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INTRODUCTION	4
CHAPTER 1.....	8
THEORETICAL FOUNDATIONS OF TEMPORAL CONCEPTS.....	8
1.1. Essence of the question of Space and Time.....	14
1.2. Basic concepts of Space and Time	18
1.3. Physical Dimensions of Time and Space in 20th century science.....	25
1.4. Literary Perspectives on Temporality	38
CONCLUSIONS TO CHAPTER I.....	60
CHAPTER 2.....	62
ANALYSIS OF TEMPORAL CONCEPTS IN TWENTY-FIRST CENTURY AMERICAN LITERATURE.....	62
2.1. Temporal Concepts in Blake Crouch's Novels.....	64
2.1.1. Temporal Paradigm of of the novel Pines by Blake Crouch	64
2.1.2. Temporal Paradigm of of the novel Recursion by Blake Crouch.....	66
2.2. Temporal Concepts in Ted Chiang's Stories.....	80
2.2.1. Temporal Paradigm of the novel The Story of Your Life by Ted Chiang	80
2.2.2. Temporal Paradigm of the story The Merchant and the Alchemist's Gate by Ted Chiang.....	81
2.2.3. Temporal Paradigm of the short story What to Expect from Us by Ted Chiang	83
2.3. Temporal Concepts in Audrey Niffenegger's novels	86
2.3.1. Temporal paradigm of the novel The Time Traveler's Wife by Audrey Niffenegger	86
2.5. Time loop Concept in Before I Fall by Lauren Oliver	91
2.5.1. Accidental travel to the past as a separate category of chronofiction	93
2.5.1. Temporal paradigm of the novel What the Wind Knows by Amy Harmon	94
2.5.2. Temporal paradigm of the novel Kindred by Octavia Butler	101
CONCLUSIONS TO CHAPTER II.....	104
GENERAL CONCLUSIONS	107
PE3IOME.....	110
REFERENCES	112

INTRODUCTION

Time holds a significant position within the fabric of reality, constituting one of the fundamental categories in the overall model of the world. The influence of temporal laws extends not only to individuals but also permeates literary works. However, modern literature, driven by the needs of fiction, adapts these temporal laws and engages in experimental manipulations of time within a narrative.

Temporality, considering time's universality as both an ontological and epistemological category, becomes a subject of exploration across various domains of knowledge, encompassing soft and hard sciences such as physics, logic, philosophy, sociology, psychology, linguistics, and history. Each discipline contributes distinct features and characteristics, highlighting different facets in the examination of the concept of time.

The theme of time in literature has captured the attention of numerous scholars globally, both in the international and domestic arenas. In the contemporary literary landscape, characterized by authors actively experimenting with both form and content, the exploration of nonlinear concepts of time becomes a valuable avenue for gaining deeper insights into how these texts both reflect and shape our perception of time. This paper addresses a pertinent research task, offering new perspectives in the interpretation of literary works and enriching the extensive discourse of contemporary literary theory.

the investigation into the concept of time within the literary context is not only timely but also aligns with broader discussions across various academic disciplines. The universal nature of time as an ontological and epistemological category makes this study relevant not only to literary theory but also to broader philosophical, scientific, and sociocultural dialogues.

The **object** of this paper encompasses works of literature created in the contemporary American cultural milieu. These works reflect and influence the perception of time through non-linear artistic techniques and structures employed by authors such as Ted Chiang, Blake Crouch, Audrey Niffenegger, Lauren Oliver, Amy Harmon, Octavia Butler, and Rainbow Rowell.

The **subject** of this research is the exploration of nonlinear concepts of time in contemporary American fiction texts.

The **aim** of the research is to conduct a comprehensive analysis of the concepts of time as presented in contemporary American fiction texts. The primary focus is on reviewing the works of selected authors, including Ted Chiang, Blake Crouch, and others, with a specific emphasis on the manifestations of nonlinearity within the temporal framework. The study aims to delve into the artistic techniques employed by these authors to construct nonlinear structures of time within their literary creations. By closely examining their narrative choices and temporal complexities, the research seeks to identify general tendencies and distinctive features characterizing the nonlinear concepts of time in the selected texts.

The aim of this study is achieved by the following tasks:

- Examination of Key Literary Analysis Theories and Time Concepts;
- Analysis of Selected Authors' Works;
- Identification of General Trends;
- Formulation of Conclusions.

The problem of time is considered not only from the point of worldview and philosophical content, but also from the point of view of the structure of the text. Thus, to analyze a literary text, a researcher must use both text-centric and world-centric **approaches**.

The work explores the implementation of the category of time in the literary text of modern American literature. The text, as a system of elements and symbols with their internal connections, is studied from the point of view of composition and structure, and their influence on the display of such an important category as the passage of time that ensures the stability and uniqueness of the integrity of the system of fiction work.

At the same time, the text acts as a structural-semantic unity that conveys information about the variety of possible worlds built by the author and has a strong intellectual, emotional and aesthetic impact on a potential reader.

Individuals perceive real time uniquely, a phenomenon referred to as perceptual time apting to employ the reader-response method of literary analysis.

Studying the forms of knowledge, its nature and limits, it is logical for a person to correlate it with the usual reality, through the lens of his own experience. Revealing the essence of the phenomenon of time and studying the relationship between the subjective time of a character and the temporality of a literary work is of current interest, identifying the dialectics of subjective and objective time in correlation with the understanding and interpretation of a literary text. The reader's experience of his own time correlates with his living the time of a literary work, with the mental images that he has, with imagination, with inner feelings, with inner experience. This proves that the life of a literary text in time, its perception and interpretation are not always identical to the fiction reality created by the author, they change with each new reading by next reader and depend on the socio-cultural situation, the degree of development of science, the political and historical period that affect the reader.

Regarding the **structure**, the study comprises two main sections: a theoretical segment delving into the foundational aspects of the concept of time across

philosophy, physics, and literary studies, and a practical section devoted to the analysis of specific literary works.

CHAPTER 1

THEORETICAL FOUNDATIONS OF TEMPORAL CONCEPTS

The category of time has been interesting to people for a long time. We can trace the evolution of the process of its cognition from the time of the first scientific treatises, starting from ancient philosophers to modern physicists and writers. Time puzzled man, who tried to understand the essence of the processes of the environment and the ways of their occurrence, with its non-standard illusory and unusual measurability, including conditional admissibility and individual sensations. And through the prism of his own knowledge the man tried to understand and fit it into the system of ideas about the world, studying the influence of time on the world itself.

The time occupies a prominent place in the existing reality and belongs to the basic categories of the general model of the world. The action of the laws of time extends both to a person and to a literary work, but contemporary literature adapts these laws to fiction needs and experiments with its flow within a work.

Temporality is the time essence of phenomena, generated by the dynamics of their special movement to historical, biological, physical, and other time coordinates the relationship of moments of time.

Temporality in connection with the universality of time as an ontological and epistemological category is the subject of study in various areas of both soft and hard sciences: physics, logic, philosophy, sociology, psychology, linguistics, history, etc. Each of them marks out its own features and characteristics and its own aspect of research into the concept of time.

Temporality in literary studies, as part of a broad discourse in literary studies, addresses issues of time and temporality in literature.

Different researchers use various terms to refer to specific characteristics of temporal structures in literary works, such as the sequence of events, periods of historical time, transitions between past, present and future, as well as various forms of temporal organization of the text. They use in their works a number of terms and concepts that are close in meaning or related to the theme of the time and its embodiment in literature, but are not directly synonymous, e.g. Chronotope (Mikhail Bakhtin, Nonna Kopystyanskaya), Time Periods (Erich Auerbach), Historical Time (Auerbach, Fogelin), Diachrony and Synchrony (Fogelin).

Many of them contributed to the study of the influence of time on literature and belonged to different theoretical schools and directions of literary analysis, such as structuralism, poststructuralism, phenomenology, etc., offering their theoretical approaches to the analysis of temporality in literature. For example:

Structuralism approaches the analysis of time from the point of view of compositional structures and patterns. It investigates a text's structure and the interrelationship of its elements, including the influence of time on its organization.

In contrast, poststructuralism adheres to other principles of literary analysis, deviating from the fixed and universal structure proposed by structuralism and emphasizing indeterminacy, deconstruction, and diversity of meanings. Time in poststructuralist analysis loses its clear-cut outlines and acquires diverse interpretations, being seen as a polyphonic and multifaceted phenomenon, with a variety of readings.

Phenomenology's theoretical perspective on the analysis of time in literature focuses on the study of the subjective experience and awareness of time, paying attention to how time is perceived and how it affects the reader. Time is seen as an active element in the creation of meaning and emotional experience.

With their unique characteristics, these theoretical approaches sometimes intersect and share commonalities:

- They all admit that time plays a significant role in literature and influences its interpretation.
- They emphasize the subjective and objective aspects of time, acknowledging its multidimensionality.
- In studying literature, they pay attention to the relationships and interactions between temporal elements in a text.
- They admit that the perception and interpretation of time may vary according to context, culture, historical circumstances, and individual experience.

But while professing the conceptual foundations and principles laid down by philosophy, different theoretical approaches retain their cardinal differences. Thus, structuralism and poststructuralism emphasize the stability and fixity of meaning. Phenomenology, on the other hand, focuses on subjective experience and awareness of time. Such differences form the peculiarities of each approach and determine the ways of analyzing time in literature.

This study is focused on the understanding of time as an ontological reality, which is a form of being, manifested in all components of an artistic work, regulated by the author and the reader.

The problem of time is considered not only from the point of view of its interrelation with the surrounding reality, its influence on the familiar to us 3-dimensional material world, but also the theories of interdependence of spatial and temporal categories in the worlds with different from our world systems of physical structure, which are taken up by science fiction literature, proposed by contemporary science are considered. The significance of time for human consciousness is studied from the point of view of the worldview and philosophical content of the issue, considered not only by the exact and humanitarian sciences, but also by contemporary literature, observing it as a dynamic process and studying time as a meaningful phenomenon affecting the way, meaning and essence of life, and also

from the point of view of the structure of the text of a literary work, systematizing its content, building the relationship of time in the narrative of the work. Thus, to analyze an artistic text, the researcher should use both text centric and world-centric approaches, which allow us to evaluate the influence of content on form and methods that turn form into a way of artistic world-building.

The study examines the realization of the category of time in the fiction text of contemporary American literature. , using examples from the novels *Pines* and *Recursion* by Blake Crouch, the stories *The Story of Your Life*, *Merchant and the Alchemist's Gate* and *What's Expected of Us* by Ted Chiang, the novel *The Time Traveler's Wife* by Audrey Niffenegger, *What the Wind Knows* by Amy Harmon, *Kindred* by Octavia Butler, *Before I Fall* by Lauren Oliver, and *Landline* by Rainbow Rowell. The text is considered as a system of elements and symbols with their internal connections, studied from the point of view of composition and structure, as well as their influence on the display of such an important category as the flow of time, providing stability and uniqueness of images, the integrity of the system of artwork.

Each person refracts real time through himself, in which case we speak of perceptual time, which is also called “subjective” or “psychological” time. In the context of the dialog between the text and the reader, it is logical to use the reader-response method of literary analysis, which compares the author's message with the emotional-intellectual response of the recipient.

Contemporary literature uses narrative strategies that address the reader and allow the reader to identify with the character or author. Such narrative is characteristic of contemporary American literature. This renewed interest in simple narrative has revived a commitment to traditional literary forms, such as the realist or historical novel, the family saga, or the memoir. For example, *A Heartbreaking*

Work of Staggering Genius (2000) by Dave Eggers, while adhering to the narrative logic of the memoir form, has fantasy elements and time compression to enhance its emotional impact.

The linear concept, which implies the description of events in chronological order, although it is considered to be a classical one, is not characteristic of contemporary American literature.

