

TOPOLOGY OF "UNIQUE" AND ITS IMPACT ON THE CONSTRUCTION OF SOCIAL VIRTUUM

Volodymyr Vynnychenko Central Ukrainian State Pedagogical University
e-mail: kharchenkojv@gmail.com

Abstract. *The topology of the unique, its social nature and contradictions with an imaginary cybernetic virtuum are analyzed in terms of philosophical ontology, transcendentology, social philosophy and topology. This became the main goal of the study. The key methodological approach in this study was topology. This research shows that the terminology of topology is quite complex and multi-vector, and its various definitions are significant from the point of view of semantics. The result of the research was confirmation that the unique has a polysemantic hue and is diverse in the context of building a synonymous chain. It is shown that from the point of view of unity and diversity, each individuality is unique in its own way, but at the same time they are a part of the infinite multiplicity of individualists. The conclusions demonstrate that the combination of the physical, spiritual and social nature of a person represents his unique essence. Human, in turn, is able to notice the unique phenomenon, to distinguish it from other phenomena, to extrapolate the unique to the plane of individual and collective goal-setting. Unique, therefore, is a complex topological construction, whose metric properties are practically impossible to determine due to the fact that this is an abstraction.*

Key words: Unique, unique topology, social construction, social virtuum.

Introduction

"Unique" is a category that can be viewed in different contexts. On the one hand, the human mind, knowing the world, unfolds new phenomena or fixes rare events in space-time. As a result of this, a person thinks of them as unique and inimitable. On the other hand, the unique can be the result of an assessment of certain human qualities (talents, abilities, character traits, external data), as well as the characteristics of culture, civilization, history, traditions. That is, the unique is the most important incentive for the development of the human psyche, self and spirituality. The manifestation of talent gives rise to unique forms in art, and such masterpieces go beyond space-time and become attributes of historical eternity.

The desire to be unique sometimes prevails over common sense. It can be seen on the example of political systems that seek to dominate. This creates a feeling of exclusivity and superiority. Such systems are relatively durable.

At the same time unique is a category that represents the essence of the transcendental nature of things. The unique is a reflection of the divine essence. If science allows over time to establish a balance between the unique and the ordinary, then theology, on the contrary, significantly enriches the content of the unique, shows its deep essence.

The term "unique" means rare, exceptional, extraordinary, non-formatted, outstanding, remarkable, phenomenal, inimitable, unsurpassed (Ожегов, 2020). The unique has a polysemantic connotation and is diverse in the context of making a synonymous chain. From the point of view of unity and diversity, each individuality is unique in his own way, but at the same time he is a part of the infinite multiplicity of individualities.

Therefore, the combination of the physical, spiritual and social nature of a person represents his unique essence. Only a person is able to notice the unique phenomenon, to distinguish it from other phenomena, to extrapolate the unique to the plane of individual and collective goal-setting. Unique, in our opinion, is a complex topological construction; however, it is almost impossible to determine its metric properties because it is an abstraction.

The unique is unusually significant in social life; however, it is difficult to fix its appearance in space at a clearly defined point. The society, in addition, introduces its additional rules and restrictions for evaluating unique events. Becoming more complicated, society creates its own derivative – virtuum. Moreover, virtuum is a combination of products of nature, products produced by human in society and products of the cybernetic world.

A unique event often takes time to be recognized as such. The unique is always noticeable, and even if it is not recognized as it is, over time it sheds the shackles of inertness, rejection, narrow-mindedness. At such moments in history, society is changing its vector of development, being updated, and re-equipped. Each event in history is unique; its place is clearly defined and predetermined. In addition, cybernetic space is capable of generating ersatz events.

The aim and tasks

That is why the topology of the unique, its social nature and its contradictions with the imaginary cybernetic virtuum, requires understanding in terms of philosophical ontology, transcendentology, social philosophy and topology.

Research methods

Topology is called the "doctrine of the localities" (Чудинов, 1910). This definition is significant in terms of semantics. The terminology of topology is quite complex and multi-vector.

1. Listing defined topology as "the doctrine of the modal relationships of spatial images, or of the laws of connectedness" (Колмогоров, & Юшкевич, 1981). That is, the term "topology" appears at the moment when "place", "position", "point in space" become the most significant in the physical, cosmic, biological, social, cultural, political, economic and other worlds.

Topology today is becoming an increasingly relevant branch of knowledge. Topology has formed as a branch of mathematics that studies: the phenomenon of continuity in its most general form; in particular, the properties of spaces that remain unchanged under continuous deformations (for example, connectivity, orientability, compactness). Unlike geometry, topology does not consider the metric properties of objects.

