

Worldview Concept: History and Modernity (in the Context of Lotfi A. Zadeh's Worldview)

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It is known that the scale, size, form, and content of the worldview is beyond calculation, expression, and explanation, as it belongs to the world and to man. Maybe it's not even right to call it an event. The worldview combines the countless compatibility inherent in both the world and man, and at the same time, it distinguishes mother and child, as close as twins, native beings as far apart as heaven and earth. Worldview is a product of consciousness. It is a system of relationships. An individual understands the world and the environment through worldview. On the other hand, a person is perceived according to his worldview. In the historical approach, the point of view is variable. Its objects are often outdated or rapidly updated. People are often judged according to the "oldness-newness" of their outlook. Since the worldview phenomenon is evaluated with different approaches (concepts of worldview) according to the requirements of the time, it is more deeply understood in relation to a person, especially a professional personality represented by full activity in a certain field. From this point of view, it is important to study the outlook of the genius scientist Lotfi A. Zadeh, who was born in Azerbaijan, and benefit from the principles of history and modernity, outlook on life and worldview. In the article "Worldview Concept: History and Modernity (in the Context of Lotfi A. Zadeh's Worldview)", we tried to analyze the worldview of the genius scientist of Azerbaijani origin Lotfi A. Zadeh, who lived for 96 years, i.e. almost one century, and continued his scientific research. Thus, in the article, we determined the place of the concept of Worldview in History and Modern Consciousness, and by comparing the scientific-theoretical aspects of this concept with Lotfi A. Zadeh's worldview, we obtained new, relevant, and important results.

Keywords: Weltanschauung, worldview, Lotfi A. Zadeh, philosophy, logic, history, modernity

Introduction

The mass of people from the same nationality, the same religion, and the same level of intelligence do not perceive and appreciate the same period or event—for example, the feeling of joy and its opposite, the feeling of death and sadness. Because their analysis and evaluation criteria depend on their worldview. However, Westerners and Easterners, Muslims and non-Muslims do not see this event in the same way. The attitude towards the event of death also depends on being a person of which region or identity. When an oriental person loses a loved one, he or she meets it with psychological stress, from mourning for months or even years to falling ill. Western man is cold-blooded. Because the Eastern character is contrary to his worldview.

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So, the worldview is far from the idea of “we”. It is a phenomenon in the character of individual and social “I”. If not “I”—position, attitude, the essence is the same—everything is determined by “he”—worldview. When we approach the issue more deeply, we come to the forms of worldview. For example, the attitude towards the world, nature, God, existence, religion, science, art, universe, and so on an infinite number of objective and subjective, living or non-living matter is a manifestation of human consciousness and expresses his individual outlook.

By the way, the expression “views of life” is also used as a substitute for the term worldview. The idea of philosophical views is accepted as a philosophical worldview. The religious outlook is of the same mold.

However, since the phenomenon of worldview is evaluated with different approaches according to the requirements of the time (worldview concepts), it is understood more deeply in relation to a person, especially a professional individual represented by full activity in a certain field.

From this point of view, it is important to study the worldview of Lotfi A. Zadeh, a genius scientist of two XX-XXI centuries, born in Azerbaijan, and benefit from his principles of viewing history and modern life. In this article, we conducted the analyses of the historical and modern worldview consciousness in the context of the worldview of Lotfi A. Zadeh, a great scientist of Azerbaijani origin, who lived for 96 years, that is, about one century, and continued his activities until the last day.

Methodology

First of all, we should note that the term “worldview”, which is contemporary with the history of humanity, was created during the modernism era, and we can say about its etymology that *Weltanschauung*—in German, *Welt* (world)—*Anschauung* (perception or vision) is derived from the words. The term *Weltanschauung* describes the concept of modernism’s worldview in a purely rational sense—“dare to think!” (in Latin “*sapere aude!*”) was widely used by Immanuel Kant, a prominent representative of German classical philosophy, and later popularized by Hegel. However, as we mentioned above, “views” of the phenomenon of worldview are determined by the period—time, the meaning expressed by the term *Weltanschauung* also included views on philosophy, ideology, culture, and even religious beliefs, which changed the level of rationality-reality as modernism “became old”. In addition, “*Weltanschauung*” also evaluated the worldview of society, a group (people) within it, including a tribe, and an individual within it.