Containing various techniques (such as prolepsis, analepsis and medias res) and plot devices (time loop, foreshadowing, enter-temporal communication, etc.) are nowadays increasingly used by authors, especially by chronofiction writers. A special place is occupied by the dual concept, which implies both consistent and inconsistent description of events. The use of this concept is peculiar exclusively to chronofiction writers when there are two or more plot lines of different time trajectories (which implies time travel, time sliding, time looping, time warp, etc.) with an indispensable condition of describing the events of one line in chronological order. (*11/22/63* (2011) by Stephen King, which incorporates elements of time looping and foreshadowing, Arthur C. Clarke's *3001: The Final Odyssey* (1997), where the author uses various techniques, including prolepsis and analepsis, to explore different time periods and characters, though the plot is mostly linear.)

The rethinking of the Newtonian concept of time familiar to the human psyche occurred after the discovery of the Theory of Relativity in the 20th century, and then writers tried to adapt it for the reader's understanding (e.g. Isaac Asimov's *The End of Eternity*, which explores the ideas of time and space). In the 21st century, the paradoxes of time are explored by various authors of fiction. They are still difficult to understand and are perceived by the reader as an alternate reality but are no longer new. (For example, the novel *Zero K* (2016) by Don DeLillo, an American postmodern writer, which explores the themes of death, immortality, and time, and features many character reflections on the philosophical aspects of time and its

relativity.) And literature concentrates on man himself, on the truth and reliability of his knowledge, on his psychological difficulties of contact with time in its various manifestations. In the context of the possibility of man's knowledge of the world, it is necessary to use the epistemological approach in analytics as an important part of the reader-response method.

Studying the forms of cognition, its nature and limits, it is logical for a person to relate it to habitual reality, through the prism of his own experience. It is relevant to reveal the essence of the phenomenon of time, to study the correlation between the subjective time of a character and the temporality of a literary work, to reveal the dialectics of subjective and objective time in correlation with the understanding and interpretation of the text of a literary work. The reader's experience of his own time correlates with his living the time of the literary work, with the mental images he has, with his imagination, with inner feelings, with inner experience.

1.1. Essence of the question of Space and Time

The problem of time is one of the fundamental topics of philosophy, as it is the subject of almost all areas of special scientific research.

Studying the world to which we belong, generalizing and differentiating all phenomena, objects and processes, highlighting their peculiarities, interconnections and relationships, philosophy has created the doctrine of being - ontology, which seeks to explain the fundamental basis of the structure of being as the most general abstraction, discovering its origin, essential forms, qualities, and categories.

In the search for a common basis of various spheres of being, such as nature, society, consciousness, philosophy developed the category of substance (from Latin “substantia” – the underlying thing), which marks the inner unity of the diversity of certain objects, events, phenomena, and processes due to which and through which it exists.

The philosophy of monism, which explains the unity of the world based on a single substance, is recognized by all philosophical concepts based on natural sciences. They consider the ontological problematic through the prism of its material unity. And as the basis of the universe, that is, substance, they define the concept of matter, which has certain inherent characteristics: systematicity, motion, time, and space.

In philosophy, Time and Space are usually considered in inseparable connection with matter and motion, taking into account the system of relations between them.

Probably, first of all, at the most global approach, time is “the basic, along with space, form of existence of matter”. That is, time is certainly related to matter, and matter necessarily manifests itself in time.

Time and Space are philosophical categories denoting general forms of existence of matter, which are objective and necessary qualities characterizing the material world as inexhaustible, systemic, finite, and infinite.

Historical and social sciences, based on the extant data, are convinced that at the beginning of the history of civilization, our ancestors first mastered the concept of space. And only after that, gradually, expanding the range of knowledge and interests, they turned their attention to another mysterious entity – the time. Following their understanding of the laws of space, people began to devise ways to measure time. This evolution in the understanding of time was connected with the practical needs of the developing humanity, observing the movement of the surrounding world, and noticing the systematic nature of the movements of the sun, moon and stars and the order of the world order. (28)

Observing the peculiarities of the organization of being man discovers that the elements of which material objects are composed have a certain order of arrangement to each other and give rise to various stable forms, which can be called the boundaries of an object in a certain environment. Each object contains elements within it that are arranged in specific locations, making them three-dimensional and enduring. At the same time, these objects border others and occupy some place among them.

These simple features that emphasize that the surrounding material world is structurally built are the first general characteristics of Space.

In ancient Egypt people already had ideas about lines, shapes, volumes and could measure length and area. In the 3rd century BC. Euclid formulated the foundations of geometry, the science of spatial relationships.

The earliest ideas about time have been preserved for us by myths and legends of ancient civilizations. Special importance was given to it in Vedic literature, in which ancient Indian philosophy asserted that time, similar to the seven levels of

space in the multidimensional world, possesses an energetic nature. And the temporal energy field, is controlled by the all-encompassing God Hari, who controls the movement of all physical bodies. However, in Vedic culture, time is not limited to the material world. There is also the concept of eternal time, which is seen as an instrument of the supreme god Krishna. Thus, Vedic culture recognizes the existence of a deeper and more pervasive aspect of time, which is related to the spiritual dimension and the supreme powers.

The texts reveal the ancient Hindus' conceptions of time, where the Atom is the smallest particle of the material cosmos, indestructible and eternal. It will exist even after the disappearance of all forms. Correlating time with movement of physical bodies consisting of atoms can be measured and calculated. The speed with which the Sun overcomes the space occupied by one atom is called atomic time. And the Great Time encompasses all the unmanifested atoms. Vedic culture invented special units to measure time relative to the atom. (30)

In myths and legends of primitive and ancient peoples, time was often represented in anthropomorphic form, as something primary, powerful, fateful and inexplicable. For example, the ancient Greek god Zeus, who ruled the world, was depicted as a man with ordinary needs and had a lineage going back to Chronos, the god of time. (3)

Many aspects of physical and philosophical understanding of time explored by the ancients are still not definitively studied. That is why the views of ancient thinkers are not only of historical and cultural interest, but also influence modern natural science, social sciences and become an inspiration for artistic pursuits of literature. The concept of time, together with the categories of space and motion, determines the conceptual basis of modern physical and humanitarian research, which not only deals with the possibility of its measurement, but also considers options for stopping it and changing the direction of its flow, as well as leading an

ongoing debate about its objectivity and even its existence. (Literature, as well, is interested in such research. Thus *The Timekeeper* (2012) – a novel by popular American writer Mitch Albom – tells the story of how a man, dreaming of controlling time – to stop it, speed it up, slow it down, makes a mistake and becomes a timekeeper, forced to watch how his gift lengthens or shortens human lives. This novel – a parable with elements of fiction ponders controversial temporal theories in the development and interaction with the surrounding world).

Objects of the material world are in development and movement, in which stages and alternating different qualitative states are defined. Such processes can have a certain repetition, different length. Their course can be characterized by the concept of duration and their comparison can be considered the basis of quantitative measures that determine the speed of processes, as well as their pace and rhythm. Considering these characteristics as indicative features of actions, one can get an idea of time. The world is in constant motion and development; therefore time exists; if matter did not have permanent motion among its characteristics, the concept of time in the philosophical sense would have no meaning.

“Time is a form of being of matter, expressing the duration of its existence, the sequence of change of states in the evolution and development of all material systems.”

Form is the structural organization of content, and if material substance acts as content, space and time are its ordering forms. Matter will not exist without form. At the same time, Space and Time cannot exist without matter. We can imagine them isolated from the material world only abstractly.

1.2. Basic concepts of Space and Time

Philosophical views on space and time and their relationship with matter have diverged dramatically within different philosophical movements.

Philosophy has proposed many concepts explaining space and time, among which four concepts stand out for their fundamental nature: substantive, relativistic, static, and dynamic.

The static concept of time considers all events: past, present, or future, as occurring simultaneously. At the same time, the understanding of time as a sequence of certain events is considered an illusion, which appears at the moment of realizing changes.

In fiction, there are examples of the embodiment of the static model of time. In such works, authors explore emotions and states against the background of events depicted out of chronological order or emphasize the meaninglessness of time sequence, such works offer a deeper understanding of alternative approaches of time perception.

Ted Chan's *The Story of Your Life* plays on the static model. In this story, a linguistic scientist, Louise Banks, studies the Heptapods, space aliens, and their language, built according to specific linguistic principles. The story is based on the concept of “sapiental foresight”, which implies that the creatures perceive time non-linearly, and their language, built on a distinct way of thinking, allows them to predict the future. Immersing herself in learning the alien language, the heroine begins to perceive time differently from the way Earthlings are used to, and realizes that the past, present and future exist simultaneously.

The dynamic model is an interesting cause for reflection and a challenge for the writer. It implies that only the present is real and is commonly used in literature to allow readers to delve more deeply into the moment being described and the psyche of the characters. In contemporary American literature, an example of a work that explores such a model would be the novel *Lincoln in the Bardo* (2017) by George Saunders.

Lincoln in the Bardo tells the story of U.S. President Abraham Lincoln after the death of his 11-year-old son William. The novel takes the reader into the “bardo”, a transitional state between death and rebirth according to the Buddhist tradition. In this state, the characters remain connected to the world of the living, but have no direct access to the past or future. All events take place in the present moment, and the characters realize that the time frame is limited only by the current moment.

Modern philosophers, relying on the scientific knowledge available nowadays, consider the following time concepts to be the main ones: substantive and relativistic.

1.2.3. The Substantive Concept

The substantive concept explains time as a separate, independent entity, like matter or space. Time is considered to be a primary component, having its own nature and existing independently of other factors.

Like many ideas, this concept gradually changed, being refined with the development of geometry and physics. Representatives of the substantive concept, the ancient atomists: Democritus, Epicurus, Lucretius Carr, who proposed the concept of empty space and insisted on its infinity and homogeneity at all points, interpreted Time as a subjective sense of reality.

Within this theory, Space and Time were viewed as separate kinds of matter or substances that exist parallel to and independent of matter, explaining the space around as a “void”, a “place” for physical objects. If we theoretically exclude all material objects and events, existing substances remain unchanged. That is, all properties of Space and Time are independent of the peculiarities of material processes occurring in them.

In the New Age, developing the foundations of dynamics Isaac Newton deepened this concept, along the way freeing it from anthropomorphism. Newton agreed that Space and Time are special entities that exist independently and independently of each other and matter. He proved that in absolute Space their prominent place is occupied by the extent of bodies, which is its basic (axiomatic) property. determining their location in absolute space. Absolute space is immeasurable and unrecognizable, because of the impossibility to calculate its parts. The location of bodies and their coordinates can only be determined in relation to other bodies. That is, according to Newton, science can visually study only relative space.

Based on his understanding of the Absoluteness of space, Newton considered Time to be absolute and independent. In his paradigm, time is merely a duration that flows uniformly in only one direction from the past toward the future. It is an empty “place of events” that may or may not fill it; the course of events does not affect the flow of time. Absolute time has its own characteristics; it is one-dimensional, universal, continuous, infinite, everywhere homogeneous, therefore it is immeasurable.

Newton also distinguished between relative time, which can be measured by means of a clock, that is, relative to the periodic motion of another body.

Space and time according to Newton are independent of each other, which can be proved by measuring the distance between two points of space and the time interval between two specific events. They, as the scientist proved, retain their values independently of each other in any reference frame, at any relation of these quantities. He considered space and time as independent substances that exist next to and simultaneously with matter and have their own independent relations with it.

As a result, Time, and Space, according to Newtonian theory, had constant features characterizing their peculiarities: absoluteness, universality, and independence.

The division in the Newtonian universe of absoluteness and relativity of these substances is based on the qualitative specificity of the abstract and ordinary level of cognition. And it distinguishes absolute time and space, possessing the special property of continuity, from the relative – structural and discrete.

Based on this paradigm, Isaac Newton built his material model of the universe, which influenced the further development of world science.

The substantive concept of time and space supported by Newton echoes its basic principles with the widespread in literature way of constructing a work of fiction, which can be called absolute or linear structure.

In the absolute structure of a literary work, events and chronological order have a direct and linear sequence. Supporting the logic familiar to modern people, in such a literary work, events develop sequentially and independently of each other in time and space. Adhering to such rules, the author tends to present events in a linear order, from the beginning to the end, where events occur as time progresses from the past to the present.

