs the connection between technological artefacts and the environment, thus depriving technology of its contextuality. The so-called “second instrumentalisation” does the opposite through the process of humanisation, reconstructing people's relationships with technology and with each other according to new principles. In this respect, the hermeneutic method applied to technology also becomes a way of interpreting the forms of social life, hopes and desires, especially those realised through the technological products of design.

THE METAPOLITICS OF TECHNOLOGICAL DESIGN: WHY WE ARE NOT ALLOWED TO USE THE HERMENEUTIC METHOD

Feenberg discusses similar issues from a different perspective in his reflections on technological design. Like Jasanoff, he considers that material artefacts are filled with a range of meanings, from the personal to the ideological. At the same time, technological design is a field far from the realisation of humanistic and democratic ideals. This implies limited access for prospect creators to realise the models of technological design. Moreover, at the level of public institutions, the very interpretative meanings of embodied technological designs and artefacts is an ideologised and monopolised field.

Such close attention to sociotechnical imaginaries is partly due to the image of a successful society as such: a society of dominant rationality, especially techno-rationality. Superficially, the criteria of backwardness or progress are based on the level of technological development and autonomy. That is, the emphasis is on the performative part, which can be expressed visually. Visual expressions mean here the embodied imaginaries range from statistical data on sectoral or territorial development to technological infrastructure and architecture, which become discursive statements about the level of progress.



The field of technological design cannot remain neutral and apolitical. It is linked to the realisation of a certain technological policy. The project of technodesign, starting with the choice of the form in which technology is embodied, is closely linked to the social context of its realisation. Ultimately, it is a process of continuous redefinition of what it means to be human, as a consequence of the constant increase in the level of technology. There is a parallel between sociotechnical imaginaries and their practical embodiment in concrete design. It is difficult to determine exactly why one imaginary dominates within a particular community (large or small). Nor can we understand the basis on which a choice is made between two equally technologically effective alternatives. In epistemological research, this problem is called the “vis-à-vis problem”: if we have two coherent, internally consistent models, what is the basis for our choice?

As researchers and simply as members of society, we are confronted with the internal contradiction of the situation of the imposed rational method, “purified” of sociality. At the same time, it is difficult to escape the realization of the fundamental impossibility of adequately reflecting the images of the social and scientific order that exist apart from the fact of its institutionalization. The notion of technical code becomes an indication of the inseparable link between social structure and technology. It reflects the social foundations of this or that type of society, which is the basis of the embodied technological design. The stability of the code is a guarantee of the sustainability of the functioning of existing social hierarchies and institutions. At the same time, the neutrality of technology often coexists with the idea of its autonomy. The latter, however, is merely an instrument of stable hierarchical control. The technical code reflects and becomes the material equivalent of the social relations to which it is subject.

Public vocabulary is associated with the neutrality of science, while contextuality is perceived negatively. Although this dichotomy seems outdated, especially in light of the large number of studies on the sociology of science, it still holds true in the space of public discourse on science and technology. According to Idhe, “there is no such thing as “mere use” of technology” (Idhe, 1998, p. 47). This is also suggested by the idea of multistability of technology that was proposed by him. According to him, the plurality of purposes for which technology is used makes it possible to include it in a variety of contexts. Here, neutrality is followed by a conceptualization of expertise expressed in the name of a conditionally objective scientific position. Contextuality, on the other hand, is associated with politics, along with personification, bias, emotionality, and ambiguity. What a politician can afford in a public debate, an expert, deprived of individual will in his function as translator of the position of the scientific community, cannot. Contextual science is a “bad” science that does not correspond to the idea of universal ideals, constituted during the Enlightenment. Therefore, preserving the public image of science as a neutral autonomous entity and technology as a neutral functional field of practice is the most effective way of political management of institutions.

However, what is seen as an advantage of a technocratic device, i. e. operational autonomy, has the disadvantage of hindering trust and reliable communication (Feenberg, 2017). The neutrality of technology cannot be seen as something that is simply given at the outset. It is the result of a process of decontextualisation, which means that it removes some of the content of objects and excludes them from the system of relations and



coordinates that define them. In particular, the environment that determined the dynamics of their development. This process reflects the idea of primary instrumentalisation, where objects are attributed technical rather than substantive properties. The consequence of this can be their inclusion in a system in a “reassembled” form, with the subsequent attribution of some new emergent properties to the system itself, in other words its ideologisation.

One of the dominant considerations of the stated research is the idea that the hermeneutic method applied as a metapolitical method to science and the same method applied as a research strategy for science itself have different objectives. The seeming contradiction in its evaluation is not the case: applied to structurally different fields - science policy aimed at maintaining existing social hierarchies and scientific activity aimed at qualitative progress of science and results transforming our reality and understanding of the world. For metapolitics, hermeneutics is a tool for the ideologization of science, especially through the attribution of definitions. The practical reflection of this attribution is the image of neutral technology. Moreover, in addition to neutrality, possible public objections to it are always stipulated. A public objection may, for example, become apparent in a discussion about nuclear power. The discussion is constantly fluctuating, operating with a wide range of definitions, from “peaceful atom” and “cleanest energy” to the constant threat of nuclear technologies being developed. At this point, the question of technology also becomes a problem along the axis of “humanization – dehumanization” of technology.