The scientific concept expressed by the term “*Weltanschauung*” was widely used and studied at the time. Thus, the term “*Weltanschauung*” was coined in 1790 by I. Kant and it was used especially in German romanticism from the middle of the 19th century. *Weltanschauung* (world view) expresses the image that man is involved in the multiplicity of beings, values, and tasks, especially through the concept of origin that explains the existence of the universe and the concept of the supreme value that the universe gives him. It tends to where it gets its ending and meaning. This image can be unconscious and hidden; can be expressed in mythical narratives or more or less scientifically elaborated theories. From a cosmological point of view, the *Weltanschauung* is skeptic, atheist, pantheist, theist, etc. can be classified as; axiologically, the *Weltanschauung* is hedonistic, humanistic, religious, etc. can be classified as (*Weltanschauung*, <https://www.encyclopedia.com/philosophy-and-religion/philosophy/philosophy-terms-and-concepts/worldview-philosophy>).

For example, the analyses of Immanuel Kant, Hegel, Wilhelm Dilthey, Sigmund Freud, E. Husserl, M. Heidegger, and H-G. Gadamer and others, and in this context “*Weltanschauung*” are the basis for historical and

modern evaluations (Weltanschauung, <https://www.encyclopedia.com/philosophy-and-religion/philosophy/philosophy-terms-and-concepts/worldview-philosophy>).

The work “Truth and Method” written by H.-G. Gadamer in 1975 expanded the main direction of modern hermeneutics in many ways. For Gadamer, understanding involves an interpretive dialogue with the Weltanschauung in which one finds oneself. People’s ways of understanding (their “methods”) are both means of interpretation and objects requiring interpretation. Unlike Dilthey and Heidegger, Gadamer argues that there can be no final interpretation of reality because new life-worlds or world-pictures will cause future “interpreters” to see and experience the world differently (Weltanschauung, <https://www.encyclopedia.com/philosophy-and-religion/philosophy/philosophy-terms-and-concepts/worldview-philosophy>).

In modern times, along with the rational or scientific outlook, wider areas of “Weltanschauung” are studied and applied. This new concept provides a more comprehensive philosophical “description” of nature, the world, human consciousness and thinking, as opposed to the historically conditioned, stereotyped observation. This worldview system includes human activities and endeavors that are the manifestation of the knowledge gained by the individual throughout his life.

But now—in the second decade of the 21st century, “Weltanschauung” has undergone a renewal in terms of its essence. In its content, enriched by the approaches of I. Kant and Hegel, now includes other cognitive aspects, and for example, to study the worldview of a nation or an individual, not only rationality, but also feelings, aspects of the spiritual self are taken as a basis.

In the search for truth and reality from the perspective of worldview, not only science, intellect, rationality, but also approaches from the context of fuzzy logic are important. In other words, if in earlier times philosophy was accepted and understood as a whole worldview, now it means unlimited thoughts and views of human consciousness under the will of ideology, political, military, and economic power. This confirms the vastness of human consciousness from a material and spiritual point of view. When the worldview is followed in accordance with the new scientific methods, the main experience is determined by the fact that the objective attitude of the individual to the ongoing world events can be explained from the obvious to all its “secrets”.

David Keith Naugle, the author of the dissertation entitled “A History and Theory of the Concept of ‘Weltanschauung’” writes:

In the 20th century, when Husserl and Heidegger analyzed the conflict between scientific philosophy and the pragmatics of Weltanschauung, Jaspers focused on the worldview as a mental gestalt, and Wittgenstein focused on life forms and language, discussed “world pictures” as a combination of his games. Analytical philosopher Donald Davidson questioned the possibility of different conceptual schemes, and Jacques Derrida and Michel Foucault modified the concept in postmodern ways. The history of Weltanschauung continues in the context of a discipline where it is highly influential, as shown by its role in the natural sciences, social sciences, religious studies, and theology. In the second part of this work, the emphasis shifts to the theoretical mode by attempting to construct a semiotically conceived, narrative-based model of the Weltanschauung that underlies and conditions the realization of human reason, rhetorical performance, hermeneutic activity, and epistemic propositions. In conclusion, it is argued that the philosophical and disciplinary history of worldview can be explained in terms of the theoretical model presented, and that all aspects of human thought and life stem from a commitment to faith in a putative Weltanschauung. (A History and Theory of the Concept of “Weltanschauung”, <https://www.proquest.com/openview/855fc26375c14b6c6f226298c8190b38/1?pq-origsite=gscholar&cbl=18750&dis=y>)

In this direction of our thoughts, the question arises: So, what is the phenomenon of worldview of this era—XXI century? Based on the general content of the events taking place in the current period of time, which is

characterized as the Globalization stage of the modern world, we can say that the outlook of the historical stage we are living in is based on the achievements of the last stage of the industrial revolution.