However, it is worth noting that Newton's concept of substance was developed in the field of physics and applied to explain physical phenomena. In literature, its absoluteness is more of a theoretical ideal and in modern literature, in order to create an effect or form a particular compositional form, writers use various methods and approaches that may combine or depart from linear structure, supplementing it with circular, fragmentary or non-linear structure to convey complex ideas and points of view. For example, in *The History of Love* (2005) by Nicole Krauss, the author explores themes of love and loss through the characters' intersecting storylines. The events of each story unfold linearly from beginning to end as time progresses. In doing so, the time perspectives of the various characters merge together, and the author explores the theme of time through the intertwining of their fates.

1.2.3. The Relativistic Concept

The relativistic concept in philosophy is based on the methodological principle that absolutizes the relativity and conditionality of the content of cognition. The relational model of space and time considers them to be special kinds of relations between material substances and processes within which they participate and outside of which they cannot exist.

The assumption that Time and Space are not physical objects at all, but rather relations, or a system of relations between physical objects and events (phenomena) became the basis for the approach to this question in the treatises of Plato and Aristotle. And in the beginning of XVIII century philosopher and mathematician Gottfried Wilhelm von Leibniz experimentally confirmed that space is a relation between things, having proved that it is impossible to speak about space without specification of correlated bodies. Such a statement looks ridiculous as a question: “what is the distance between? Without specifying between what objects. Today considering further discoveries in natural sciences relational theory has acquired a confident scientific confirmation. In the philosophical concept of dialectical materialists, Space and Time are not independent entities, but are understood as systems of relations between interacting objects of the material world. The relational concept considers that outside of this system of relations Time and Space do not exist and assumes the dependence of their properties on the specificity of interactions of bodies, properties, and relations. The main idea of the relativistic model is that the variability of reality is considered from the position of the development principle.

At the same time, some of her theoretical assumptions are still in need of scientific confirmation.

The use of the relational concept of time in literature can be presented in various ways and with varying degrees of explicitness. It can be integrated into the structure of the narrative, characterize the relationships between characters, or be present in the theme of the work.

In some literary works of 21st century literature, one can trace the influence of relational model ideas: unconventional narrative structures, blurred boundaries between past, present and future, and an emphasis on the interconnections and relationships between characters and events.

A prime example of this approach is the novel *Cloud Atlas* by English writer David Mitchell, published in 2004. This work has a complex structure consisting of six interconnected stories spanning different time periods and geographical locations. The entire novel is built on the idea of interconnectedness and interdependence between different eras and characters.

There are several works in American contemporary literature that engage in philosophical discussions of concepts of time, including the substantial and relativistic concepts. One such work is the 2014 novel *Orpheus* by Richard Power.

Orpheus tells the story of composer Peter Els, who becomes the subject of a police investigation after he accidentally becomes a suspect in a terrorist attack. During his journey across the country, Peter reflects on music, art, science, and time. The novel explores different concepts of time, including the philosophical aspects of relativistic theory.

Another example of such a work is the novel *Soon I Will Be Invincible* (2007) by Austin Grossman. In this novel, the characters, superheroes and villains, speculate about essence, time, and the meaning of life. They question the temporal nature of their existence and philosophize about time in relation to their superpowers.

These novels offer engaging stories and raise philosophical questions about time and its nature, including the concepts of substance and relativism, viewed in a fictional narrative.

1.3. Physical Dimensions of Time and Space in 20th century science

Twentieth century science justified the substantive unity of matter, motion, space and time. This was proven by the field experiments of Michael Faraday and James Clerk Maxwell. After the substantiation of the field theory, scientists were interested in the problem of the interrelation of matter and energy, which are transformed depending on speed close to the speed of light. Natural science was divided into two conflicting fundamental scientific trends – classical mechanics and electromagnetic field theory. This controversy inspired the Dutch physicist Hendrik Lorentz to make an interesting attempt to resolve this divergence. And he invented a mathematical formula which, depending on the quantities involved in the calculations, satisfied both theories. This formula was based on the constant value of the speed of light and used the theory of electromagnetism. At low speeds, the Lorentz transformations were easily reduced to Galileo's transformations, which means that they “returned the truth” to Newton's mechanics, and at high speeds they confirmed the theories of electromagnetism.

The physical content of Lorentz's logical transformations was established by Albert Einstein. He created the special theory of relativity, the foundation of which became two basic rules: constancy of the speed of light in vacuum and uniformity of flow. A vital component was the description of various physical processes in inertial systems. Based on these provisions and transformations, Hendrik Lorentz received several consequences, confirming the interdependence of the flow of time, the mass of the body and its linear dimensions on the speed of the entire system. Thus, if the speed approaches the speed of light, the flow of time slows down, the mass of the object increases, and its dimensions shrink in the direction of motion. This connection of separate dimensions of motion, matter, space and time became the basis of the theory of relativity.

With the theory of relativity, the understanding of time and space changed dramatically. New ideas and conclusions pushed scientists of different fields to revise traditional ideas about Time and encouraged to abandon the substance concept.

An interesting view on the interpretation of the relationship between Time and Space was the light cone model developed by German physicist Hermann Minkowski. It is a cone created by a light flash and a light wave front, which spreads to all coordinates with an equivalent limiting speed. Located at the beginning of the axis of its apex this cone will mark the shape of an hourglass, which symbolizes the “life line” of any object. The undoubted merit of Minkowski is the presentation of the system of the so-called four-dimensional space-time continuum, where time is an absolutely equal fourth dimension. That is, Time and Space can be considered as different forms of manifestation of a single material world.

Albert Einstein's General Theory of Relativity, proposed by him in 1916, was of fundamental importance for further physical-theoretical study of the properties of Time. It finally removed the limitations of the special theory of relativity, generated by its basic principles (inertiality of analyzed systems using Euclidean geometry) and began a new stage in the development of science.

In the General Theory of Relativity, Albert Einstein drew from the ideas of non-Euclidean geometry developed by Nikolai Lobachevsky and Bernhard Riemann. According to Lobachevsky's theory, geometric laws can be unequal and changeable depending on the proposed conditions. For example, according to his theory, the sum of the angles of a triangle will always be less than 180 degrees, and an infinite number of lines can be drawn through a point thrown outside a straight line that will not intersect with it. And according to Riemann the sum of angles of a triangle will always be greater than 180 degrees, but through the point outside the line, it will not be possible to draw any line that would not intersect with it. The mentioned peculiarities of spatial relations are inherent in systems with surfaces differing in curvature. By the mentioned curvature it should be understood only that due to the deviation of the space metric from the Euclidean one, the internal structure of the considered plane will be measured by means of the curvature coefficient.

The general theory of relativity significantly extended the conditions of relativity to non-inertial systems. The fact of equivalence of inertial and gravitational masses is also interesting and the ideas of non-Euclidean geometry have been applied in the defined conditions. The General Theory of Relativity built a material basis to the theory of curvature of space, linking them to the force of action of gravitational fields. According to the General Theory of Relativity, the time-space structure is characterized by the distribution of matter masses, due to which new features of dependence of Time and Space on physical processes are revealed.

Time and Space in our world have different dimensions. According to the relativistic concept, science today operates with a four-dimensional spatial system, which is measured by three spatial coordinates and one time coordinate. Modern physics as well as astrophysics use the idea of ten-dimensional space. But this is still a purely hypothetical concept, which is an idealization of theoretical searches, at least at the stage of modern development of science about the Universe and possible, but still unknown worlds.

The classical dimensions of time and space are the result of long debates throughout the history of science and are based on a certain intellectual basis and evidence. If in the time of Antiquity, the dimension of Time and Space correlated with the understanding of perfection, in the New Age with the experimental experience of natural science, then in the science of the present the ideas of theoretical comprehension of these indicators arose.

In the 20th century, many thinkers remain fascinated by the mystery of time, and its four models, originating in ancient Greece, continue to seem credible. At the same time, since the 1960s, the relativistic understanding of time, deepened by Einstein, has received increasingly incontrovertible (or, sufficiently convincing) evidence.

Time is a form of perception of change inherent in human consciousness: emergence, development, flow and decay in the world, as well as in itself and all that is associated with it. Time exists because humanity, through its cognitive abilities, perceives changes constantly occurring in the internal and external world.

The substantive concept of time also expanded its horizons. Taking into account the achievements of science, it accepted the laws of causal mechanics, relying not on the equality of action and counteraction, basing not on the symmetry of interacting forces but on their asymmetry, and recognizing the irreversibility of cause and effect, which are bound by the sequence in time and its directionality, where physical time acts as a driving force or a carrier of energy. Such reasoning was based on the fact that the second law of thermodynamics inevitably applies to the entire universe, which could lead to complete decay or thermal and radioactive death, which, as we see, does not happen, since there are constantly acting causes in nature that prevent entropy from increasing. Again, in the role of constantly acting and opposing all-encompassing factors is physical time, which depending on its direction can do work and produce energy.

Three assumptions on which the theory of causal mechanics is based can be distinguished. First, according to the substantial concept, time is an independent phenomenon of nature and can influence the objects of our world and the processes occurring in it. Secondly, time, in addition to the long familiar property of duration measured by clocks, also possesses other active properties, in particular, the density of time. Third, these properties can be experimentally proven.

Causal mechanics put forward three main postulates of physical properties of time.

The first is that time has a special property that distinguishes between causes and effects, which can be called directionality or progression. This property determines the difference between the past and the future.

The second postulate states that causes and effects are always separated by space. Therefore, there is an however small but non-zero spatial difference between them.

The third postulate states that causes and effects are separated by time. Therefore, there is a small but non-zero temporal difference between their manifestations.

Laboratory and astronomical experiments have proved that time has an effect on matter, and its effect is different from that of force fields, energy is transmitted instantaneously without impulse transfer. This follows from the most general laws of time. Time is not distributed in the Universe, it appears everywhere at the same time. The entire universe is projected on the time axis by a single point and changes in the properties of any second appear everywhere simultaneously, decreasing according to the law of inverse proportionality of the first degree of distance.

Within the framework of “the theory of thermodynamics of real processes” a theory was proposed in which the previously unknown choral and metric phenomena play an important role. The former represents a special substance obeying the laws of thermodynamics. Applying the law of conservation of energy to it, we notice that a thermodynamic intensity factor such as pressure, temperature or electric potential determines the activity of the associated systems. As the intensity increases, the associated activities also increase. Thus, the choral intensional determines the choral activity of the body, that is, the rate of all processes, and with increasing choral the rate of these processes increases.

On the other hand, time associated with pace determines the duration of various events, processes and phenomena. Thus, choral and duration are mutually related: when choral increases, the speed of processes increases, while the time of their duration decreases. Traditional time, defined by duration, is a conventional value – it is social time, created by man, which flows almost uniformly and always in one direction.

Real physical time is a characteristic of any object, animate or inanimate, determined by its choral “charge”. When the choral of an object increases, the rate of real time flow slows down, and the rate of processes increases.

Modern physics has experimentally and mathematically proved that the real physical time of any body is always related to the state of this body, in fact fixing different proper times for different bodies. This idea was also taken up by philosophy, for example, Martin Heidegger – German existentialist philosopher and phenomenologist of the XX century, developed the concept of “time-being” (“Sein zum Tode”, according to which time is not just a measure or sequence of events, but is connected with the meaning and existence of man. Time must therefore be seen as the most essential characteristic of being. Heidegger's approach has influenced phenomenology and modern philosophy, and has been influential in literary criticism, theology, and cognitive psychology.

There are also works in American literature that directly or indirectly address the idea of individual time. For example, Alan Glynn's novel *Limitless*, published in 2001. The protagonist, who is Eddie Mora, takes an experimental pill called NZT-48 that allows him to use his brain to its full capacity. This enables him to stay ahead of time, enhance his cognitive abilities and achieve impressive successes.

Theoretical paper *Time: What is it? Dynamic Properties of Time* by the famous physicist Valentin Oliinyk, a professor at Kyiv Polytechnic Institute, has interested the scientific world in modern ideas about the nature of time, which indicate trends in the development of our understanding of its properties. The author disputing the Newtonian point of view, which considers time to be completely passive and unaffected by material processes, reminds that physical processes, such as force fields created by material bodies, can change the very course of time, giving it physical properties.