Continuous deformation is the deformation of a figure, in which there are no gaps (i.e., violation of the integrity of the figure) or gluing (i.e., identification of its points). Such geometric properties are associated with the position, and not with the shape or size of the figure. In contrast to the Euclidean and Riemannian geometries, Lobachevski geometry and other geometries involved in measuring lengths and angles, the topology has a non-metric and qualitative character. Previously, it was called "situs analysis" (position analysis), as well as "point set theory". In popular scientific literature, topology is often called "geometry on a rubber sheet", since it can be visualized as the geometry of figures drawn on perfectly elastic rubber sheets that undergo stretching, compression, or bending ("Топологія"). Note that the phenomenon of topology today is becoming the subject of philosophical discourse analysis, as well as psychoanalysis.

On the one hand, topology combines the research of modern physics, astronomy, chemistry, and mathematics. Topological materials possess stable and non-standard surface electronic states and electromagnetic properties (see figure 1).

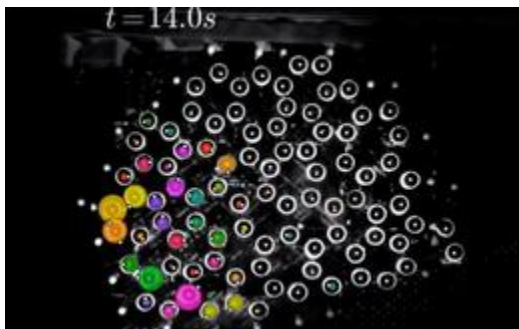


Figure 1. Topological isolation in a disordered environment

Topological insulators are those substances that are conductors on the surface, but insulators in volume. They demonstrate the impossibility of electron scattering on lattice defects without changing the direction of the spin. This has become acceptable due to the topology of electronic states. In recent years, this direction has attracted considerable interest from various research groups; several hundred of such substances have been discovered. They are interesting from the point of view of applications, since they are resistant to perturbations from impurities, defects, and noise ("Топологические материалы"). On the other hand, philosophical science also combines various philosophical knowledge in describing the essence of topology. It includes ontology, social philosophy, philosophy of language, philosophical psychoanalysis.

Research results

Therefore, topology continues to be shaped as interdisciplinary knowledge. It contributes to the solution of fundamental, applied, as well as philosophical problems, but also gives rise to more and more ontological dilemmas related to human, society and virtual reality.

In this regard, O. Tynianova asks a fair question: why the topology, being unanimously referred to the field of mathematics and logic by all modern

dictionaries and reference publications, is something more? (Тынянова, 2013: 9). The author points to the Platonic unity of Eidos, Topos and Logos, and describes the spaces of human as the unity of the sets of its (physical and conceivable) worlds, which is the cosmos. However, in her opinion, all these spaces have one thing in common: in their center there are human and topology (ontology and metaphysics). The space of human existence inextricably links together all its worlds into a truly anthropocentric world, because only in it becomes possible not only knowledge and development of nature, but also its elevation; for only in such a world a person acquires his true essence – the essence of the Cosmic subject (Тынянова, 2013: 10). Human as a cosmic subject is unique and he carries out the convergence of Eidos, Topos and Logos. In society and its artifacts, the uniqueness of the creative essence of the personality is reflected; its "imprints" remain in history. "Imprints" remain even when "corporeality" disappears. However, we are not talking about replacing a natural body with a virtual body or the cybernetic body of a machine.

In this regard, A. Gordienko emphasizes that in the system of a complex world, both the context and the activity of a person who has a spiritualized part of the second component of human physicality fundamentally change. Such a person finds himself in a situation where the growth of complexity with its contextual and procedural dynamics determines the necessity of making an informed decision in the "here and now" mode. Moreover, since this is connected with the return of the Self to natural physicality, the personalization of the subjects forming the creative team is carried out on the basis of the specific sensory-empathic state arising in transcending, which is characteristic of the person's sympathetic nature. Here, apparently, for the first time after reversing the principle of domination, turning a person into an instrument of nature, a tendency towards the ascent to a new interaction of people and things is more and more clearly emerging. The connection of people and things does not appear in the form of a linear causal series, but in the form of a specific spiritual-sensory field in which each (including things) is a condition of the other and is conditioned by it. Thus, the prerequisites are being formed for the transition from divergence to convergence of "two lines of cosmic evolution" – the natural human body and the "inorganic body of civilization". It seems that this process will determine the transformations that capture modern science (Гордиенко, 2016: 25-26). The convergence of Eidos, Topos and Logos in the modern world is presented differently: firstly, as the endless production of new images of the material world and variations in the development of civilization; secondly, as the "removal" of the familiar Topos or its fundamental disappearance (in this case, the value of the place of birth, native culture, family, state is lost); thirdly, the higher Logos is losing its sacred value, and instead convergent technologies, providing for the utilitarian use of individual and collective, anthropological and cybernetic cognitions, are being updated.