Lotfi A. Zadeh and His Scientific Heritage

From the 17th century to the 20th year of the 19th century, well-known scientists in Europe, R. Descartes, T. Hobbes, Blaise Pascal and Leibniz, later Charles Babbage and Ada Lovelace, Bertrand Russell and Whitehead, Konrad Tsuzé, Warren McCulloch and Walter Pitts and others have enriched this field with valuable scientific innovations by benefiting from three important theoretical-methodological experiences, which are related to the unconditional worldview.

From this point of view, the beginning of the generation of super digital computers, which is a place of wide use of artificial intelligence, is connected with the gradual development of the worldview created by the scientific knowledge of the historical period. “Nomogram, slide rule, astrolabe, oscilloscope, television, analog sound processor, autopilot, as well as analog systems such as abacus” are products of the scientific outlook of one or another scientist. The fact that the analogue field of artificial intelligence is strong and wide, as well as sustainable, is a confirmation of the worldview of these scientists.

The first rational scientific researches and discoveries related to the name of European scientists are evaluated as the results of his worldview along with the scientist’s scientific knowledge. It should be emphasized that the great majority of famous scientists who enriched the world science with their huge discoveries were theologians. For example, let us recall the outstanding German mathematician, theologian, and cartographer Wilhelm Schickard. Wilhelm Schickard’s inventions, such as the first mechanical calculator and a system for learning Hebrew grammar, a machine that serves to perform several different functions, including a calculating clock device that greatly eases human labor in arithmetic operations, i.e. allows performing them mechanically, are important scientific discoveries. At the same time, it reflects his scholarly outlook. When these inventions were accepted, it goes without saying that the broad outlook of the scientist was also highly valued.

As well as digital programming, it is the product of the outlook of Charles Babbage, a well-known mathematician, philosopher, economist, computer science scientist of his time, who won the Gold Medal in 1824 “for the invention of an engine for calculating mathematical and astronomical tables”, and is even considered the father of modern printers and the pioneer creator of calculating machines. The concept of a computer that knows has been a great innovation for world science of such a revolutionary nature that it still maintains its usefulness today.

Charles Babbage, who also considered the creation of the Royal Astronomical Society of London, inaugurated this important historical institution with a scientific outlook. It is no coincidence that in 1991, a new artificial intelligence machine was created based on one of his unfinished works on a vast management system. It is also an undeniable fact that Charles Babbage, together with the English mathematician and first programmer Ada Lovelace, invented the most widely used translation mechanism of the artificial intelligence system in modern practice, and this discovery made history when Babbage translated Ada Lovelace’s writings into Italian on an analytical machine. The artificial intelligence “machines” invented by Charles Babbage two centuries ago are on display at the Science Museum, representing his invaluable thinking as well as maintaining their importance as a key source for new scientific research. Thus, the scientific outlook of these two researchers laid the foundations of a phenomenon that would become famous as artificial intelligence approximately one hundred and seventy years later (Top 10 Artificial Intelligence Researchers Making a Revolution in 2022,

<https://www.analyticsinsight.net/top-10-artificial-intelligence-researchers-making-a-revolution-in-2022/>; <https://www.algotive.ai/blog/the-history-of-artificial-intelligence-machine-learning-and-deep-learning>).

The researches of these scientists formed the scientific worldview of the time by revealing the theoretical, experimental, and applied possibilities and examples of human, mechanical materialism in general, as well as intelligence, natural intelligence, which in itself ensured the strength and wideness of the analogous field of artificial intelligence, as well as sustainability.

Artificial Intelligence, led by the United States, China, and England, is the basis of the worldview of all mankind in the modern era—globalization stage. The artificial intelligence system, which is of special importance in the development of science, military industry, technology, socio-cultural life, medicine, healthcare, and countless fields, is becoming the worldview of the 21st century and is also expanding its theoretical and methodological analyses in science.

Experience without methodology, methodology without experience is impossible. In this regard, the evaluation of new theoretical topics in the context of the scientific multidisciplinary study of the “intelligent machines” system has accelerated the development of the scientific philosophy and worldview of Artificial Intelligence.

We can proceed from this and say that Alan Mathison Turing gave the world thought the methodology of “ready-to-answer intelligent machines”—computers, in the face of millions of human questions, that the revolutionary progress of this new civilization, at the same time, made the collapse of the modernist worldview based on the enormous potential of the human mind and practical activity a reality.

The worldview of artificial intelligence in the United States, which ranks first among the top three world states that use artificial intelligence systems at a high level, is extremely broad.