Oleinik proposes the idea of inseparable connection of space and time, which constitutes a single essence. He argues that the presence of a force field should lead to the appearance of physical properties of time, which are determined by the movement of the body in this particular field. Therefore, events can occur not only in time, but also through it, and information is transmitted instantaneously through a time channel distinct from force fields.

The professor also mathematically substantiates his conclusions about the physical properties of time and the possibility of their change under the influence of physical processes. Concluding that by demonstrating the dynamic inhomogeneities of time “the idea about the existence of the physical properties of time can be proved remaining within the framework of relativistic mechanics.” (29)

“According to this hypothesis, each region of space-time may have its own rules and characteristics governing the perception and measurement of time. This may lead to the fact that for observers in various places or conditions, time may flow differently or have different speeds.” (29)

Such a hypothesis is applied as a scientific basis in the 2016 science fiction novel *Dark Matter* by Blake Crouch. In this novel, the time factor is an experimental device that allows the protagonist to travel between parallel universes and change his place and time with other versions of himself.

Professor Oleinik emphasizes that the “...applied aspect of the study of the physical properties of time is important: it opens up fundamentally new possibilities for effective control of physical processes.” (29)

The hypothesis of locally coherent time is one of the ideas that arise when studying the relativity of time and space in the context of general relativity and quantum physics. It opens the possibility of investigating unusual aspects of time and its perception and may also be important for understanding physical phenomena and basic laws of nature.

In addition, modern science also considers the nihilistic concept of time. It has its historical roots and famous predecessors. For example, Heraclitus of Ephesus was a Greek philosopher who considered time to be nothing but an illusion.

According to the hypothesis of negation, time in its pure form does not exist, and therefore one can adopt any system of time measurement that is convenient. Such a theory relies on the fundamentality of the notion of Time. And, since fundamental concepts do not need to be defined, they are accepted as a convention in which a convenient period called “ideal time” is taken as a reference, against which any segment of time of a material process is compared in order to calculate the constancy, rhythmicity, or dependence on the material presence of real local time. Such a conception of time represents a negation of objective physical time. However, it can coexist with the substantive concept, although, in reasoning that if time is an immaterial substance, and yet objectively exists but cannot be influenced, there is a contradiction with the local time coherence hypothesis.

Discoveries of modern scientists prove that further research of time as an active participant of physical processes is necessary and is at the forefront of modern physics.

Stephen Hawking, an English theoretical physicist, cosmologist, and astrophysicist, proposed a cosmological theory that combined the ideas of general relativity and quantum mechanics. Bringing together the ideas of Einstein and the subsequent developments of modern scientists, he distilled them into his popular science works, such as *A Brief History of Time*, Hawking examines the concepts of time and the effects of motion and gravity. Hawking discusses the emergence of the universe, the nature of space and time, black holes, superstring theory, and some mathematical problems, combining quantum mechanics and general relativity in its pages. Inspired by this combination, the author reflects on time and its relativity, trying to solve the mystery of time dilation for moving bodies and the practical stopping of time on the surface of black holes.

In the context of his research in physics and cosmology, he proposes the concept of the Arrow of Time as a concept related to the directionality of time and causality.

Traditional physics, having explored many variations of space-time concepts, has assumed that time has no apparent directionality, and the future and past are equal. However, Hawking, based on the theory of thermodynamics and cosmology, proposes the idea that there is a certain arrow of time in our universe, indicating that non-reversible processes are taking place and there is a preferred direction of time: “We can distinguish three different directions, or arrows, of time. There is a thermodynamic arrow of time, which is the direction of time in which disorder or entropy increases. Then there is the psychological arrow of time. This is the direction in which we feel time passes, the direction in which we remember the past but not the future. Finally, there is the cosmological arrow of time. This is the direction of time in which the universe is expanding rather than contracting.” (17)

He relates the arrow of time to the increase in entropy (a measure of irreversible dissipation of energy, or disorder, in the universe. According to the second law of thermodynamics, the entropy of a system always increases with time. This means that the processes by which entropy increases occur only in a particular direction of time. “The increase of disorder or entropy with time is one example of what is called an arrow of time, something that distinguishes the past from the future, giving a direction to time.” (17)

Hawking believes that the arrow of time is directed from the past to the future and is associated with this increase in entropy.

Also, Hawking, trying the concept of the arrow of time to the material world in the context of cosmology and the expansion of the Universe, proposed a model of the Universe where time has its origin in the Big Bang and continues to flow in a certain direction.

Pondering the puzzling question of what would happen if the universe stopped expanding and started contracting. Assuming changes in the thermodynamic arrow of time, he hypothesized a gradual decrease in disorder. The author analyzes this situation in a fascinating way, firmly grounded in the foundations of the classical theory of relativity and striving to preserve its purity.

Stephen Hawking proving the reality of physical time, rejects the existence of absolute time in perfect harmony with the general theory of relativity: “Each person has his own time scale, depending on his location and movement.” (17)

“Space and time are not fixed but dynamic quantities: when a body moves or a force acts, it changes the curvature of space and time, and in turn the structure of space-time affects the motion of bodies and the action of forces. Space and time not only affect but are also affected by everything that happens in the universe.” (17)

Although the concept of the arrow of time remains a theoretical proposition and is the subject of active research and debate among scientists, in his books Hawking emphasizes the importance of the dynamic nature of space and time and their interaction with motion and forces in the universe.

The newest hypotheses and theories, extending the range of searches and specifying metric nuances all still fit into 2 basic temporal concepts.

The modern version of the relativistic model is that the variability of reality is considered through the prism of the principle of development. Events occurring in our reality represent not only external movement in space, but also qualitative changes, internal innovations that unfold in time. The term “relativistic” is quite appropriate for this concept, as it is related to Einstein's theory of relativity. In it, it is important that linear quantities and time intervals are combined into a single continuum, creating like the four-dimensional space-time in Minkowski's stereometry, a diachronic version where time is represented in two dimensions.

Physics is mostly tending to return to the substantive concept after various searches. Although in Newton's view time existed independently and was considered passive, now time becomes an active physical factor. It turns from a form of existence into the content and even the essence of physical reality. This is an example of a change in cause and effect. In this case, it is not the events, but the order that determines physical phenomena and processes.

In some concepts of modern scientists there are ideas about the presence of topological and metric aspects in the time picture of physical reality, and the logic of calculations proves the inverse dependence of the speed of processes and duration of events.

Nevertheless, some controversial points are still being discussed. Firstly, speed and pace, which are measured by certain parameters – rhythm or period of processes, and density of events, their duration and metric length. Secondly, the complexity of defining and isolating “chronal matter” and the way of measuring its “chronal charge”. Time here turns from a form of existence into a substratum. Time is inherent in matter, but it is not matter itself. Hours and years are not body or matter, they represent forms of time existence.

New theories of modern physicists give a serious reason to suppose that the puzzle of time is not solved yet and there is a vast field for the newest scientific and philosophical hypotheses, which will explain to mankind the essence of time and will form the basis of artistic works, the authors of which, perhaps, will offer unusual creative solutions to this question.

1.4. Literary Perspectives on Temporality

The theme of time in literature is devoted to many literary works, both world and domestic researchers. One of the most fundamental theories is Bakhtin's chronotopic theory, which consists in a regular connection of space-time coordinates.

Mikhail Bakhtin made a significant contribution to the study of the influence of time on literary works. For Bakhtin, time is not just an abstract concept, but a dynamic factor that determines the nature of plot and character development. For Bakhtin, time appears as a multifaceted phenomenon encompassing existential, historical, social, and artistic aspects. He studies literature through the prism of artistic time, which becomes a way of reflecting and comprehending personal and historical relations with time. In his works, the relationship between “big” human time and “small” individual time is of particular importance. Considering the psychological perception of time he highlights in the text of the work *Crisis Time*, when “a moment is equated with years, decades...” This phenomenon reflects the unusualness and tension of the temporal state, which is under the influence of social upheavals or important events.

He considers time as an active element in literature, which animates events and interacts with space. Time, according to Bakhtin, gives liveliness and changeability to the work and creates an opportunity for the reader to empathize with it.

Chronotope is a broader concept that reflects not only the time frame of a work, but also the spatial characteristics and socio-cultural context in which events unfold. Chronotope allows us to analyze how time and space interact and determine the plot, characters, and semantic structure of a work.

M. Bakhtin adopted the term “chronotope” from Einstein, redirecting it to fiction, and proposed it for use in literary analysis: “We will give the name chronotope (literally, 'time space') to the intrinsic connectedness of temporal and spatial relationships that are artistically expressed in literature. This term [space-time] is employed in mathematics and was introduced as part of Einstein's Theory of Relativity...we are borrowing it for literary criticism almost as a metaphor (almost, but not entirely). What counts for us is the fact that it expresses the inseparability of space and time (time as the fourth dimension of space). We understand the chronotope as a formally constitutive category of literature...” (2)

Bakhtin argued that chronotopes are the organizing principles of a literary work, determining its structure and content. They unite temporal and spatial elements, creating a special atmosphere and context in the work.

Bakhtin emphasized that each genre has its own characteristic chronotope, which differs from other genres. For example, in a novel the chronotope can be broad and varied, with many spatial and temporal transitions, while in a play the chronotope can be more limited, centered on a specific space and time interval. Genre is determined by the way the writer interprets certain worldviews and ideologies artistically subordinated to the course of events in the spatio-temporal structure of the work.

“The chronotope in literature has an intrinsic generic significance. It can even be said that it is precisely the chronotope that defines genre and generic distinctions, for in literature the primary category in the chronotope is time. The chronotope as a formally constitutive category determines to a significant degree the image of man in literature as well. The image of man is always intrinsically chronotopic.” (2)

Including the relationship between the characters in a work, the spatial images, and the time frame in which the plot unfolds, it determines what time and space are represented in the work, as well as how they are organized and interact with each other.

Chronotope influences the characteristic features of a genre, such as narrative style, typical events, characters, and themes. It also determines the author's and reader's attitude towards the work, creating certain expectations and emotional reactions.

It is particularly important that the main discovery of the chronotope methodology applies to the convective dialogical thinking of artistic and literary studies. « For a scientist, the chronotope is not only a combination of time and space; it is a tense dialogue between time and space to varying degrees.

The introduction of the term “Chronotope” facilitated the systematic investigation of issues of space-time and the poetics of the artistic text, the development of the literary process, the philosophical foundations, and directions of the peculiarities of genres.

The diverse types of Chronotopes described in Bakhtin's *Forms of Time and Chronotope in the Novel* can be divided into several conventional levels according to the scope of the literary work or the degree of abstraction:

1. chronotopes of the author;
2. chronotopes of the world depicted in the work;
3. chronotopes of the genre;
4. chronotopes of biographical time and space;
5. chronotopes of a “significant” event, which is such precisely because of the special condensation and concretization of time signs in certain areas of space.

While studying Bakhtin's chronotope as a hierarchical system of levels of abstraction of the author's chronotopes, Associate Professor (Department of Art History, Literature and Linguistics) Mitina L.S. identifies “the 6th level of abstraction – chronotopes of the word as the main structural unit of the language of the work; the internal form of the word, that is, 'the mediating feature by which the initial spatial meanings are transferred to temporal relations'.” (20)

All elements of time-spatial analysis have their own value and importance for the harmony of the whole work. They are the building blocks of a literary text.

“In abstract analysis, a 'value moment' can be 'isolated from the whole artistic chronotope', which can be seen as a set of chronotopes of 'each motif' and 'each separable moment of an artistic work'.” (2)

“Bakhtin's works contain many instructions for the study of structural local space and socio-historical time through this space. But at the same time, they indicate the possibility of the transition of local space into a metaphorical, symbolic plan.”

Studying time in literature, Bakhtin identified some concepts that help literary scholars analyze the interaction between time and literary works, their characteristics, dynamics, and connections with other aspects of text and culture. In addition to Chronotope, he introduced into literary studies terms denoting the essence of concepts frequently encountered in fiction prose, which directly or indirectly relate to the aspect of time and enriched the literary studies language. Some of them are:

1. Dialogism, which became a fundamental principle of Bakhtin's chronotopical theory. It implies the plurality of voices and points of view in a text, the interaction of different voices and the communicative nature of a literary work. Dialogism allows for the creation of a field for the interaction of time and space, as well as for different chronotopes.