The cognitive problems of convergent technologies require for their adequate consideration to "immerse" them in the context of the post-non-classical paradigm of synergetic complexity. Among these problems, one

of the central places is the problem of creative interdisciplinary communication and management in a world of complexity. Conceptual interdisciplinary constructs within the framework (frames) of the complexity paradigm have the properties of self-referentiality, reflexivity, operational closure, and auto-poetry. And then the problem of the form (or method) of their connectivity arises, which, in turn, determines the very problem of creativity of interdisciplinary communication in the context of the development of convergent technologies. The cognitive movement in this "complexity logic" thereby acquires a "circular", nonlinear character. And in this logic, in contrast to its simplified, "linear" version, where we have the starting and ending points of our conclusions, the "primary", "secondary" and "tertiary" as such are not so significant in themselves. Their recursive, network, communicative connectedness, coherence, and structural conjugation are important. In this regard, it is essential to note that the proper understanding of this communicative connection with the necessity involves the introduction of a new concept, namely, the concept of a complexity observer, which in turn represents a synergistic "assembly" of a second-order cybernetic observer and a quantum observer (Аршинов и др., 2015: 34). NBIC-convergence is the hypothetical core of the current technological sense of things, based on the combination and synergistic enhancement of the achievements of nano-, bio-, information and cognitive technologies. This area of knowledge is developing as a new area of social and humanitarian research.

In the context of this paradigm, the future is not so much theoretically predicted as it is practically, step by step, created in the process of recognizing complexity, its growth as an integral attribute of the ascending evolutionary process, inherent not only in the evolution of human society, but in the whole cosmological evolution as a whole. Building a path into a humane future, with all its quantum complexity and uncertainty, and therefore growing riskiness, saturation with possible catastrophic scenarios, is possible with new tools for its construction, creation of new innovative approaches. That is why such hopes are placed on convergent technologies. But these hopes can be justified under the indispensable condition that socio-humanitarian knowledge will be involved in this process (Аршинов и др., 2015: 36). A cyber society created through the use of convergent technologies can be new uniqueness only if the moral principle is introduced, which will become the core of a new complex reality.

Discussion

The new model of society as a social virtuum implies: the expansion of human knowledge and communication; improving human health and physical ability; increasing the effectiveness of collective activity; modernization of instruments ensuring national security; the union of science and education. This model produces "visions" regarding "human enhancement" as the leitmotif of the technological development of convergent technologies, a new unity based on the internal unity of nature, at the level of its nano-scale. Thus, in a strategic perspective, the pole of the NBIC-initiative regarding the problem of "expanding human capabilities" is largely devoid of socio-

humanitarian content. It is reduced to the purely technoscientific aspect of this problem. True, this reduction is a veiled reduction of the "second kind", since it prudently appeals to the interdisciplinary synergy of discovery and construction, that is, to a kind of multi-level self-organization and integrity. Moreover, it is not talking about the applicability limits of the model of combining atoms, genes, neurons and bits under the same "umbrella" term nano-objects (Аршинов и др., 2015: 39-40). Nano-objects as terms are symbolic that convey information about the emergence of cognitive patterns in modern artificial intelligence. This cybernetic organism may become a new kind of unique, a new form of life, along with a person. And then two ontological constructs – human and machine – will come into conflict. And the main threat will arise when a person cannot be unique, singular, and imperfect in this imaginary virtuum.

A nano-object as a discrete part of matter or, conversely, its local absence, has become the subject of study of fundamental and applied science and technology, as well as philosophy. And interest in this phenomenon is constantly growing, since products with a given atomic structure by the controlled manipulation of individual atoms and molecules are actively used today in cybernetics, the space industry, and in medicine, biology, and genetics. The uniqueness of these technologies is the essence of their novelty and innovative methods, which completely change the principles of the existence of civilization, which, in turn, becomes a virtual civilization.

Nano-technology is also actively used in geology, geodesy, and meteorology. In particular, E. Pashinov in his study proposed a neural network algorithm, which, using model data, makes it possible to restore the absolute atmospheric humidity profile based on radiometric data of the Convergence CE with a relative recovery error of no more than 32%. The proposed algorithm assumes the use of several separate ANNs, each of which restores humidity at a separate altitude level of the atmosphere (Пашинов, 2019: 25). Of course, these technologies improve everyday life, make it more comfortable and safe, but philosophy is trying to demonstrate the consequences of the soulless use of the fruits of anthropogenic civilization, it shows the emptiness of the cybernetic space, where a new machine entity reigns, warns about the loss of the meaning of life in a world without a creator God.

