Biographical narrative in the novel “Measuring the World” by Daniel Kehlmann

Abstract
The article studies the problem of biographical narrative in the novel «Measuring the World» by Austrian writer Daniel Kehlman. The purpose of the research is to consider genre features of the work, to determine its literary structure, the narrative system in the context of postmodernist Austrian prose, and, in particular, the «magic realism» in Latin American literature; to illustrate how the ironic reinterpretation of traditional forms and postmodern play with mass literature cliches, the combination of an exciting plot and deep philosophical problems allow the writer to carry out the process of decoding, on account of the fact that each reader interprets the text in their own way, subject to their knowledge and world view. Portraying the fate of two German science geniuses of the 19th century, the prominent mathematician Karl Friedrich Gauss and the outstanding naturalist Alexander Humboldt, the Austrian writer depicts two different world views: the theoretical, presented by Gauss, and the practical, introduced by Humboldt. Two different personalities, two different characters are associated with the metaphor «Measuring the world.» It is argued that the combination of two plot lines is something more than just a compositional technique that refers to the peculiar bicentricism on which the entire narrative is
based. To achieve the research aim, the following methods are used: biographical, culture-historical, contextual, comparative typological, structural and functional, psychoanalytic.

Based upon the analysis, the following results are obtained: it is concluded that the novel «Measuring the world» is one of the most successful German-language novels of recent decades, a striking example of an effective combination of the Austrian literary and artistic tradition with the achievements of the Latin American novel. Subsequently, we have a complex intertexture with ambiguous imagery relative to the contemporary patterns in Austrian prose with regard to the renovation of literary language and the transformation of genre forms.

**Key words:** narrative; genius; progress; introvert; extravert; scientific knowledge

**Problem setting**

When reviewing processes that take place in contemporary art, such a notable feature as interest to biography cannot be left without consideration. Moreover, this interest is inherent not only in literature, but also in cinema. Among many reasons why biography is popular the most significant is that being fiction-documentary prose it aims to create an integral image of certain personality within panoramic view of life.

Not having lost its original genre attribute of life description, literary biography has become universal during last decades, embracing various sociological-cultural, aesthetic and poetological backgrounds, regardless of genre patterns and author’s interpretation.

However, while in traditional historical and biographical novel attention is mostly focused on epos and its principles as a determinant factor of creating and developing the character, in romantic biographies only the character’s phychic evolvement is depicted. Regardless, Daniel Kehlmann, one of the most remarkable representatives of the “new wave” in German-speaking literature, in his novel “Measuring the world” discards classical prescriptions of the genre. There is no definite border between history and literature in his fiction: both comprise the plot, whose every element is subject to not only rational, but rather aesthetic evaluation.

It is common to find in critical papers the idea that according to genre features “Measuring the world” is an ironic reconsideration of the traditional biography novel patterns, fiction-based narration about the lives of two
geniuses of German science: Johann Carl Friedrich Gauss (1777–1855) and Alexander von Humboldt (1769–1859) (Kehlmann, 2013). At the same time we should acknowledge that Kehlmann suggests a new “vertical” level of interpreting fictional work. His novel is written in the spirit of Latin-American novel traditions (Rickes, 2012) combining humor and melancholy in terms of presenting the theme of the Universe, world view, the meaning of being and real values. Therefore, we deal with an interesting example of how García Márquez’ intertext, on the one hand, comprises certain semantics and, on the other hand, produces a list of additional connotations which imply the author’s literary conception (Kazakova, 2013).

**Research Objectives**

The article intends to consider genre features of the novel, to determine its literary structure, the narrative system in the context of postmodern Austrian prose, and, in particular, the «magic realism» in Latin American literature; to illustrate how the ironic reinterpretation of traditional forms and the postmodern play with mass literature cliches, the combination of an exciting plot and deep philosophical problems enable the writer to fulfil the process of decoding, on account of the fact that each reader interprets the text in their own way, introducing new meanings, subject to their knowledge and world view.

**Research Methods**

To achieve the research aim, the following methods are used: biographical, culture-historical, contextual comparative typological, structural and functional, psychoanalytic.

**Subject Matter of the Work**

In Kehlmann’s novel, the biographies of an outstanding mathematician, geodesist, astronomer Karl Friedrich Gaus and Alexander von Humboldt – a biologist, zoologist, meteorologist, physicist, encyclopaedist are closely intertwined.