Of course, the modern world is experiencing the highest stage of scientific progress compared to previous times. Be it the understanding of the universe and its use, the fields of application of global satellite navigation systems, or the emergence of interplanetary development technologies, electronic devices, etc. in general, the field of Artificial Intelligence confirms the huge scientific achievements of the time.

John Von Neumann, A. Einstein, Oswald Veblen, Kurd Godel, Lotvi A. Zadeh, A. Persil, and many American scientists have made great contributions to the development of the artificial intelligence system and directly to the emergence, expansion, and strengthening of worldviews in this regard in the countries and peoples of the world.

Analysis of the worldview of Artificial Intelligence in our modern years shows that the world community is dynamically acquiring this scientific worldview with the rapid progress of artificial intelligence and robotics, which is the inevitable development of philosophy and philosophers in the world. In the younger generation, the worldview related to the artificial intelligence system in general is developing so strongly that they acquire natural knowledge and almost all the needs only to implement the possibilities of artificial intelligence more effectively. On the other hand, in parallel with progress in the modern development line of the worldview of AI, the problems that are experienced in a global regressive nature are characteristic of the young generation acquiring new knowledge in order to overcome these complexities in the worldview of artificial intelligence or to adapt to them.

The source of new knowledge is, without a doubt, historical and modern experience—from myths to the present day—the solid foundation that stands on the basis of the high development of the worldview of Artificial Intelligence in the 21st century, which has taken it out of tests, mathematics, logic, physiology, neurophysiology, psychology, epistemology, philosophy, and many influential scientists in the fields of science, 10 main

researchers—Bernard Marr, Yann André LeJun, Tamara McCleary, Andrey Karpathy, Fei-Fei Li, Demis Hassabis, Rana el Kaliouby, Cassie Kozyrkov, as well as Russian scientists S. N. Korsakov, V. Pushkin, G. S. Pospelov, D. A. Pospelov, E. V. Papov, as well as the successor of the concept of *Weltanschauung*, which had a strong influence on the development of 19th-20th century philosophy. It is an important and appropriate issue.

Analysis of Innovation Activities of Lotfi A. Zadeh

Real facts, real arguments based on the new worldview concept of the 20th century, based on the scientific-theoretical revolutions confirmed by the deep discoveries of the brilliant scientist Lotfi A. Zadeh, and at the same time on the colorful life philosophy, are the richest source of determination.

Thus, Lotfi A. Zadeh's worldview first of all opened the way to the world from his scientific-theoretical revolutions and discoveries, and the scientific legacy of the genius scientist is one of the most important sources that shaped the concept of the new worldview of the 20th century.

It is also known that Lotfi A. Zadeh is one of the scientific geniuses of his time and contemporary stage, and there is a rich library of researches about him. In this library, together with scientific works, the manifestation of the scientist's worldview, analyses related to his worldview, and analyses in this sphere occupy a large place.

For example, the author of this article fully analyzed of Lotfi A. Zadeh, the period, worldview, and philosophical views in his recently published monograph entitled "The Era, Worldview and Philosophical Views of Lotfi A. Zadeh" published in seven languages—in English, Portuguese, German, French, Italian, Spanish, and Russian languages (Guliyeva Kh. Lambert, 2023).

We meet Lotfi A. Zadeh's worldview, in a number of scientific studies of the Turkish scientist I. Burhan Türkşen (Türkşen, 1986, pp. 191-210; 2001; 2007; Uncu & Türkşen, 2001; Narazaki & Türkşen, 1994, pp. 548-563). Among one of these works, "Lofia. About Zadeh's Contribution to Modern Science and Scientific World Meeting" I. B. Türkşen writes in his article: "L. A. Zadeh's contribution to modern science is great and is first of all reflected in his main innovative articles: 'Fuzzy sets'" (1965) (Naugle, 1998), "Probability measures of fuzzy events" (1968) (Blair, 1994), "Foundations of a new science: approach to the analysis of complex systems and decision-making processes" (1973) (PYC, 2013), "Fuzzy sets as a basis for the theory of possibilities" (1978) (USTACAZ, 2020), "Theory of approximate reasoning" (1979) (Dzitac, Filip, & Manolescu, 2017), and so on. On the one hand, these Guliyeva, Kh. fundamental papers on fuzzy sets and fuzzy logic have led to changes in scientific paradigms in many fields. They had a significant impact on the development of mathematics, natural and engineering sciences. These articles led to many scientific and engineering discoveries, especially to the development of such an important area as modeling of neuro-fuzzy systems, to the emergence of new solutions in the field of electronics. On the other hand, the original ideas and models presented in his famous works: "The concept of linguistic variables and its application to approximate decision-making" (1975-1976) (Guliyeva, 2022), "The role of fuzzy logic in management. uncertainty in expert systems" (1983) (Guliyeva Kh., 2021a), "Syllogisms in fuzzy logic and their application to everyday reasoning and dispositional reasoning" (1985) (Guliyeva, 2021b), "Calculation with words" (1996-2001) (Guliyeva Kh., n.d.; 2021c; Zadeh, 2012), express new approaches to complex humanistic systems, open up the possibilities of their analysis and problem solving in terms of "reasoning similar to the reasoning of common sense in people". In my opinion, L. Zadeh's most important thesis is that judgment and decision-making in humanistic systems are based more on linguistic or perceptual evaluations than on measurements (although they are, of course, an important component) (И.Б.Турксен О Вкладе Лотфи Заде в Современную Науку и Научное Мирозозрение, <http://zadeh.narod.ru/TURKSEN.html>).