2.The concept of chronotopic dynamics refers to the change and development of chronotopes in the text of a literary work. Time and space can change, evolve, and interact with each other, creating a dynamic structure of the text.

3.Polyphonic time occurs in a work when multiple voices and time plans coexist harmoniously in the text. The term emphasizes that time in a work is non-linear and contains different temporal perspectives that interact and intertwine with each other.

4.Chronotopic implicitness indicates that temporal and spatial aspects are not always explicitly stated, but they are experienced through various linguistic and stylistic devices.

5.Temporal heteroglossia describes the multiplicity of temporal layers.

6.Carnavalesque time: Carnavalesque time indicates a special kind of temporal situation associated with carnivalesque manifestations in literature. In this time, established norms and orders are violated to express special aspects of temporal dimension.

Mikhail Bakhtin, turning to the artistic study of time, managed to combine it with a broader historical and cultural analysis. Investigating such phenomena as “carnival, good, crisis, cyclical, biographical, big, small,” etc. time, he considers and studies their coordination with socio-historical time. For Bakhtin, the connection of past, present and future in human history is reflected in the subjective artistic evaluation and ambiguous perception of the complex relationship and mutual influence of events and stages of the historical process. It explores how artistic works are able to express and convey the diversity of temporal dimensions and their semantic coordination. By analyzing and interpreting artistic texts, Bakhtin examines their temporal constructions and various ways of representing time. (2)

The development of the theory of chronotope in literature was continued in the works of such famous researchers as Martin Heidegger, Roland Barthes, Gilles Deleuze, Jacques Derrida, Yuri Lotman, and others.

Relying on extensive empirical and theoretical material, philosophers, philologists, and literary critics continue to study the functions of artistic time and space, as well as the tasks of chronotope in the text of a work of fiction. Having determined the features and essence of diverse types of chronotopes, they observe the variants of their functioning in different works, tracing their modification in diverse cultural and historical systems.

However, it is worth noting that in literary criticism there is no single system developed by a particular scholar to which all others in literary criticism refer. Literary criticism is a dynamic field where different researchers develop their own approaches and concepts. Each of the scholars mentioned above has contributed to the development of literary theory and offered his or her particular understanding of chronotope and time in literature.

Martin Heidegger (1889-1976) – German existentialist philosopher and phenomenologist emphasized a philosophical understanding of time, exploring the relationship between time and existence, analyzing time in the context of being. (16)

Roland Barthes Roland Barthes (1915 –1980) – French philosopher, literary scholar, aesthetician, semiotician, representative of structuralism and poststructuralism; emphasized diverse levels of time and space in a text, including multiple temporal and spatial perspectives. (27)

Gilles Deleuze (1925 –1995) – French philosopher, explored non-linear and deformed temporal structures in literature, film and reality, emphasizing the processual nature of time. (9)

Jacques Derrida (1930-2004) – French philosopher, creator of the concept of deconstruction, studying ontological and epistemological problems of philosophy, analyzed the properties of time and the paradox of its absence, emphasizing the contingency and indeterminacy of temporal relations. (10)

Yuri Lotman (1922 -1993) – Estonian literary scholar, cultural critic and semiotician, investigated the roles of cultural codes and collective memory in shaping the chronotope and temporal structure of a work. (29)

The German literary scholar and philologist Erich Auerbach (1892-1957) offered his view on various aspects of time in literature. His work *Mimesis: The Representation of Reality in Western European Literature* (1) had a significant impact on the world literary process. The book analyzed the representation of time in literature from a historical and cultural context and explored different time periods, genres and styles of literature, paying attention to the ways in which time is represented and its relationship to space.

Auerbach's emphasis is slightly different from Bakhtin's approach, which focused on the chronotope and its role in the creation of meaning. Erich Auerbach in his work *Mimesis* analyzes different time periods in European literature, paying attention to the changes in the representation of time, history and social conditions that affect artistic works, adding to it the so-called Historical Depth, which includes the ability of literature to reflect the time of a certain historical period. He examines the options literary texts have in conveying the reflection of temporal layers and historical depth through stylistic and rhetorical devices.

Combining the temporal and spatial aspects of a literary work, Auerbach explores how different chronotopes (e.g., city street, countryside, etc.) form the temporal and spatial framework for the development of plot and characters within the context of a particular era.

Auerbach's work enriched scientific terminology with new formulations of concepts of interest to professionals. Studying temporal features in a work of fiction, he distinguished the following phenomena:

1.Type of Time: Auerbach distinguished between diverse types of time that may be present in literary works. For example, chronological time, which runs linearly and sequentially, where events follow each other in chronological order, and cyclical time, where certain events are repeated at certain moments. He also distinguished typological time, which appeals to common, recurring patterns and motifs in history and literature. Typological time allows authors to create allusions, parallels, and contrasts between different eras and events. He investigated how diverse types of time affect the structure and meaning of works and what impression they leave on the reader.

2.Chronological storytelling Auerbach refers to a variant of narrative based on linear time progression. Auerbach discusses the different forms of chronological storytelling and its relationship to historical events.

3.Chronotopic organization Auerbach calls for a way of organizing a text in which time and space are closely related. Auerbach analyzes how different chronotopes affect the structure and content of literary works.

4.Montage is a way of constructing a work in which different time periods and styles are combined in one text. It allows the author to create complex chronological layers where different eras and events intersect and interact, creating a rich historical depth.

These concepts, proposed by Erich Auerbach, have helped to broaden the understanding of temporal aspects in literature and to emphasize the importance of the organization of time in creating structure and meaning in works. They represent various aspects of the influence of time on a literary work and have become significant for the development of literary theory and criticism.

Mimesis, translated into English in 1953, received widespread worldwide acclaim and had a profound influence on American theory and practice in the interpretation of literature, culture, and history. In particular, Mimesis influenced the approach to art and literature of George Steiner, a French and American writer, literary critic, and cultural theorist who emphasized the interaction between text and context, and drew some of the ideas of Edward Wadie Said (1935-2003), an American literary critic and literary historian, American literary critic Geoffrey H. Hartman, and American literary critic and Marxist theorist Fredric Jameson (born 1934).

Erich Auerbach's book offered an innovative approach to analyzing and interpreting texts based on their mimetic character and their ability to reflect reality.

The French philosopher and literary theorist Paul Ricoeur (1913-2005), in his work *Time and Narrative*, analyzing the narrative character of culture and its mimetic nature, explores different models of time in literature. He develops generalizing concepts, rethinking various philosophical traditions and trends, guided in his analyses by the regressive-progressive method that unites the temporal dimensions of past, present and future and concentrates them into the concept of 3 mimesis. Describing the mimetic nature of literature, Ricoeur proposes the idea of a “hermeneutic arc”, which originates in living reality, passes through literary narrative, and at the third stage returns to reality through the reader. In any narrative there are three stages of mimesis: prefiguration (pre-understanding of reality), configuration (formation, creative work) and refiguration (perception by the reader, transformation of the work into impressions and knowledge affecting its reality).

Paul Ricoeur's notion of 3 mimesis has a deep connection with the temporal aspect of both the literary work and reality. Ricoeur pays special attention to time and its role in narrative, highlighting and defining concepts significant for literary criticism:

1. Narrative: The way events and actions are organized and presented coherently and meaningfully. Ricœur examines the relationship between time and narrative, emphasizing the role of narrative in giving structure and significance to our understanding of time.

Drawing on psychoanalysis as a basis for hermeneutics, which reveals the “archaeology” of man, his “primordial drives” by understanding the forms of their sublimation in reality in his work *Time and Narrative* Ricoeur explores literature's attempts to understand and explain various chronological structures, transitions between past, present and future, temporal leaps and intersections in order to describe certain thresholds in the universe and to find the depth of meaning. It also examines, the ways in which time is used artistically to develop plot, story, characterize characters, and create the atmosphere of a work.

2. The distinction between the plot, which refers to the arrangement of events in a narrative, and the story, which encompasses the events themselves, Ricœur analyzes how the temporal structure of a narrative is created through the interplay between plot and story.

In the context of mimesis, the temporal aspect refers to how a work conveys and structures temporal characteristics and events. A literary work is an organized artistic representation of the temporal order and development of events.

3. Configuration: The way in which events and actions are configured and organized in a narrative. Ricœur examines how narratives create temporal configurations that give meaning to events and actions.

Herewith, mimesis reflects the relationship between the time in the text and the time of the outside world.

4. Mimesis: The concept of representation or imitation. Ricœur explores how narratives imitate or represent temporal experience, and how they shape our understanding of time.

Ricoeur describes a third function of mimesis, related to temporal characteristics and narrative time, drawing on ideas drawn from Heidegger's hermeneutic phenomenology. He identifies the trait of action prehension, which is related to recognizing temporal structures that require narrative, arguing that “The understanding of action, in effect, is not limited to a familiarity with the conceptual network of action and with its symbolic mediations. It goes so far as to recognize in action temporal structures that call for narration. At this level the equation between narrative and time remains implicit.” (25, p 61)

Paying attention to the correlation between the conceptual categories of action and individual temporal dimensions, Ricoeur points out that any project deals with a particular future, different from mere anticipation or prediction, emphasizing the connection between motivation and the ability to mobilize experience in the present inherited from the past.

The philosopher considers the soft correlation between categories of action and temporal dimensions, which is an exchange between temporal structures found in actual action, drawing attention to the triple present, which includes the present of things future, past, and present. This triple present is related to the primordial temporal structure of action.

The author also draws attention to the importance of the relation of everyday reality that organizes the present future, the present past and the present, arguing that this reciprocal relation is the initial stimulus for narrative.

In his book, Ricoeur introduces the notion of intratemporality, which collides with the hierarchical form of time proposed by Heidegger.

“This hierarchical organization follows a downward order of derivation and one of decreasing authenticity at the same time. As is well known, Heidegger reserves the term temporality (*Zeitlichkeit*) for the most originary form and the most authentic experience of time, that is, the dialectic of coming to be, having been, and

making present. In this dialectic, time is entirely desubstantialized. The words “future,” “past,” and “present” disappear, and time itself figures as the exploded unity of the three temporal extases. This dialectic is the temporal constitution of Care.” (25, p 61)

Heidegger distinguishes between temporality (*Zeitlichkeit*) and historicity (*Geschichtlichkeit*), associating it with deviation and emphasizing the stretching of time between birth and death and the shift of emphasis from the future to the past.

Ricoeur argues that intratemporality, or being-“in”-time, is not reducible to a linear representation of time and that it requires time and measurement. But beyond this threshold of intratemporality there is the possibility of an existential reckoning of time, where Care is primary. And it defines the narrative.

5. The philosopher divides homogeneous and heterogeneous time: The contrast between time as a homogeneous, abstract concept and time experienced in a heterogeneous and lived way. Ricoeur explores how narratives reconcile or harmonize these various aspects of time.

Ricoeur describes mimesis-I as a pre-understanding of human action, its semantics, symbolism and temporality. The construction of intrigue and the mimetic nature of text and literature are based on this pre-understanding, which is common to writer and reader.

In the Literary work as a special form of representation of time and its meaning, creating temporal distance, authors can influence the reader's perception, create emotional subtexts and convey complex philosophical and cultural aspects.

6. Temporal distancing: The process by which narratives create temporal distance or perspective, allowing for reflection and interpretation of events. Ricoeur investigates how temporal distancing contributes to our understanding of time in narratives.

The concept of the 3 mimesis in Ricoeur's work includes the temporal aspect both within the literary work and in relation to reality itself, arguing that time plays an essential role in the creation and interpretation of literature, as well as in our perception and understanding of the world at large. By distinguishing chronological, retrospective, projective, mythological, and internal time in his work, Ricoeur explores how different conceptions of time influence narrative structure, plot and story, create effects of suspense and meaning, and investigates their roles in the interpretation of literary works.