Both characters come from different social backgrounds: Gauss is from a poor family of the gardener, and Humboldt’s parents are aristocrats. Their
life styles differ as well. Gauss is an idle, inactive man, who hardly ever leaves his native city Göttingen, he feels uneasy to deal with people, unlike Humboldt, who enjoys travelling, moves from one place to another. Both differ in heir views on family life: while Gauss was married twice and has two children Humboldt is a convinced asexual bachelor; they can hardly be similar except for their dedication to science.

Gauss strongly believes that scientific discoveries can easily be made at home with a pencil and a telescope, but Humboldt aims to see everything with his own eyes, investigates natural phenomena in an empirical way. Gauss is a grouch, he is always dissatisfied with any routine change even when it is necessary to measure local territory on the suburbs of the native city, while Humboldt astonishes Latin America natives when he intends to climb the top of a high mountain or descent into the crater of a volcano.

“Measuring the world” is a successful example of interrelation of philosophy and science (as a way of perceiving the world) with the biographies of two people who differ in background and character. What is more important for the world perception – theoretical calculations, as a base for further practical actions, or the theory implementation in extreme situations i.e. theoretical discoveries or empirical exploration of nature? Each of them is right in their own way as there is no definite answer. Thus, we are displayed with two stories interweaving into one, two fates, two different ways of the world’s perception.

The characters of the novel are two geniuses, two extremely obsessed men. Each of them is intolerable and gorgeous in their own way. One is a misanthrope, crazy about mathematics, he is unhappy to find no one like himself, an introvert who disrespects the outside world, who fails to understand even close people. He bears all the world in his mind where he measures it. Another one is an inspired explorer of life, an inveterate traveler, an extrovert eager to climb rocks, go down to volcano craters, float on boats along mountain rivers, get frozen in the snow and burn in the sun, lose and renew skin in order to see as many different natural phenomena as possible, to describe, to measure in the ideal form all the Universe.

Khelman, however not only presents biographies of two prominent scientists, he measures the world in his own way, being aware that it is
impossible to slow down its swift pace, to grasp its slightest details and to catch its elusive mystery. Here even science appears to be hopeless. The only thing left to do is observe its achievements with a smile. This explains the author’s irony as a way to depict the multidimensional illusory of the surrounding world.

What were the prominent mathematician Gauss and the outstanding natural scientist Humboldt like in real life? They were very different. Kehlmann portrays both characters in quite an original way. He overtly mocks at them, reveals their weaknesses but he never criticizes his characters. Yet, geniuses are very complicated and unbearable people, who are not aware of their cruelty. They do not care about someone else's life. So, what is their intelligence – a gift or a curse?

Humboldt and Gauss are people who lived ahead of their time, who felt tight in the frame of their century. They considerably expanded moral prejudices, transformed and customized them. Patriotism and family for them is the only way to achieve goals. But what would happen with our world if there were no such cruel geniuses, curious minds who tirelessly perceive the world and look for the answers to eternal questions of the Universe? We are impressed with the talent of the author who managed to combine historical facts, non-fiction, fiction, real life stories and, as a result, produce not a scientific treatise, but high-art full of irony.

Humboldt is a tireless hard worker, who does not sympathize with himself, agrees to test curare poison and allows his body to be cut at the risk of his life. Indifferent to women, intolerant to weaknesses of other people, he sets high standards, expecting the same feedback from his surrounding. He wants to travel all over the world, to perceive it in full: see and feel everything – to measure and record.

Gauss is the opposite – grouchy, capricious, a womanizer, focused on his illness, he disrespects all humanity and does not even give his children a chance for self-expression. He feels tired even of a short-distance trip, as it destroys habitual routine and generates discomfort. He measures the world based on his own principles ignoring external circumstances.

At the same time both characters are very much alike in terms of their loneliness. Physical layer is too tight and short-life for a real genius. Life
passes by Gauss and Humboldt like a whirlwind: the wife's death, problems with children – for the first one; expeditions, mountains, caves, towns and volcanoes – for another one – everything flashes around growling and disappearing. It seems that until very recently the schoolboy Gauss has impressed his teacher by smart counting from one to hundred and looks as if young Humboldt has just discovered a thunderhead – it strikes him how old they are and that their life is almost over.