A bold suggestion is that the hitherto controversial position of the hermeneutic method in science can be considered not only in the context of the changes outlined above and the field of interest and methodological descriptions of scientific and technological research. This problem is conventionally divided into the meta-level of science and technology politics on the one hand, and the fields of scientific research themselves on the other. The application of the hermeneutic method is not limiting, on the contrary, its use potentially gives “too much freedom” and diversity in the creation of narratives, in terms of the existing metapolitical hierarchy. The potential consequence of this is the destabilisation of existing technological and, consequently, social relations. This is why, when it comes to the creation of radical new technologies or breakthrough scientific research, the language of science is replaced by the language of politics. “Revolutionary technologies”, “scientific revolutions” are phrases that mark the destabilisation of the existing hierarchical order. They mean that the usual ways of instrumentalisation are no longer effective, and so they can lead to the destruction of the established order or, to use Feenberg’s terminology, to a change in the technical code.

The use of the hermeneutic method radicalises the world of science. It becomes more than a mere choice of an equivalent alternative. Rather, the change will be more like a shift from method to metamethod, leading to a revision of the conceptual apparatus of science and the value status of certain established categories. In fact, this has already happened during the heyday of feminist philosophy of science and standpoint theory (Harding, 1988, 2008, 2015). However, despite the fact that such studies have been around for 30-40 years, it is difficult to assess their impact on the actual practice of science. Nevertheless, it is possible to see in this approach some methodological indications for overcoming the idea of scientific universalism and for broadening the



optics of research. It is therefore possible to draw a parallel between these directions and the idea of Idhe, who expresses reflections on the deep embeddedness of technology in culture, which has been denied for decades with astonishing persistence. The researcher concludes that there are no technological transfers, only cultural-technological ones.

The reason for this lies in the original institutionalisation of science and its associated traditions and habits of thought. This echoes the idea that “hermeneutics as a methodological practice mobilises the critical subject and producer of meaning against the implicit “we”: of institutional and symbolic orders” (Grunwald, et al., 2023, p. 40). As noted above, behind both kinds of order there is also a political, perhaps better called metapolitical, level of organisation. Strict scientific methods, that exclude the very idea of political intervention, confined to a limited reductionist vocabulary, at some point become an obstacle in their own way. Idhe, referring to the process of purification of science on the way to hermeneutics, cites the periods of first positivism and the subsequent second wave associated with logical positivism and empiricism as one of the stages that made the adoption of the hermeneutics of science most difficult. During this period, science is stripped of its “sense of truth” (Idhe, 1998, p. 143) and focuses entirely on logical formulations and the verification of scientific claims (see also Crease, 1997).

The new step was taken in the studies of Karl Popper, Imre Lakatos, P. Feyerabend and Thomas Kuhn. The latter, according to Idhe, made a radical breakthrough by creating a language that became the language of self-description of science. This is exactly what is implied by the cardinal change of existing hierarchies according to Feenberg. If we follow strictly scientific logic in the spirit of rationalism, language should only serve the existing scientific practice, but in no way become an instrument of its radical transformation. Thus, the change of tradition, the transition to postpositivism, became, in a sense, a hermeneutic revolution. The changed apparatus was followed by a transformation of ideas about symbolic and institutional orders. The development of sociology in the 1970s was the most significant shift of the study of science into the cultural domain. Feminist philosophy of science and standpoint philosophy, as outlined above, radically reconsidered the idea of European rationalism and the dominant universal method as the main obstacle to the diversification of scientific practices.

The issues condemned under the umbrella of technological design could also be called issues of technological engineering. This approach distracts from the issue of technology democratisation. Engineering is an exclusively professional field and “cuts off” the possibility of a broad discussion of technology design issues. Moreover, design is discussed here as the aesthetic antithesis of engineering, not in the sense that engineering does not include the question of aesthetics, but rather focuses on functional efficiency. Admittedly, any embodied technology is considered in the terminology of aesthetics, but its engineering aspects are too specific and professional to be widely discussed in the same framework of discussion as technology design, appealing to the conventionally more accessible notions of ergonomic aesthetics. The democratisation and humanisation of design concerns not only the technical side of the issue, but the changing order of access to social, political and economic institutions. The hermeneutic method applied within science is a way of humanising it, as opposed to the same method applied



as a meta-political method, influencing through the impact of the politics of science on other spheres of social life.

Extending the use of the hermeneutic method has the potential to change and broaden first the symbolic and then the institutional order. This implies its democratisation, which Feenberg so actively advocates. It is noteworthy that in considering the prospects for the democratisation and humanisation of technological design, and thus of a number of related social relations, he does not rely on the marginalised as a driving force that is not part of the already established existing system, the mechanisms of which only outwardly appear extremely autonomous. The main similarity between the idea of introducing the hermeneutic method into the analysis of science itself and the considerations of critical theory on the democratisation of science and technology lies in the need for a deep integration of new approaches without relying on outsiders, the marginalised and external factors.