If we make a comparative analysis between Ricoeur's poetics and the poetics of Bakhtin, primarily focusing on the interrelation between Ricoeur's theory of “three mimesis” and Bakhtin's concept of the “chronotope” From a methodological perspective, the concept of the chronotope, which encompasses the spatial and temporal organization of a literary work, proves to be more comprehensive than the concept of mimesis, which primarily concerns itself with the temporal aspect of both the literary work and reality itself.

Ricoeur argues that the emphasis on “polyphony”, characterized by the multitude of voices within Bakhtin's works, arising from the predominant attention to spatial organization, can jeopardize the integrity of the plot and transform the narrative, ultimately reducing any literary work to a simultaneous depiction of events.

On the other hand, Bakhtin's central concept of “dialogue” closely aligns with Ricoeur's key notion of the “event” within the overarching philosophy of narrative. This notion functions as a crucial narrative element, “transforming” characters and altering the course of action, thus constituting the essence of plot intrigue according to Ricoeur's interpretation.

Additionally, both Bakhtin and Ricoeur emphasize the significance of various forms of dialogue, including the dialogue between the author and the reader, which occupies a significant place in their respective works.

“While philosophical language and the categories it uses always aim at being founded on univocal concepts, as actually used language is always polysemic; it can have more than one meaning, more than one translation, so all uses of language necessarily call for interpretation.”

Whereas philosophical language and the categories it uses always aim to be based on unambiguous concepts, since the language actually used is always polysemous; it can have more than one meaning, more than one translation, so that any use of language is bound to require interpretation.

One of Ricœur's significant contributions to literary criticism is the integration of hermeneutical processes with phenomenology. In this fusion, Ricœur extends the hermeneutical task beyond textual analysis, incorporating the self's relation to anything external to itself.

“The purpose of all interpretation is to conquer a remoteness, a distance between the past cultural epoch to which the text belongs and the interpreter himself. By overcoming this distance, by making himself contemporary with the text, the exegete can appropriate its meaning to himself: foreign, he makes it familiar, that is, he makes it his own.”

In *Time and Narrative, Volume 1*, Ricœur posits the existence of a linguistic productive imagination that generates or regenerates meaning through the power of metaphoricity. Consequently, he perceives language as containing inherent resources that facilitate creative utilization, allowing for the expression of ideas in novel ways.

In his later work, this led to an increasing emphasis on living in time and history. He took up this insight through the philosophy of discourse that he developed on the basis of the increased emphasis on language in his philosophy. (25)

G rard Genette (1930 – 2018) was a theorist of French literature, author of works on memory and time in literature, one of the founders of modern narratology, the study of intertextuality and transtextuality, and built his own approach to poetics on the basis of structuralism. Gerard Genette played a fundamental role in the development of formal studies of literature. He laid the foundations for literary analysis by defining the key terms of narratological study, which aims to divide a work into three fundamental entities: story, narrative and mode of telling. In exploring the relationship between narrative and history, Genette proposes a new distinction between narrative and history “the problems of narrative in three categories:

- that of tense, “in which the relationship between the time of the story and the time of the discourse is expressed”;

- that of aspect, “or the way in which the story is perceived by the narrator”;

- that of mood, in other words, “the type of discourse used by the narrator.”

(12, p 29)

Taking a detailed look at the problem of temporality in literature he writes:

“The temporality of written narrative is to some extent conditional or instrumental; produced in time, like everything else, written narrative exists in space and as space, and the time needed for “consuming” it is the time needed for crossing or traversing it, like a road or a field. The narrative text, like every other text, has no other temporality than what it borrows, metonymically, from its own reading.” (12, p 34)

Drawing and reinterpreting for his interpretation from the Platonic categories of mimesis (perfect imitation) and diegesis (pure narrative), the Platonic categories of mimesis (perfect imitation) and diegesis (pure narrative), studying temporal aspects in literature he describes Diegesis (Diégèse) as a concept that includes the Chronotope we have described.

The transition from one diegesis to another, from one narrative level to another, from one fictional world to another, constitutes Metalepsis (Métalepse). There are several ways of moving from one spatio-temporal universe to another.

In *Narrative Discourse: An Essay in Method* (1980), Genette explores the ability of structure to control the style and genre of a work, using Proust's *A la recherche du temps perdu* as a test piece to identify and name the main components and methods of narrative. His systematic theory deals with methods of creating aesthetic reality and includes techniques known and invented by him that have not yet been tried in the Western narrative tradition "...we will study relations between the time of the story and the (pseudo-) time of the narrative according to what seem to me to be three essential determinations: onnections between the temporal order of succession of the events in the story and the pseudo-temporal order of their arrangement in the narrative...; onnections between the variable duration of these events or story sections and the pseudo-duration (in fact, length of text) of their telling in the narrative—connections, thus, of speed...; inally, connections of frequency, that is (to limit myself to an approxi‘mate formulation), relations between the repetitive capacities of the story and those of the narrative..."(1, p 35)

By examining text features such as narrative intrusions, retrospective shots and flash-forwards, pace, duration, and point of view, Genette describes some familiar aspects of Proustian discourse, such as the multiple visions in the novel, the importance of anachrony, the increasing discontinuity and increasing abruptness of

the narrative rhythm. He also identifies other aspects related to the temporal structure of the work and the conveyance of a sense of present and past time.

Genette pays particular attention to the protagonist's ability to perceive the continuity of his life, which is closely related to his preference for a repetitive narrative. He believes the realization of truth occurs through multiple anachronisms in the narrative.

In *Narrative Discourse: an essay on method*, Genette identified 5 concepts that explain the structure of narratives but not their interpretation:

1. Order - describes the chronology of events in a literary work, the relationship of the order of events to their actual chronological course. This concept helps to define the relationship between the form and content of a work and to understand anachronistic effects such as memories, flashbacks, and retrospectives.

“To study the temporal order of a narrative is to compare the order in which events or temporal sections are arranged in the narrative discourse with the order of succession these same events or temporal segments have in the story, to the extent that story order is explicitly indicated by the narrative itself or inferable from one or another indirect clue.” (124 p 35)

2. Frequency - refers to the repetition of events in the text of a work, the mentioning of a certain event. By separating event and narrative, Genette identifies several possibilities:

“Narrating once what happened once (singular).”

“Narrating n times what happened once (iterative).”

“Narrating one time what happened n times (repetitive).”

“Narrating n times what happened n times (multiple).” (11, p 114-116)

3. Duration – refers to the correspondence of the discourse time of a literary work to the duration of the events described. The distinction between an event and its narrative allows us to consider discourse time (the time described in the work)

and narrative time (the time spent describing the events). The duration can be different depending on the context.

“Narrative is a... doubly temporal sequence...: There time of the thing told and the time of the narrative (the time of the signified and the fitté of the signifier). This duality not only renders possible all the temporal distortions that are commonplace in narratives (three years of the hero’s life summed up in two sentences of a novel or in a few shots of a “frequentative” montage in film, etc.). More basically, it invites us to consider that one of the functions of narrative is to invent one time scheme in terms of another time scheme.” (1, p 35)

4. Voice – refers to the narrator from whom the text of a work is narrated. The narrator's voice determines the style and point of view of the narrative, influencing the reader's perception of the text.

5. Mood – refers to the emotional attitude of the author of the statement towards the addressee, i.e., the reader. The mood of a narrative can vary from neutral to emotionally colored, and it also affects the perception of the text.

The first three concepts deal with aspects of time in literature, being rather modes of presentation of the text. So the structuralist Genette created a schema to create a literary work. But it did not become comprehensive enough to become a template for literature. In analyzing literature, particularly Proust, Genette found some deviations from his own scheme, considering them to be Proust's mistakes.

“...at times we will have to correct, or try to correct, the effects of metonymic displacement; but we must first take that displacement for granted, since it forms part of the narrative game, and therefore accept literally the quasi fiction of Erzählzeit, this false time standing in for a true time and to be treated—with the combination of reservation and acquiescence that this involves—as a pseudo-time.” (12, p 35)

Genette shows that “structuralist” methods of analysis are applicable not only to simple and formulaic texts such as fairy tales or detectives, but also to the most complex and subtle novels, and proves that the “structuralist” grid, can be a useful tool and constitutes a marvelous heuristic for constructing a critical dissection of a literary work.

Ursula Heise (born 1960), a renowned German-American scholar of literature and environmental humanities and professor in the Department of English at the University of California, explores temporal aspects in works of fiction. In her work, she examines examples of literary works and other artistic forms, including novels, poetry, and films, that illustrate different strategies for representing temporal aspects that are transformed by both natural harmony and society.

In her book, *Chronoschisms: Time, Narrative, and Postmodernism*, Ursula Heise investigates the impact of technological advancements in communication, and information on the perception of time in Western societies. This shift in our understanding and experience of time has had a profound influence on the structure of novels. Heise proposes that postmodern novels are primarily concerned with the challenge of experiencing time in an era characterized by compressed temporal horizons.

Ursula Heise examines how changes in cultural conceptions of time manifest themselves in postmodern literature. She focuses on the organization of narrative in these novels, considering narrative as the literary genre most closely tied to and dependent on time and its flow. Heide observes that conceptions of time in culture are changing by the end of the 20th century, influencing traditional narrative models and the logic of constructing works. Digitalization and digital dependency leads to changes in the world and society around us. There is “...the shortening of temporal horizons in the late twentieth century, and public awareness, in Western societies, of the co-existence of radically different time scales, from the nanoseconds of the

computer to the billions of years in which cosmology calculates the age of the earth and the universe”. (1)

To support her argument, Heise draws upon theories from postmodernism and narratology. She demonstrates how postmodern narratives dismantle traditional plot structures, presenting a range of contradictory storylines. This fragmentation of narrative allows for the simultaneous existence of multiple temporal experiences, which in turn gives rise to novel conceptions of history and posthistory.

In the postmodern strategy of literature, what emerged was “the disintegration of narrator and character as recognizable and relatively stable entities, their dispersion or fragmentation into different temporal universes that can no longer be coordinated with each other or justified by reference to different psychological worlds”. (18)

In constructing a new narrative strategy, contemporary writers, remaining within the framework of postmodernism, often choose three tactical moves, two of which are related to aspects of time:

By examining various examples from postmodern literature, Heise offers fresh interpretations of postmodernist theory.

Using examples of novels by 20th-century American and European writers, Heide's book highlights the structural and narrative features of the use of literary strategies to reflect changes in conceptions of time and to create a postmodern aesthetic.

Part of the book, *Time Forks and Time Loops*, deals directly with literary methods and techniques that allow writers to transcend the boundaries between modernist and postmodernist poetics by breaking conventional time frames. 20th century literature utilizes postmodernist techniques, for example:

1. offering alternative readings where the reader can choose different sequences of chapters, leading to different interpretations and understandings of the

story; or, 2. foregrounding random fragments of text, radically destabilizing the basic components of the world depicted, achieving, in effect, modernist effects.

Heise also highlights the potential connections between these literary explorations of time and contemporary scientific approaches to temporality.

Heise distinguishes between diverse types of narrative that rely on different temporal concepts.

She emphasizes that in *Topology of Fiction* Alain Rob-Griliev experiments with repetition and recursion, turning time into a field of simultaneity subject to a static conception where past and future are indistinguishable.

Samuel Beckett, on the other hand, tends more toward a nihilistic conception in *How It Is*. The world of this novel seems devoid of history and development, and the narrative is characterized by fragmentation and discontinuity, which creates a sense of temporal disorientation and irreducibility.

By exploring the coexistence of diverse temporal experiences within postmodern narratives, she reveals how these narratives challenge conventional notions of time.

Examining Thomas Pynchon's *Gravity's Rainbow* in the Posthistory section, Heise explores the theme of the relationship between time and history, through the lens of individual experience and social experience. She explores the fantastic transformations of twentieth-century history, emphasizing the multi-dimensional temporality and causality of past and future events as various characters and events interweave into a complex network of time loops, creating a sense of non-linearity and parallel time flows.

These narratives embrace a spectrum of contradictory timelines, inviting readers to perceive time in new and unconventional ways.

This novel approach to temporality mirrors recent scientific approaches to the concept, providing an intriguing connection between literature and scientific thought.