Measuring of the world could be done in different ways. The novel displays two extreme forms of scientific knowledge. One method is theoretical (represented by mathematician Gauss), another one is practical, represented by the traveler-scientist Alexander von Humboldt. Both characters are curious people, both are vivid personalities, they create despite their social position. Humboldt could enjoy secular meetings, but he has chosen something absolutely different – life full of risks, without which it is impossible to perceive the world! He is always in everlasting search, in the epicenter of events, in jungles, in woods, in a volcano crater.

And what about Gauss? The boy from a poor family, could he ever have dreamt about descent education and, moreover, about great discoveries? And if the school teacher hadn't revealed his extraordinary mental abilities, would the world know the great mathematician? It is quite remarkable that Gauss investigates and discovers things at home, not leaving his native city.

It is much more difficult to discover something significant in modern science. Nowadays in order to start researching the topic it takes long years to grasp what is already known. But the mechanism of scientific discovery itself has not changed, as in previous times the most important things are curiosity, persistence, sensibility and dream. The world might have probably changed. The epoch of great scientific discoveries is followed by mastering the obtained results. Science is no longer an exceptional sphere of human creativity since it has turned into industry. Gauss-father Gauss is followed by his son (“mediocrity”), and nobody followed Alexander Humboldt: science philosophers have vanished, being replaced by computers. It may be the reason why the two geniuses of the end XVIII – beginning XIX centuries are portrayed as such queer personalities.
Composition of the novel. Narrative structure

The structure of the text is engaging. The novel starts with the story of auctorial narrator who tells about Gauss’ trip to Berlin in September 1828 to International Congress of Naturalists where he meets Humboldt. More information about this event is provided in part eleven of the novel, where we found out about their dinner together on the following day. Description of events in Berlin continues in chapter 14 and indirectly in the 16th chapter. Instead in chapters 2–10 with emphatic titles – “Sea”, “Teacher”, “Cave”, “Numbers”, “River”, “Stars”, “Mountain”, “Garden”, “Son” the life story of protagonists’ activities are exposed. Moreover, the events are depicted by the “table-tennis” principle: one chapter is devoted to Gauss, another one – to Humboldt. The characters’ life stories, following each other one by one determine internal dynamics and rhythm of the narration, resembling the transparency of scientific research.

Narration lines about Gauss and Humboldt in chapters 2–10 appear to be interconnected so that Gauss is familiar with the information about Humboldt’s expedition to Northern America (or at least he reads about it), and Humboldt encounters ideas from Gauss’ researches.

The 15th chapter “Field” is the climax of internal connections between the main characters of the novel. It is engaging both due to its content and formal features. Famous dialogue “at a distance” occurs between two scientists: Gauss carries out his experiments in Göttingen, and Humboldt stays in tsarist Russia at that time. No one is able to catch up with their way of thinking which is as fast as a lightning. Few people can understand their thoughts. Only with time the reader notices that the main characters do not really bother. They are independent like natural things, like facts of life which they should record, keep for future generations. Noticing slightest details the prominent scientists can, for example, neglect the fact that the country is at war.

It is difficult to imagine that such people really existed, although the whole world is grateful to them for their scientific commitment. Kehlman should be praised not only for recording historical facts and scientists’ creativity, but deeply investigates their inner world, describes events from their point of view, depicts their moods, including depressive conditions or even panic attacks.
Two personalities and two characters are associated in the novel with the metaphor “measuring the world”. Gauss is a brilliant mathematician whose extraordinary abilities manifested themselves in his early childhood, he wrote a landmark work about simple numbers, made a lot of other great discoveries in his adolescence. What a remarkable detail – Napoleon renounced to bombard Göttingen to show respect to the scientist.

Alexander Humboldt, a prominent scientist, traveler who traveled half the world, whose contribution to science is so big that his name has turned into legend. Having visited tropical countries in America and Asia, he expanded his knowledge in different branches of science – Physics, Chemistry, Geology, Botany, Geography, Ethnography; he was called the second (after Columbus) discoverer of the New World.