Conclusion

Human has become extremely unique because of his rational and spiritual principles. Therefore, it is incomparable with other living beings, because his behavior, abilities and purpose contribute to the construction of his own life world, that is different from the natural world. The world, called society, is continuously becoming more complex and responding to tectonic processes that occur inside the human soul. It reflects the struggle of desires and passions, which is sometimes constructive, and sometimes destructive. Pure thoughts turn a person to God, and bad thoughts turn from God, as a result of which it is capable of both feat and betrayal. The process of improving or destroying a person is correlated with the process of constructing a society as a virtuum. If the collective personality gravitates to a rational

beginning, to infinite improvement, then human and society as unique phenomena are convergent. Otherwise, they are divergent.

The discovery of the "inner moral man" in itself gives rise to an "ontological" purification of the soul, which can be conditionally compared with the participation of the divine nature. Spirituality in the most general sense is a combination of manifestations of the spirit in nature, society and human. Spirituality unites the basic principles of society: moral values and traditions, concentrated in religious teachings and practices, as well as in artistic images in art. However, modern breakthrough technologies are considered today, rather, in a utilitarian context, while morality and sacred meanings are completely excluded from the agenda. Thus, society can lose its destiny as a unique phenomenon.

Literature

1. Гордиенко А. А. Человек, вызовы НБИКС-конвергенций и наука / А. А. Гордиенко // Философия образования, № 3(66), 2016. – С. 25-36.
2. Математика XIX века. Геометрия. Теория аналитических функций / Под ред. Колмогорова А.Н., Юшкевич А.П. – М.: Наука, 1981. – 270 с.
3. Ожегов С. И. Толковый словарь русского языка / С. И. Ожегов; под редакцией Л. И. Скворцова. – 28-е изд., перераб. – Москва: Мир и Образование, 2020. – 1375, [1] с. <http://endic.ru/ozhegov/Unikalnyj-36952.html>
4. Пашинов Е. В. Космический эксперимент «конвергенция»: восстановление профиля водяного пара атмосферы с помощью искусственных нейронных сетей / Е. В. Пашинов // Исследование земли из космоса. – 2019, № 6. – С. 13–25.
5. Словарь иностранных слов, вошедших в состав русского языка / Под ред. А. Н. Чудинова. Изд. 3-е, исправ. и доп. СПб.: Издание В. И. Губинского, 1910. – X, 676 с.
6. Социо-антропологические измерения конвергентных технологий. Методологические аспекты [Текст]: Коллективная монография / Аршинов В.И., Асеева И.А., Буданов В.Г., Гребенщикова Е.Г., Гримов О.А., Каменский Е.Г., Москалев И.Е., Пирожкова С.В., Суцин М.А., Чекалов В.В. Отв. ред. И.А. Асеева, В.Г. Буданов. – Курск: ЗАО «Университетская книга», 2015. – 238 с.

7. Топологические материалы оказались повсеместны / Химия и науки о материалах. <https://indicator.ru/chemistry-and-materials/topologicheskie-materialy-povsemestny-05-03-2019.htm>
8. Топология. Энциклопедия Кругосвет. <https://www.krugosvet.ru/enc/matematika/topologiya>
9. Тынянова О. Н. Миры человека: попытка топологии // Пространство и время 2(12)/2013. – С. 9-10.