In this article, where we get acquainted with the extensive analysis of the revolutionary innovations brought to science by Lotfi A. Zadeh, an issue that attracts attention is the author's thoughts in the following quote: "To understand the deep meaning of fuzzy theories, let's turn to the etymological roots of the word 'fluent'." Thus, R. Hodge claims that "fuzzy logic was born on the basis of L. Zadeh's subtle understanding of the various logics inherent in human languages..., his interest in studying the strengths and weaknesses of natural languages in scientific thinking." (Zadeh, n.d.). L. Zadeh uses the word "fuzzy" not in relation to the nature of natural (physical, mechanical) phenomena, but in relation to categories of language or thinking. This use of the expression "fuzzy" serves to confirm L. Zadeh's talent in the field of linguistics, including Indo-European (Russian and Iranian) and Turkish (Azerbaijani) languages (И.Б.Турксен О Вкладе Лотфи Заде в Современную Науку и Научное Мирозозрение, <http://zadeh.narod.ru/TURKSEN.html>).

Burhan Türksen's conclusions about Lotfi A. Zadeh's identity awareness are of course interesting as important factors reflecting the worldview of the scientist. R. Hodgen's "Key Terms in Fuzzy Logic: Deep Roots and New Understandings//Fuzzy Sets and Systems" cited by I. B. Turksen's ideas about the etymology of the term Fuzzy ("fuzzy") on the deeper sources of identity in the human consciousness of worldview concludes: "To understand the deep meaning of fuzzy theories, let's turn to the etymological roots of the word 'fluent'." Thus, R. Hodge claims that "fuzzy logic was born on the basis of L. Zadeh's subtle understanding of various logics inherent in human languages..., interest in studying the strengths and weaknesses of natural languages in scientific thinking." does not refer to the nature of natural (physical, mechanical) phenomena, but in relation to categories of language or thinking. This use of the expression "fuzzy" is "L. Zadeh's work in the field of linguistics, including Indo-European (Russian and Iranian) and Turkic (Azerbaijani) languages. R. Hodge then writes that the term "fuzzy" comes from the word "fusus", which draws us to the movement of fire and water, microscopic particles, as well as fluid, that is, a world with unstable contours. Leads" (И.Б.Турксен О Вкладе Лотфи Заде в Современную Науку и Научное Мирозозрение, <http://zadeh.narod.ru/TURKSEN.html>).

At this point where we study Lotfi A. Zadeh's worldview, the comments of the article "Лотфи Заде и Россия" about those years when barriers were erected in front of the genius scientist are a source of importance from many aspects.

With well-known Russian scientists A. N. Averkin, I. Z. Batyrshin, V. B. Tarasov's co-authorship, it is emphasized that there are unconscious parallels between the shadows of fuzzy sets and the shadows observed by a person on the walls of the cave. This shadow metaphor used by Plato to describe the innate ideas that a person has a new meaning in the context of the modern theory of perception and calculations with the perception evaluations developed by L. Zadeh in recent years. (А.Н.Аверкин, И.З.Батыршин, В.Б.Тарасов. ЛОТФИ ЗАДЕ И РОССИЯ, <http://zadeh.narod.ru/АВТ.html>)

As Lotfi A. Zadeh said in a study that correctly defines the value of his science and personality,