The fact that there are two characters acting in the novel confers special originality to the narration. The combination of two story lines is something more than a composition technique as the novel refers to peculiar biocentricism that underpins the whole narration. Gauss and Humboldt are constantly affected by each other (as well as being the focus of the reader’s perception), generating peculiar type of a collective bipolar character. Both characters seem to be two sides of one medal together reflecting multiple features of the German national character.

Humboldt and Gauss represent not only different approaches to science, but also different views on its purpose. Humboldt is marked by vanity, the thirst for recognition and glory, striving for superiority. He treats science as a process of collecting facts. His trips are not always remarked by the discovery of something new, although he tends to record data, obtained in empirical way by means of measuring devices.

Unlike Humboldt, Gauss is not an empiricist, his working “instrument” is his phenomenal mental abilities. He does not publish or even record less significant discoveries considering them too ordinary. So, in the novel Humboldt is presented as a person of external scientific success and Gauss – of internal self-sufficiency. The image of Humboldt is perceived as a generalized portrait of contemporary informational society: the scientist aimed at classification of separate facts, he does not ponder much over life-long accumulation. He focuses on external things, and is mostly interested in
success. Yet, Gauss is committed to science, thus, personal recognition is not what he is concerned about. Their life roads run parallel to each other, their values differ, but as non-euclidean geometry suggests parallel narration of the characters (the German scientist adhered to Lobachevsky’s ideas), could overlap and sometimes coincide.

The further the narration develops the closer the main characters become. The scientists not only meet each other at the Congress of Scientists in Berlin in 1828, but gradually their literary personalities become closer and the reader starts to notice the similarity between them.

It is revealed in chapter 15 best, where Kehlmann, using Gauss’ principle of binary system of communication at a distance achieves awesome level of communication of his characters. Two great scientists, easily transcending physical space exchange ideas with each other, two consciousnesses merge into one, two voices sound in one speech flow.

Aging, approaching of death, deterioration of intellectual abilities, physical weakness and sickness erase discrepancies between the characters and at the end of the novel it becomes clear that initially they are ordinary people.

At the end of the novel the characters seem to have exchanged their positions: for the first time Gauss realizes that vanity could be attributed to him and Humboldt while traveling to tsartist Russia begins to understand the futility of his glory (he is considered here not as the prominent scientist rather than a glorified man). The scientist was subject to the regular surveillance explained by security measures what turned the scientific expedition into a series of high society receptions.

“Measuring the world” is the text which exhibits postmodern emphasis in interpreting fundamental features of the “German spirit”. The writer refers to amusing frivolity expressed by historic anecdote to disclose in his characters an ironic portrayal of the nation, defining certain archetypal features of the German mentality” (Proshina, 2011) (passion for traveling is perceived as dominant almost grotesque feature in the character of Alexander Humboldt)

We cannot say that only parody underestimation of the portrayal is available in the novel, as each of them balances between the serious and the comic. In one of episodes Gauss, inspired by a brilliant idea, springs out of
bed, leaving his bride at the most intimate moment to write down a formula that he had dreamed about for a long time. In another episode Humboldt, being tight to the garboard during a storm does not even disturb the ritual of measuring the planets’ location.

The author also ironically reflects on one more “recognizable” feature of the German – all-embracing striving for accuracy and order, permanent desire to control everything and put all in order, to subordinate to rules and laws, which is expressed even in language (Gachev, 2008).

So, Kehlmann suggested his readers a sort of idyll from glorious past of German science, when it was not so complicated and Enlightenment philosophy was understood as a project to eliminate the mankind from ignorance. Alexander Humboldt is shown as cosmopolitan, open to the world, diligent and assiduous German while Carl Friedrich Gauss, his opposite, as a strange professor form character comedy. The characters of the novel are inspired by the idea of scientific progress. They are protagonists and victims of the Enlightenment at the same time.

We cannot but compare the character of the novel “Castle” written by Kafka, a measurer K., who personifies desperate view on the world’s development with Kehlmann’s Gauss who acts as a measurer as well. But both Gauss and Humboldt, eventually, come to although sad but not so disappointing acceptance of the world. However, they do not bother much about the fact that their achievements seem not to be in demand already as new, more convenient measuring facilities have been discovered. “But it is the mind, Humboldt said, which forms the laws! That is ancient Kantian nonsense. Gauss shook his head. The mind does not form anything at all and understands little. Space bends. And time stretches. If draw a straight line further and further ahead, you will sometime find yourself at its beginning. He pointed to the setting sun in the window. Even the rays of this dying star do not fall straight on the Earth. The world can somehow be measured, but this does not absolutely mean, that you will understand at least something (Kehlmann, 2013, p.139).