THE RELATIONSHIP BETWEEN THE BASIC PRINCIPLES OF HERMENEUTICS AND THE HUMANIST VERSION OF TECHNORATIONALITY

The principles of hermeneutics can be correlated with the attitudes of the critical theory of technorationality, which is proposed as a solution to the problem of technological and methodological reification. Roughly speaking, the basic principles are the hermeneutic circle, pre-understanding, dialogue and plurality of interpretation. In the critical theory of rationality, the way out of the problem of technological and related social crisis is connected with the identification of the key problem and its solution. These are four main pairs of concepts based on the principle of “problem – solution”: decontextualisation – systematisation; reductionism – mediation; automatisisation – vocation; positioning – initiative (Feenberg 1997, 1999, 2002). Each of the solutions can be correlated with one of the hermeneutical principles outlined above.

The hermeneutic circle corresponds to secondary instrumentalisation (in other words, systematisation, the introduction of methods and artefacts into broad, multiple contexts). Pre-understanding can be correlated with mediation, the embedding of technological objects in context, taking into account their intrinsic aesthetics and harmony with the environment. The notion of power, both related to and mediated by relationships over technology, has more recently been associated with the notion of care as attuned to maintaining a holistic relationship with the environment (Charolles, Lamy-Rest, 2024). Dialogue in hermeneutics, associated with the reproduction and co-construction of meanings in Feenberg's theory, is shown through the category of vocation, in which subject and object are linked by mutual definition and transformation. The plurality of interpretations is reflected in critical theory through the category of initiative. Here, positioning as an effect of operational autonomy, which only externally separates institutions from the hidden mechanisms of their control, is replaced by initiative, manifested in scientific collegiality, which replaces bureaucracy.



CONCLUSION

The analysis presented here has attempted to explore the underlying reasons that prevent the widespread use of the hermeneutic method in the analysis of science and technology. The main conclusion of the narrative is that its use in science is widespread but carefully hidden. Hermeneutics becomes a method applied at the level of metapolitics, controlling the stability of institutional, especially scientific life, the sociotechnical imaginaries projected to the public, the stability and positivity of notions of rationality, neutrality and autonomy of science. The paradigmatic shift associated with a change in the language of the self-description of science, the study of its institutional mechanisms, revolutionises the scientific narrative. The hermeneutic method, legitimised by the analysis of real scientific practices, radically changes the idea of the normativity of science and the humanity of technology. The hermeneutic approach turns out to be close to the strategy of overcoming technological reification, showing its potential both at the level of solving fundamental scientific problems and at the level of practical technological problems.

REFERENCES

- Appadurai, A. (2002). Disjuncture and Difference in the Global Cultural Economy. In X. Inda & R. Rosaldo (Eds.), *The Anthropology of Globalization: A Reader* J. (pp. 46-64). Blackwell.
- Charolles V., & Lamy-Rested É. (Eds.) (2024). *Philosophies of Technologies: Theory as Practice*. Wiley. <https://doi.org/10.1002/9781394284153>
- Crease, R. (Ed.) (1997). *Hermeneutics and the Natural Sciences*. Kluwer Academic Publishers.
- Feenberg, A. (1997). *Alternative Modernity: The Technical Turn in Philosophy and Social Theory*. University of California Press.
- Feenberg, A. (1999). *Questioning Technology*. Routledge.
- Feenberg, A. (2002). *Transforming Technology: A Critical Theory Revisited*. Oxford University Press.
- Feenberg, A. (2017). *Technosystem: The Social Life of Reason*. Harvard University Press. <https://doi.org/10.4159/9780674982109>
- Grunwald, A., Nordmann, A., & Sand M. (2023). *Hermeneutics, History, And Technology the Call Of The Future*. Routledge. <https://doi.org/10.4324/9781003322290>
- Harding, S. (1988). *Feminism and Methodology*. Indiana University Press.
- Harding, S. (2008). *Science from Below: Feminisms, Postcolonialities and Modernities*. Duke University Press.
- Harding, S. (2015). *Objectivity & Diversity*. The University of Chicago Press. <https://doi.org/10.7208/9780226241531>
- Idhe, D. (1998). *Expanding Hermeneutics. Visualism in Science*. Northwestern University Press.
- Jasanoff S., & Kim, S. (Eds.) (2015). *Dreamscapes of Modernity Sociotechnical Imaginaries and the Fabrication of Power*. The University of Chicago Press.



СВЕДЕНИЯ ОБ АВТОРЕ / THE AUTHOR

Костина Алина Олеговна,
alinainwndrlnd@gmail.com,
ORCID 0000-0002-5073-8201

Alina Kositna,
alinainwndrlnd@gmail.com,
ORCID 0000-0002-5073-8201

Статья поступила 8 марта 2025
одобрена после рецензирования 30 апреля 2025
принята к публикации 28 мая 2025

Received: 8 March 2025
Revised: 30 April 2025
Accepted: 28 May 2025