References

1. Gordienko, A.A. (2016). Chelovek, vyzovy NBIKS-konvergentsiy i nauka [Man, the challenges of NBICS convergence and science]. *Filosofia obrazovaniia, Philosophy of Education, 3(66)*, 25-36 [in Russian].
2. Kolmogorov, A.N., & Iushkevich, A.P. (Ed.). (1981). *Matematika XIX veka. Geometriia. Teoriia analiticheskikh funktsiy* [Mathematics of the XIX century. Geometry. Theory of analytic functions]. Moscow: Nauka [in Russian].
3. Oznegov, S.I. (2020). *Tolkovyy slovar russkogo iazyka* [Explanatory dictionary of the Russian language] (28th ed., rev.). L.I. Skvortsov (Ed.). Moscow: Mir i Obrazovanie. Retrieved from <http://endic.ru/ozhegov/Unikalnyj-36952.html> [in Russian].
4. Pashinov, E.V. (2019). Kosmicheskiy eksperiment "konvergentsiia": vosstanovlenie profila vodianogo para atmosfery s pomoshchiu iskusstvennykh neyronnykh setey [Space experiment "convergence": reconstructing the atmospheric water vapor profile using artificial neural networks]. *Issledovanie zemli iz kosmosa, Earth exploration from space, 6*, 13-25 [in Russian].
5. Chudinov, A.N. (Ed.). (1910). *Slovar inostrannykh slov, voshedshikh v sostav russkogo iazyka* [Dictionary of foreign words included in the Russian language] (3rd ed., rev.). SPb.: V.I. Gubinskiy [in Russian].
6. Arshinov, V.I., Aseeva, I.A., & Budanov, V.G. (et al.). (2015). *Sotsio-antropologicheskie izmereniia konvergentnykh tekhnologii. Metodologicheskie aspekty* [Socio-anthropological measurements of convergent technologies. Methodological aspects]. I.A. Aseeva, V.G. Budanov (Eds.). Kursk: Univer. kn. [in Russian].
7. Topologiya [Topology]. *Sait "Entsiklopediia Krugosvet", Site "Encyclopaedia Round the World"*. Retrieved from <https://www.krugosvet.ru/enc/matematika/topologiya> [in Russian].
8. Topologicheskie materialy okazalis povsemestny [Topological materials are ubiquitous]. (2019). *Sait "Indicator", Site "Indicator"*. Retrieved from <https://indicator.ru/chemistry-and-materials/topologicheskie-materialy-povsemestny-05-03-2019.htm> [in Russian].
9. Tynianova, O.N. (2013). *Miry cheloveka: popytka topologii* [Worlds of man: an attempt to topology]. *Prostranstvo i vremia, Space and time, 2(12)*, 9-10 [in Russian].

Ю.В. Харченко

ТОПОЛОГИЯ «УНИКАЛЬНОГО» И ЕЕ ВЛИЯНИЕ НА КОНСТРУИРОВАНИЕ СОЦИАЛЬНОГО ВИРТУУМА

Топология уникального, его социальная природа и противоречия с мнимым кибернетическим виртуумом анализируются в терминах онтологии, трансцендентологии, социальной философии и топологии. Это стало основной целью исследования. Ключевым методологическим подходом в данном исследовании стала топология. В работе показано, что терминология топологии достаточно сложная и многовекторная, а ее различные определения значимы с точки зрения семантики. Результатом исследования стало подтверждение, что уникальное имеет полисемантический оттенок и разнообразно в контексте выстраивания синонимической цепочки. Показано, что с точки зрения единства и многообразия, каждая единичность по-своему уникальна, но при этом она часть бесконечной множественности единичностей. В выводах продемонстрировано, что сочетание физической, духовной и социальной природы человека репрезентирует его уникальную сущность. Человек, в свою очередь, способен заметить явление уникального, выделить его из других явлений, экстраполировать уникальное в плоскость индивидуального и коллективного целеполагания. Уникальное, следовательно, является сложной топологической конструкцией, метрические свойства которой определить практически невозможно ввиду того, что это абстракция.

Ключевые слова: уникальное, топология уникального, социальное конструирование, социальный виртуум.

Ю.В. Харченко

ТОПОЛОГІЯ «УНІКАЛЬНОГО» ТА ЇЇ ВПЛИВ НА КОНСТРУЮВАННЯ СОЦІАЛЬНОГО ВІРТУУМА

Вступ. Топологія унікального, його соціальна природа та суперечність із уявним кібернетичним віртуумом аналізуються в термінах онтології, трансцендентології, соціальної філософії та топології. Це стало основною метою дослідження. Ключовим методологічним підходом у даному дослідженні є топологія. У роботі показано, що термінологія топології достатньо складна і багатовекторна, а її варіативні визначення значимі з огляду на семантику. **Результатом дослідження** стало підтвердження, що унікальне має полісемантичний відтінок і є різнобарвним в контексті побудови синонімічного ланцюга. **Обговорення.** Показано, що з точки зору єдності та багатоманітності, кожна одиничність є по-своєму унікальною, але при цьому вона є безкінечною множиною одиничностей. У **висновках** продемонстровано, що поєднання фізичної, духовної та соціальної природи людини репрезентує її унікальну сутність. Людина, у свою чергу, здатна помітити явище унікального, виділити його з-поміж інших явищ, екстраполювати унікальне в площину індивідуального та колективного цілепокладання. Унікальне, як наслідок, є складною топологічною конструкцією, метричні властивості якої визначити практично неможливо через те, що це абстракція.

Ключові слова: унікальне, топологія унікального, соціальне конструювання соціальний віртуум.