Humboldt embodies the so-called absolute principle of movement in space, but Gauss – the idea of movement in time. Gauss’ genius is mostly characterized by his fast-speed thought, which is much ahead the way
ordinary people think. However, his gift of prediction (in the sphere of scientific sand technical progress) is not some mystical irrational ability, but super-development of the intelligence, which enables to foresee the future. Gauss’ ambition to find a person worthy of himself is doomed to failure and is described in tragicomic spirit. It is vividly exposed in a humorous passage with students, future followers of their master’s doctrine “Among all people whom he has ever met, his students were the most stupid. He talked so slowly that not having finished a sentence he would forget its beginning. Nothing could help. He omitted every complicated thing focusing on substitution-like pieces. They failed to understand. He gestured with both his hands, pointed to his mouth, pronouncing sounds in an extremely clear way, as if the deaf were in front of him. However, there was only one young man with colorless eyes. He was called Melbus and seemed not to be such a cretin like others. When he was again the only one who passed exam the dean after the faculty meeting the dean asked him not to be so strict. Gauss went home hardly crying” (Kehlmann, 2013, p. 96–97).

In “Measuring the World” a certain dualism can be seen. On the one hand, images of both characters comprise into a cliche of a typical German, embracing the stereotypes of the German national character. And in this respect we see postmodern play of contemporary culture with the classical one. On the other hand, Kehlmann uses tales, speculations, anecdotes, he twists the facts, combines different episodes, speaks ironically. The use of cliche and irony are artistic techniques that facilitate understanding of the text by wide audience. The key author’s message is that the world is incomprehensible, genius’ fates are similar and such people feel lonely very often.

One more peculiar feature of Kehlmann’s style is his intention to reduce traditional narrative distance between the reader and the author. Short, practically constructed sentences prevail in the novel, resembling the coverage and making impression of certain objectivity (Hellberg, p. 69). To avoid triviality of historical novel, the writer presents dialogues from the third person. The characters communicate with each other mostly in indirect speech. The reader should tune in a specific philosophical implication of their communication.
As the author states he aimed to write as a crazy historian, since a professional historian it is not concerned with the characters rather than circumstances, which he reports about, and this is the most important, as he will never claim that he knows how the words were initially said (Kehlmann).

**Overall conclusion**

Kehlmann’s novel is called “sensation” (Gardien), the “triumph of modern German literature”, “one of the most successful novels not only of the last years, but of all postwar period” (Frankfurter Rundschau).

In his review in «Die Zeit» (3rd September, 2009) W. Hubert suggests that despite serious scientific problems Kehlmann managed “to create double biography in the form of novel, which is entertaining, witty, well-structured, form which allows to learn something new on this theme”. The reviewer noted, however, one more thing: “the novel lacks literary confidence, play spirit, joy of discovery and connection to the present time” (Winkels).

Martin Lüdke in «Frankfurter Rundschau» on 25th September 2005 points to masterful presentation of the material, considering the novel “mature literary piece of a young writer”, singling out the fact, that despite partly “plain material”, yet it is a fascinating adventure novel. At the same time, the writer leaves space for comic presentation as well (Lüdke).

English-speaking press is not so enthusiastic reviewing the novel. Particularly, Tom Le Clair in “New York Times” on 5th November 2006 positively remarking the main conception of the novel by Kehlmann, claims inaccuracy in historical background (Le Clair).

In a review available in the specialized edition of «American Mathematical society» (July, 2008) a mathematician France Oort states that there are examples of historical inaccuracy in the novel regarding Humboldt and Gauss’ activities, that Kehlmann reduced these two extremely interesting images to quite shallow and plane characters, moreover, he presented them in a rude and offensive form (Oort ook)

Thomas Steierfeld in «Suddeutsche Zeitung» proves convincingly that the main task of the book is the reader’s enlightenment in a light, non-academic, entertaining form; as a result, Kehlman deals with his material as “Classic
Radio” with symphonic pieces of the 19th century: he strums nice tunes, uses slow sentences with much vibrato and cheerful inserts. At the same time one cannot but notice antipathy to a every abstract piece (Steierfeld).