By analyzing postmodern novels through the lenses of postmodernism and narratology, she unveils how these narratives deconstruct traditional plot structures and present conflicting storylines.

This multiplicity of temporal experiences leads to the emergence of innovative conceptions of history and posthistory. Moreover, Heise's work offers fresh insights into postmodernist theory and the intricate relationship between literature and science, ultimately encouraging a reevaluation of our perceptions of time.

The coexistence of these competing experiences of time allows new conceptions of history and post-history to emerge and opens possibilities for comparison with recent scholarly approaches to temporality. In the Ukrainian literary tradition, there is no single system created by any one prominent literary critic that all other scholars follow. Literary studies are a dynamic field where different researchers develop their approaches and concepts. Nevertheless, Ukrainian literary scholars have made a significant contribution to the study of time in literature and the development of their own concepts.

CONCLUSIONS TO CHAPTER I

Questions of the nature of Space and Time are fundamental aspects of both humanitarian and exact sciences, giving rise to endless reflections on the nature of the universe and the place of human beings in it. Over time, the thoughts of scientists, philosophers and theorists have evolved from abstract notions to more specific and scientifically based concepts.

Space and Time are dual components that define the structure of the universe. The understanding of these terms depends on context: from metaphysical reflections on infinity and finitude, to their absoluteness within theories of relativity. Past, present and future merge into an inextricable chain of time, and their understanding has been shaped through the interplay between philosophy and physics and has influenced many other sciences representing different fields of knowledge.

Elucidating spatio-temporal paradoxes, twentieth-century science revolutionized our understanding of time. Albert Einstein's theory of relativity redefined time and space coordinates, leading to conclusions that have become key to modern physics. The concepts of time and space ceased to be absolute and became relative, depending on the observer for its velocity and energy.

The twentieth and twenty-first centuries became a period of special interest in temporality in literature, where time ceased to be linear, giving way to complex nonlinear constructions. Literary scholars from different countries explore not only the philosophical depth, but also the architecture of the text, seeking to identify the unique artistic features of texts and their common characteristics to clearly define styles, trends, genres, types in the context of trends in world literature and cultural codes of different nations. Different theoretical schools of literary analysis (such as structuralism, poststructuralism, phenomenology, etc.) have created their own approaches and their own terminological language studying the forms of temporal organization of an artistic work. But while recognizing the importance of studying

time in literature, through the relationship of temporal elements to text and meaning, they acknowledge the dependence of the interpretation of temporal constructions on the cultural characteristics of national literatures.

Analyzing contemporary American literature, oriented towards the revival of traditional forms of narrative, such as the realistic or historical novel, literary scholars identify narrative strategies aimed at interacting with the reader and creating an identification with the characters or the author. At the same time, they note the heavy use of temporal constructions and plot devices, such as time compression, designed to maximize the emotional impact on the reader.

Studying time in American literature of the 21st century, literary criticism focuses on the human aspect, studying the emotional impact of literature on people, considering their psychological characteristics related to the perception of time in its various manifestations. This indicates the authors' aspiration to a deeper study of human essence and its interaction with time in its historical and contemporary literary context.

CHAPTER 2

ANALYSIS OF TEMPORAL CONCEPTS IN TWENTY-FIRST CENTURY AMERICAN LITERATURE

The literature of the 21st century does reflect modern scientific and philosophical ideas about time and integrates them with classical ideas. The authors utilize modern theories of physics. In addition, contemporary writers actively address philosophical questions about the nature of time, its relationship to human existence, memory, and identity. These themes can manifest themselves in a variety of genres, including science fiction, fantasy, drama, and even contemporary realism. Authors may experiment with a non-linear narrative structure, interweaving timelines and creating complex paradoxes. Authors may also use technological innovations such as virtual reality, artificial intelligence, or biotechnology to create new ways of interacting with time and present readers with unique experiences and perspectives. This allows authors to construct unique chronotopes and systems of time functioning in their novels. In this way, 21st century literature becomes a platform for creatively combining scientific and philosophical concepts about time with artistic imagination, resulting in innovative works.

The nonlinearity of time is most characteristic of science fiction literature, where authors experiment with traditional notions of time. There is a rather interesting observed pattern. Authors of hard science fiction, often scientifically and technically oriented, may use theories of physics, especially relativity and quantum mechanics, to construct their time systems. This may include concepts such as time loops, time paradoxes, etc. Such approaches give works of science fiction a scientific credibility, even if they use abstract or hypothetical aspects of physics. In the context of time, this can mean creating detailed systems of time that follow certain scientific principles. Examples include using relativity theory to explain time travel, creating

models of parallel universes based on quantum mechanics, or developing elaborate time systems where every change has a logical explanation.

On the other hand, authors of humanitarian fiction, more interested in human aspects and sociocultural issues, may turn to the philosophy or psychology of time. They may explore how the perception of time shapes human experience and affects society and the individual. Such works may place more emphasis on the emotional and moral aspects of time, rather than just its technical or physical characteristics.

2.1. Temporal Concepts in Blake Crouch's Novels

The careful thoughtfulness of the functioning of the time system in Blake Crouch's novels, in terms of the interaction of the composition and rhythm of the works with their philosophical depth, which raises existential questions of being, and their science-based theories of temporal anomalies, which raise a host of scientific-theoretical and emotional-moral questions, testify to their belonging to the solid science fiction.

2.1.1. Temporal Paradigm of the novel *Pines* by Blake Crouch

In *Pines*, although time is posited as a one-way, non-rotating flow, the novel counts many non-synchronous but parallel timelines that share a common vector of direction. In addition to the main line, which corresponds to the general flow of the world's time (which can be illustrated by a segment with on a ray originating at the origin of the universe and extending into the infinity of the future), most of the characters in the book have their own timelines interrupted and resumed at certain points in this segment. This echoes Hawking's idea of the “arrow of time”.

The distortion of timelines and asynchrony of timelines corresponds to the thermodynamic arrow of time. In a novel where different characters have their own timelines and experience non-synchronous events, perhaps we can see a reflection of the psychological arrow of time. Each character's perception of the past and future may differ depending on their individual timelines.

Since the dates of entry and exit of different characters from stasis are different, a distortion is formed that synchronizes initially asynchronous timelines or unsynchronizes synchronous ones. So the timeline of the heroine Beverly's consciousness, preserved in 1985, when she comes out of stasis in 3826 is

synchronized with the timeline of Ethan Brook, preserved in 2012 at the age of 36, and not 61 as it would happen in conditions of synchronization of all timelines with the main one (the world line). And on the contrary, the lines of the main character's wife and son, synchronized in 2012, are unsynchronized due to their non-simultaneous exit from stasis and synchronized again in 3827 with a distortion of five years. The aspects of synchronous and asynchronous timelines, and their effects on the characters, create interesting complexities in the structure of time in the work's world.

Moreover, characters' personal timelines can be divided into physical and conscious timelines. Although for some of the characters (such as, for example, Dr. David Pilman) these timelines are synchronous, for some of the characters the consciousness line stratifies, forming an additional timeline. The division into “physical” and “conscious” timelines adds another level of complexity to the already complex structure of time in the novel.

Thus, the line of consciousness of the main character Ethan Brook, presented in the novel, which in isolation from other plot lines is a straight, uninterrupted line, against the background of the main timeline represents two segments 1) from his birth to September 24, 2012 and 2) March 5, 3827 – the end of the novel. At the same time, the line of his body, in addition to the two aforementioned segments, will contain two additional segments corresponding to two previous exits from stasis, during which his physical shell accumulated experience, suffered injuries, developed muscle memory, and underwent aging processes. Each of these segments can be conditionally included in a separate “phantom” line of consciousness, containing the period from birth to September 24, 2012 and this segment, which is cut off after repeated immersion in stasis. Each repeated immersion resets the consciousness (but not the body) to the state as of September 24, 2012, starting, in fact, a new timeline of consciousness.

This confusing chronological system of the novel allows the author to portray time as a purely subjective phenomenon, conditioned by the internal perception of the characters without denying its nature as a physical constant of the universe, combining within this work, several physical and philosophical theories.

In *Pines*, time is a tool that is used by the characters, in this case, scientist David Pilcher. He creates a system where time becomes a tool to preserve and protect humanity from extinction in the face of mutations and monster-Abbie dominance. Interfering with the passage of time, such as freezing people for thousands of years, is a strategic manipulation of time in order to preserve the human race.

2.1.2. Temporal Paradigm of of the novel *Recursion* by Blake Crouch

In later books, the author builds an even more complex chronological system. Thus, in the novel *The Return*, he proposes a concept of time that implies, in addition to movement from the past to the future, the possibility of moving to certain points in the past. It follows that the direction of the world's time is no longer one-way stream for the characters and the reader.

Recursion is a science fiction novel by Blake Crouch, which plays on the principle of infinite repetition with a constant return to the original parameters, uses this way of zeroing out history to create time loops opened by the novel's characters with the help of a scientific invention that allows them to return to the past time after time in order to correct the situation and prevent the creation of technology that allows to reshape the events of reality in a new way. The term *Recursion* implies that some object can be part of itself, enclosed itself, like a mirror in which another reflected mirror creates corridors of mirror images going off into infinity. This classic example of recursion from physics opens up a vast expanse of possibilities for creating new worlds at any curvature of mirrors. In the novel, using a thrilling

adventure plot, Crouch reflects on the human brain's capacity to reflect in memory an infinite number of versions of a story, gradually distorted by any unaccounted-for influence.

But behind all this technological complexity lies the eternal question of the nature of time. Crouch offers a philosophical dialog about whether time is real, or whether our view of it is so illusory that it is more like a dream where every moment exists simultaneously.

The book offers a compelling fiction story and stimulates the reader to think about time, memory, and societal dynamics. The novel immerses the reader in a labyrinth of temporal transformations, where each new slice of reality, following the twists and turns of the plot, provides new questions and provokes a flow of reflection.

The protagonist, Detective Barry Sutton, investigates the suicide of a woman who hurled herself off a balcony, unable to bear the weight of the memory of the son and husband she never had. Barry finds the man from the dead woman's memories and learns that there is a way to undo the past. Drawn into the investigation he changes his life by saving his daughter, who died under the wheels of a car 11 years ago, which sets off a spiral of new misfortunes.

The protagonist faces moral dilemmas when his quest to save his dear ones leads to unexpected consequences. Reflecting on the lengths we are willing to go to change the past, it makes the reader think about the need to weigh the value of our smallest actions.

The investigation leads to neuroscientist Helena Smith, who started the chain of events described in the novel. She once received an interesting offer to lead the development of a memory chair. Her mother had Alzheimer's disease and was rapidly losing her memory. In an effort to help her and to bring victory to mankind over the incurable disease, Helena researches brain function in an attempt to learn

how to preserve memories. After agreeing to financially lucrative but tough conditions, the scientist continues her investigation under the guidance of a mysterious billionaire who can understand, appreciate and even anticipate the complex nuances of her research. Helena finds herself drawn into cruel experiments when she learns that she has created not medical equipment for studying memory, but a time travel device that not only controls the sequence of events, but makes changes in the world that lead to catastrophic consequences, not only for the psyche of people living parallel lives, but for the world as a whole. Despite advanced technology and intellectual achievements, a minor impact on the system always has large and unpredictable consequences. To take them all into account and cope with time management, mankind was not ready.

By raising such issues *Recursion* touches upon the theme of responsibility for the changes caused. Science, represented by mankind's educated part, breaks the established stereotypes of thinking, overthrowing outdated knowledge accepted as truth, without considering mankind's unwillingness to adapt to new discoveries. Crouch raises moral and ethical questions about how responsible we are for the results of scientific research, whether we can consider all their effects on the harmony of life, and how to deal with unexpected, negative consequences.

According to the plot of the novel, eleven years later, New York City is hit by a new epidemic, leading to a wave of suicides, due to memories suddenly entering the brains of the victims. This is no longer a *deja vu* effect, but a whole parallel universe that exists only in the heads of the unfortunate. The accumulation of new time loops creates a disease: false memory syndrome, which awakens in a person memory of what never happened or was destroyed along with the reality buried under the next time loop:

“But what really happens to those timelines? Have they truly been destroyed, or are they still out there somewhere, beyond our reach?”