Not only did he never avoid criticizing his creativity, but he always encouraged people to criticize his idea, and he did it in a very polite and gentle way. It should be remembered that Zadeh's first ideas about fuzzy logic, his presentation of contextual and purposeful descriptions of imprecise concepts fell into the wall of sharp bivalent logic and precision themes, and were severely criticized by influential researchers. Nevertheless, forty years later, it can be said that Zadeh's ideas not only resisted criticism, but they were also accepted. (Dzitac, Filip, Manolescu, & Zadeh, 2017)

Because Lotfi A. Zadeh, being a genius scientist, had a worldview that was as complete as geniuses and had the power to change the world, Lotfi A. Zadeh's worldview spread to the world and brought his name to the ranks

of science giants such as Harry Nuquist, the scientist of the first television communications on Earth, Richard Bellman, a scientist of dynamic programs and computing techniques, Rudolph Kalman, one of the creators of management theory, Karl Astrom in the field of theory and energy control, the discoveries that gave him the Honda and Okawa awards, as well as the high awards of the famous organizations such as “Grigor Moasil”, “Rudolf Oldenburger”, “Richard V. Hamming”, “Campe de Ferrier”, should be considered the product of his worldview.

The worldview phenomenon formed on the basis of Lotfi A. Zadehi’s genius period and full intellect has brought out the scientist’s unique scientific discoveries and created a picture of himself as an artist (no matter how figurative it sounds, we are talking about his worldview).

In fact, how abstract the concept of worldview is in essence is confirmed in the understanding of the worldview of such geniuses.

It has always been so. In a certain historical period, this or that idea holder “moved” the world with his idea and discovery. It is no coincidence that all the global events that changed civilizations were identified with the epoch-making discovery or valuable thought of a genius.

The worldview of the world-famous scientist of Azerbaijani origin—American professor L. Zadeh has gradually become a phenomenon in the full content of the thought summed up in the term genius since his birth in the 20th century.

Lotfi A Zadeh’s genius as a scientist represented his worldview, or the genius of his worldview, this is a thought-provoking topic. In our opinion, there is a divine choice in the events that happen in life, especially in relation to creators in all fields. This is observed with unusualness. In any person, the unusualness attracts attention, it is an expression of this worldview and is absolutely “chosen”, we can even say that it contains the meaning sent to change the world, as well as what exists in the world in various contents, to renew it, to create something more valuable and useful to humanity. From this point of view, geniuses have similarities with prophets sent to the world as messengers of God. If you pay attention, in fact, all geniuses have become idealists, and this issue is not an exception in the analysis and evaluation of Lotfi A. Zadeh’s outlook.

L. A. Zadeh’s scientific discoveries, for example, the theory of fuzzy logic, changed the dogmatic thinking of millennia at a revolutionary level, thereby causing a huge revolution in the phenomenon of worldview, which was understood in a philosophical essence, as it was related to consciousness and cognition, as well as the science of its time.

The views of the Azerbaijani scientist Rafiq Aliyev in this direction are of interest. He writes:

Professor L. Zadeh’s theory of fuzzy logic, which is the crown of his scientific achievements, has raised him to the unattainable peak of fame and has received his deserved appreciation in the world. Contrary to the established scientific worldview for hundreds of years, he first hypothesized and then proved that complex processes occurring in nature and society, especially various cataclysms, cannot be studied within the framework of classical mathematics based on Aristotle’s binary logic. He developed his original ideas, but at first “not accepted by the orthodox” and showed that the value of the truth of this or that judgment is determined not by two logical levels -1 (true) and 0 (false), but by an infinite set of values between these levels. Thus, mathematics based on binary logic and set theory expanded and gained new content thanks to fuzzy logic and fuzzy set theory (Zadeh theory), multi-hued, modern differentiation into mathematics has taken place. Such serious studies on conceptual grounds, of course, led to revolutionary changes in science, technology and even art. (Rafiq Aliyev. Science and Life magazine in 2006, <https://genderi.org/elm-ve-heyat-2006.1-s-15-18-parlaq-ve-benzersiz-alim-rafiq-ely.html>)

While concluding the article “Worldview Concept: History and Modernity (in the Context of Lotfi A. Zadeh’s Worldview)”, we would like to highlight the genius scientist’s recent research on Fuzzy and Soft Calculations.