Adam Soboczynski characterizes “Measuring the World” in the «Die Zeit» newspaper as a composition about German passion, penetration of nationalism into romantic discourse; about the advent of American era, eventuality and necessity, but firstly, as a possibility to look at this creation’s imperfection named “human being” with joyful love (Soboczynski, 2013).

Such diverse interpretation of the novel can be explained mostly by the fact that the author belongs to the group of “new narrators”, who exploit the principle of “efficient story” as dominating in the context of cultural paradigm shift. Kehlmann’s research works point to such characteristics of his prose as genre hybridization, pseudo-intellectuality, demythologization and repeated mythologization, destruction of space and time understanding, use of “magic realism” tradition (Kazakova, 2016).

The novel “Measuring the World” novel is a vivid example of successful combination of Austrian literary-artistic tradition with Latin America novel achievements, which creates complex intermixture with multi-value list of images and corresponds to modern tendency to renovation of literary language and genre transformation in Austrian prose.

Daniel Kehlmann wrote not just the biography of two prominent scientists, he presented a sort of postmodern “history of science” – somewhat ironically, oddly, but indeed in quite an instructive way.

References
Gachev G.(2008), Mentalnost narodov mira. – M. 2008. – 544 p.
Hellberg W.D.(2012), Lektüreschlüssel. Daniel Kehlmann: Die Vermessung der Welt. Reclam, Stuttgart. ISBN 9783498035280.
Kazakova Yu.K. Tradicii magicheskogo realizma v romane Danielya Kelmana «Izme- ryaya mir» // Filologicheskie nauki. Voprosy teorii i praktiki. Tambov. Gramota. № 12 (30) Ch.1 2013).– pp. 98–102.
Kazakova Yu.K.(2013) “Novye rasskazyvayushie v avstrijskoj proze konca HH – na- chala HHI veka (na primere tvorchestva D. Kelmana)” // Almanah sovremennoj nauki i obrazovaniya. Tambov: Gramota. №9 (76), pp. 66–69.
Kazakova Yu.K. (2016) Tvorchestvo Danielya Kelmana v kontekste nemeckoyazychnoj literatury konca XX- nachala XXI v.: dissertaciya ... kandidata filologicheskih nauk: 10.01.03 / – Kazan, 2016. – p. 169.

Kehlmann D. Ich wollte schreiben wie ein verrückt gewordener Historiker – http://www.faz.net/aktuell/feuilleton/buecher/bucherfolg-ich-wollte-schreiben-wie-ein-verrueckt-gewordener-historiker-1304944.html (access: 15.06.2019).

Kehlmann D. Obmiryuvannya svitu.-Lviv La :Piramida, 2013. – 190 s.

Le Clair T. // New York Times 5 November 2006 –електронний ресурс -http://www.nytimes.com/2006/11/05/books/review/LeClair.t.html (access: 15.06.2019).

Lüdke M. Doppelleben einmal anders// Frankfurter Rundschau, 28 September, 2005- http://www.fr-online.de / literatur/doppelleben--einmal-anders,1472266,3209018.html (access: 15.06.2019).

Oort ook F. Review: Measuring the World. Reviewed by Frans Oort. In: Notices of the AMS. Volume 55, Number 6.

Proshina E. Neuzheli vsegda nado byt nastolko nemcem?: ironicheskij kontekst nemeckoj identichnosti v romane D.Kelmana «Izmeriya mir»//Vestnik Nizhegorodskogo universiteta im. N.I.Lobachevskogo – vypusk №6-2. – 2011, s. 561–564.

Rickes J. (2012) Daniel Kehlmann und die lateinamerikanische Literatur. Wrzburg: Knigshausen& Neumann. s.143.

Soboczynski A. (2012) Bei Daniel Kehlmann wird der Geist zu einer komischen Angelegenheiten// Die Zeit, No 35.

Steierfeld T. //Süddeutsche Zeitung) 29.01.2007.

Winkels H. http://www.zeit.de/2005/42/L-Kehlmann (access: 15.06.2019).