His recent theories—the theory of “Soft Computing”, including “From Calculations with Numbers to Calculations with Words”, “Field of Linguistics, Computing with Words: Basic Concepts and Ideas”—have become many important points and caused wide scientific interest all over the world, including in his worldview, gave impetus to strong changes. At the same time, L. Zadeh’s latest discoveries became one of the main scientific fields of Mathematics, Informatics, Logic, and even Linguistics in the Cybernetics phase of the era, and were applied to the Artificial Intelligence system. The great scientist said in an interview:

There seems to be a close correlation between Fuzzy Logic and Linguistics. So much of what is inherent in Fuzzy Logic relates to the way people think and talk in other words, their use of natural language. What influence did your early exposure to so many different languages play in shaping these attitudes? (Before Zadeh was twelve, he was having to deal with four different languages—Russian, Azerbaijani, Persian, and English—and three separate scripts—Cyrillic, Arabic, and Latin).

—You’re right. The Fuzzy Logic model relates closely to linguistics. But I’m not sure learning these languages had a big influence on my thinking. If it did, then only subconsciously. But I do remember one thing that made a very deep impression on me in my youth. That was how different people could wholeheartedly embrace systems—whether political, religious, social, whatever—that were diametrically opposite.

After leaving Azerbaijan as a child, I attended Alborz College, a Presbyterian missionary school in Tehran. Every morning, we had to go to chapel—that was a drastic change from what I had experienced at the Soviet atheistic schools. But from this experience, I grew to be tolerant of many different points of view—Soviet atheism, Protestantism, and Muslim fundamentalism. (Blair, 1994, pp. 46-47, 50)

Thus, these discoveries and theories, which are a new “product” of L. Zadeh’s worldview, as mentioned in important studies, include “fuzzy logic, artificial neural networks, genetic algorithms, chaos theory, intellectual combination of various computing paradigms, including probabilistic logical inference covers and currently these theories are widely used in banking, technical and economic systems” (Aliyev, 2006, <https://genderi.org/elm-veyat-2006.1-s-15-18-parlaq-ve-benzersiz-alim-rafiq-eliy.html>).

Thus, the scientific and logical conclusion from our studies is as follows—the world-famous, genius scientist of Azerbaijani origin, Lotfi A. Zadeh, with his scientific discoveries, updated the world scientific thought, important scientific discoveries, including all Aristotelian theories, and mainly revolutionized the Aristotelian Weltanschauung worldview.

Philosophical views of a genius scientist as an individual-personality are also the main source for studying his worldview. Of course, the philosophical views of Lotfi A. Zadeh are so wide and full that it is not appropriate to be the object of research and analysis in this article in terms of exceeding the requirements of the writing format, and it is intended to be evaluated in another article.

Of course, if we consider that the scientific discoveries of Lotfi A. Zadeh revolutionized the historical concept of Kant, Hegel’s worldview, Aristotle’s logic, and that the theoretical ideas of the genius Lotfi A. Zadeh had a strong impact on public scientific thought as exact sciences, the real source of the worldview is philosophy, as well as branched out in recent times—if we are trying to confirm that it encompasses life, science, religion, education, anthropology, psychology, etc. philosophy, then we must analyze and evaluate what is the main thing in the new worldview, which paradigms are at the forefront of world thought.

Thus, for the comparative analysis of the concepts of “neo-Kantian” Dialogue Philosophy and Intercultural Dialogue Philosophy of the modern world, which is experiencing the fourth industrial revolution period with Lotfi A. Zadeh’s Worldview and Revolutionary Discoveries, it is necessary to focus on the history of the theories listed first, the impact of these theories on the development dialectic of the genius scientist’s discoveries.

It is known that the consciousness of communication, connection—in a broad sense, “Dialogue event” has taken its place in his views on life since the beginning of mankind, and with the replacement of civilizations, it entered the cognitive system and became the philosophy of human life. To put it simply, it is impossible to imagine such a people, such a nation, such a mass, as well as such a perfect, healthy individual in the world, that does not have the idea of communication with the surrounding people, dialogues with the society in its national and subject consciousness. Thus, this field of living form and content has become an object of scientific thought, and has been the main subject of extensive research from time to time.

It is from this point of view that the study of the problem of “philosophical dialogue” in the outlook of the world-famous scientist Lotfi A. Zadeh, who changed the world’s scientific opinion and the classical or traditional vision and logic of the time on a revolutionary level with his discoveries, enriched human thought with positive qualities directly and directly, is very important. The genius scientist justified the essence of his new logic compared to classical logic in the interview with “Creator of Fuzzy Logic” as follows:

Classical logic has erred in devoting so little attention to approximate reasoning and focusing to such a high degree on exact reasoning. So when you take a course in logic, you learn all kinds of things which are of very little use in everyday life. We encounter approximate reasoning all the time. For example, “Where can I park my car?” Where should I have lunch? Should I place this call “person-to-person” or “station to station”? Should I buy this house? How do I get from this side of town to the other when I’m in a hurry? Classical logic, operation research, decision analysis—many other disciplines have nothing to say about this topic. (Fuzzy Logic Лютфи Заде, <https://vestikavkaza.ru/articles/Fuzzy-Logic-Lyutfi-Zade.html>)

Thus, the superpowers of the world such as the USA, Japan, and Russia widely used the theory based on Lotfi A. Zadeh’s concept of modern fuzzy logic in the rich industrial fields of their countries and benefited from the philosophy of Dialogue from a philosophical point of view.

Along with the scientific discoveries of Lotfi A. Zadeh as the basis of the EU system in many complex fields at the stage of globalization, “Hitachi”, “Matsushita”, “Sharp”, “Nissan”, “Canon”, “Fuji”, “Electric”, “Toshiba”, “Omron”, “Sanyo”, “Sony Trinitron”, “Daewoo”, “Sam-sung”, “Nec”, “Honda”, “Kodak”, and others famous brand goods, “General Motors”, “General Electric”, “Motorola”, “DuPont”, as well as the theories applied in the American space flight industry are a new worldview in the modern world and a part of it, both in science, production, and relations between peoples, integration and dialogue in a broad sense formed the basis for the continuous development of consciousness, and this achievement continues.

Lotfi A. Zadeh entered into a dialogue with all nations of the world in an interview and said:

You may not know anything about Lotfi A. Zadeh and his theory of fuzzy logic throughout your life. But if you have at least modern machines in your house, I and my thoughts are always and invisibly with you. For example, if you bought an air conditioner from Hitachi, Sharp companies, know that it is thanks to this theory that the temperature change levels are ensured. If the same companies sold you a microwave oven, know that the correct cooking strategy is provided by fuzzy logic theory. “If you come across a Canon photocopier, a Matsushita dishwasher or a dryer, or a Daewoo or Samsung washing machine, or a Sony television, a computer, know that all these technologies were to some extent born out of Lotfi A. Zadeh’s fuzzy set theory. (Fuzzy Logic Лютфи Заде, <https://vestikavkaza.ru/articles/Fuzzy-Logic-Lyutfi-Zade.html>)

Lotfi A. Zadeh’s scientific activity, which is the content of his life, is an example of his interest in dialogue and high appreciation of integration.

Lotfi A. Zadehs was separated from the country of his birth for more than 70 years, and he shared this longing with scientists who came to America from his motherland or met at international conferences. Lotfi A.

Zadehs treated the Azerbaijanis he met with infinite love and care as if they were part of the motherland. Also, the genius scientist Lotfi A. Zadehs was friends with people from all peoples and nationalities of the world.

The worldview of Lotfi A. Zadeh, who was the favorite of hundreds of scientists and people from various professions until the age of 96, is an example of the worldview of a real genius.

From this point of view, it is very necessary to study the unique outlook of Lotfi A. Zadeh in the scientific contexts of intercultural dialogue, identity, and multiculturalism.

As we follow the phenomenon of worldview in the scientific heritage and pedagogical experience of Lotfi A. Zadeh, as well as in the content of his relations with world scientists, we observe that it was formed in the famous scientist's biggest life "school", the family where he was born and raised. At the same time, Lotfi A. Zadeh, with the fact that he worked tirelessly in dialogue with the devotees of science from different nationalities for more than 50 years in a collective, in the garden of thought, with the fact that he protected the family he founded in his youth—the fate "university" for more than 70 years. Dialogue, the nature of communication, confirmed that this topic can be studied and evaluated separately.

The Result

In the article entitled "Worldview Concept: History and Modernity (in the context of Lütfi A. Zadeh's Worldview)", we come to this scientific-objective conclusion with our research about the general and different aspects of the worldview concept, which is the object of analysis in relation to history and modernity, that as global and simple problems of all times are experienced, the quality of thought-provoking forms and develops the phenomenon of worldview with philosophy. In this process, the main field is philosophy, which studies and evaluates the worldview of the distinguished scientists of the period, as well as artists in a broad sense, as well as historical figures.

From this point of view, no matter how many changes there are in the understanding of the concept of historical worldview, no matter how critically modern thought evaluates history and current events, the world could not abandon the true source and essence of this phenomenon and constantly benefits from it. It is no coincidence that whether it is the worldview methodology representing traditional logic and philosophy, whether it is the worldview concept updated by the discoveries of the world-famous scientist Lotfi A. Zadeh and other geniuses—as a phenomenon of consciousness as a whole, it forms the main topic of research by scientists in the field of philosophy. Comes alive with research.

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