To a certain extent, this echoes the popular “time loop” plot device, in which events are repeated or cyclical. The last chapter, in which the heroine is confronted with the need for systematic time travel to change the future is almost a textbook example of the use of such a device. Although technically the concept of the entire novel consists of time loops of varying lengths through which various characters pass.

Each action, according to Hugo Everett III's Theory of the Branching Universe, forms an alternate timeline. The formation of such a timeline requires two points of origin: the present moment from which the displacement is made and the past moment to which it is made. Each branched timeline becomes the main timeline for the time interval between these two points. However, it does not become a separate and unique universe. Outside of the interval between points of origin, the alternate timeline is layered on top of the original timeline. At the moment of layering, individuals whose timelines were not identical receive, in addition to the core set of memories corresponding to the actual, physically lived timeline, an additional set of equivalent “fake” or “dead” memories corresponding to the original, no longer relevant timeline.

“When he tries to look these alternate memories squarely in the eye, he finds that they carry a different feel from any memory he’s ever known. They're lifeless and static, draped in hues of black and gray, just as Ann Voss Peters described.” (8, p 48)

““Every time Reed dies in the tank, he orphans a string of memories that become dead in our minds after we shift. But what really happens to those timelines? Have they truly been destroyed, or are they still out there somewhere, beyond our reach?” Slade looks at his watch again. “I remember everything from the experiment we did this morning, and the two of you will gain those dead memories any second now.”” (8, p 104)

The concept of the origin of a new reality after each displacement in time can be used to avoid retrocausality or causal paradoxes such as the "grandfather paradox". Assuming that each relocation creates a new reality or branch of time, changes made in the past will not affect the original events in other timelines. This approach is consistent with the idea of multiple worlds in quantum mechanics, where each solution to the equations of quantum mechanics can correspond to its own branch of reality. Thus, instead of changing the current reality, traveling back in time creates a new branch where changes occur but do not affect the original events.

In this concept, it does not make sense to separately identify the physical body line of any of the characters, since they all coincide with the world line. However, characters have more than one personal line of consciousness.

The author experiments with several common themes of the science fiction genre and interacts with them to create his unique concept of time. There are elements in this passage that can be associated with several science fiction tropes:

1. Moving consciousness through time. This motif emphasizes the possibility of redefining time and changing the usual perception of causality.

2. The concept that our perception of time is shaped by evolution.

3. The connection to quantum physics.

4. The author combines the concepts of time, memory and reality, making memory a key element linking human consciousness to the past, present and future.

Reflecting on the properties of time and its perception Blake Crouch considers the reality of time, its nature, and the possibility of the simultaneous existence of different time periods and parallel temporal realities:

““You really believe time is an illusion?”

“More like our perception of it is so flawed that it may as well be an illusion. Every moment is equally real and happening now, but the nature of our consciousness only gives us access to one slice at a time. Think of our life like a

book. Each page a distinct moment. But in the same way we read a book, we can only perceive one moment, one page, at a time. Our flawed perception shuts off access to all the others. Until now.”” (8, p 94)

The transition from a limited perception of time to the idea of an expansive perspective can lead to an understanding of how different timelines influence each other. Their connection and interdependence complicates the systems of such a world, the natural harmony of which appears chaotic to the untrained mind.

Our world is a complex chaotic system. Perhaps someday, an artificial intelligence so powerful that it will consider all minor influences that change deterministic-chaotic systems will be created. Perhaps a super-advanced man of the future will be able to consider all the variations that make up Henri Poincaré's Chaos Theory, which will occur at a given time and place, considering the errors and uncertainty that increase exponentially with the passage of time. The idea of combining different timelines in the heads of some people and entire groups receiving flashbacks of different versions of their lives is a technically challenging task, for a fictional story. After all, each new loop leads to a bifurcation (multiplication) of the personality of the participants in the events. The intersection and collision of their lines changes the personalities, affecting those around them and the further course of events, creating the Butterfly Effect described by Edward Lorenz, which leads to large and unpredictable consequences, including those beyond the attention of the author, the reader, and the characters of the work: a butterfly flapping its wings in Iowa can cause an avalanche of effects that can reach their highest point in the rainy season in Indonesia.

But literature asks questions that do not imply unambiguous answers. Human society, subject to mass hysteria, psychosis, and panic, is a maximally unpredictable system, subject to propaganda and political influence, driven by the ideas of leaders or the emotions of individuals, can react like an ocean to a minor shock.

Blake Crouch's book creates an atmosphere of growing uncontrollable social chaos, within which informed and discouraged, intelligent but not yet super-smart people, subject to their fears, passions, and mental disorders, struggle against it. Overcoming their domestic difficulties, family spats, and expanding their scientific knowledge and life experience, protagonists Barry and Heleen are forced time after time to correct mistakes, considering the slightest influences not previously considered, in order to keep the world as it was before the crude introduction of the scientific discovery that controls memory.

Human life seems to be a set of random events that lead us to the point where we are. The heroes of the novel constantly find themselves at such junctions: Barry saves her daughter, but on a certain day she and everyone around her remembers that the girl had died in a car accident when she was still a teenager. This disrupts the mental balance of all the participants in the events, leading to external and internal conflicts that affect the plot and atmosphere of the work and leads to a new turbulence of time that destroys order and stability.

Contemporary person is not able to accept the logic of existence of concurrent reality, its existence contradicts life experience and even knowledge gained in the form of insight, in the form of sudden memories do not fit into a coherent system of his world leading to mental deviations.

“Our ancestors lived in the oceans. Because of how light travels through water versus air, their sensory volume—the region in which they could scan for prey—was limited to their motor volume—the region they could actually reach and interact with. What do you think the result of that might be?”

Sensory volume limitations affect the perception and interaction of individuals. Our own limitations of perception and interaction are also the result of evolution, and humans may not be aware of all aspects of reality. There may be an

invisible world around us, just as the world outside their sensory volume was invisible to our ancestors.

Looking at the world outside the standard familiar framework can be a challenge to our established ideas about cause and effect and the order of things. Crouch considers the extent to which our consciousness is enclosed within the familiar and how it responds to new, unusual ideas. The world around us shapes human consciousness. Perceptions of reality are the result of interactions with the world around us. Human consciousness is like a tree whose roots are nourished by the power of sensations transmitted by the senses.

The perception of reality depends on the intellectual capacity of the individual and is limited by the physical aspects and biological features of the senses. Perceptual limitations provide a framework for our perceptions of reality based on available information, hence there are aspects of reality that remain beyond our perception due to the limitations of our senses.

“We’re just as blinkered as our water-dwelling ancestors, the boundaries of our brains just as much an accident of evolution. And like them, by definition, we can’t see what we’re missing. Or . . . we couldn’t, until now.” (8, p 94)

Extended perception could change our understanding of time. By accepting and comprehending new inputs that contradict our usual logic, we will get a three-dimensional view of space-time, where each moment can be considered independently of the sequence. Such a conception challenges our usual scheme based on the linear nature of time and the usual ways of measuring it. The possibility of experiencing events in any order and reliving memories raises questions about our perception of time, causal relationships, and freedom of choice based on our own experience.

““... To a two-dimensional being, traveling along a third dimension wouldn’t just be impossible, it’d be something they couldn’t conceive of. Just as our brains

fail us here. Imagine if you could see the world through the eyes of more advanced beings—in four dimensions. You could experience events in your life in any order. Relive any memory you want.”

“But that’s . . . it’s . . . ridiculous. And it breaks cause and effect.”” (8, p 94)

Man cannot imagine what he is not able to perceive and understand. But memory, by preserving knowledge, forms a system that seeks to preserve and explain by available symbols the meanings of perceptions and representations. Thanks to the properties of memory, human consciousness is not limited to the present, but utilizes past experience.

“Because memory . . . is everything. Physically speaking, a memory is nothing but a specific combination of neurons firing together—a symphony of neural activity. But in actuality, it’s the filter between us and reality. You think you’re tasting this wine, hearing the words I’m saying, in the present, but there’s no such thing. The neural impulses from your taste buds and your ears get transmitted to your brain, which processes them and dumps them into working memory—so by the time you know you’re experiencing something, it’s already in the past. Already a memory.” (8, p 41)

Memory, being a complex of cognitive abilities and higher mental functions, has no physical essence. Not being a material object, it pulsates in the human brain as an energy flow, storing memories in neurons and their interactions, creating patterns in our consciousness.

“Just what your brain does to interpret a simple stimulus like that is incredible. The visual and auditory information arrive at your eyes and ears at different speeds, and then are processed by your brain at different speeds. Your brain waits for the slowest bit of stimulus to be processed, then reorders the neural inputs correctly, and lets you experience them together, as a simultaneous event—about half a second after what actually happened. We think we’re perceiving the world directly and

immediately, but everything we experience is this carefully edited, tape-delayed reconstruction.” (8, p 41)

Memory plays an important role in shaping personality by influencing various aspects of a person's life. It helps to retain information about events, which can include both positive and negative experiences. Experiences shape perceptions of the world, self and other people, which ultimately influences the formation of a person's character and values. Memory helps a person realize their individuality and uniqueness. Personal memories associated with childhood, family, friends, and past accomplishments play a role in shaping self-identity. Memory preserves emotional memories that form the emotional background of an individual. Traumatic events can leave a mark on memory, influencing a person's emotional state and future behavior. Memory creates a portrait of a personality where every tiny detail is a time imprint lined with emotions. Memory provides access to past experiences, which helps a person make decisions and plan for the future. Knowing what has worked well in the past and what hasn't can influence strategies and choices in the present. Past experiences help a person learn, develop, and adapt to the environment. Memory allows a person to accumulate knowledge that becomes the foundation of their personality, preserving thoughts, feelings, and sensations until the brain loses its functional abilities. Memory, penetrates every corner of human consciousness. It is not a material object, but its ephemeral nature fills our lives with shadows of the past. We write our knowledge into our history, which we weave into the growing volume of scientific knowledge, creating the history of our contemporary society, which is woven into the history of mankind.

Thus, in a tangled tangle of multiple human personalities, memory becomes a miracle that sustains and nourishes consciousness, turning each moment into a priceless artifact that creates an eternal dialog between past and present. But can memory change previous history? Minor influences cause memory to snatch

different moments from an event, sending them from short-term to long-term memory. Under different circumstances, in different emotional states, depending on subsequent events, we can retain different memories of the same fact. By compiling a logical chain, the brain connects unrelated things, creating new synaptic connections between existing neurons in the nervous system, generating new memories of sometimes nonexistent events. Because of this, each participant has a different memory of the same fact. History doesn't change, only the point of view on it changes. But the new point of view changes the memories, influencing the further formation of the individual and changing her further history and, consequently, the histories of all the individuals connected to her, changing the history of the society. A society needs its memory to thrive. This memory is a source of inspiration, wisdom and strength. It helps society to evolve, to avoid the mistakes of the past and to build bridges to new horizons. Memory is a living archive that serves not only as a repository but also as a source of energy for building a shared future. When we open the pages of the past, we immerse ourselves in our history, relive moments of joy and pain, see ourselves in the mirror of the past. The past is not a static work of art, but a living creation, constantly enriched with new pages composed by the focus of human memory. Our knowledge of the past is colored by our understanding and carries the traits of our personality. Memory is the main time machine that allows a person to go to the past at any convenient or unexpected moment:

“Time is an illusion, a construct made out of human memory. There’s no such thing as the past, the present? or the future. It's all happening now.” (8, p 90)

Memory turns each person into an artist who creates his or her own past. The complex symphony of the past combines with the notes of the present to create the harmony of an individual's life. Generation after generation, society accumulates the memory of individuals, creating its own history, including not only glorious

moments but also the experience of defeat, turning them into the foundation of the present.

“... That gets at another illusion. The paradox of the specious present. What we think of as the ‘present’ isn’t actually a moment. It’s a stretch of recent time — an arbitrary one. The last two or three seconds, usually. But dump a load of adrenaline into your system, get the amygdala to rev up, and you create that hyper-vivid memory, where time seems to slow down, or stop entirely. If you change the way your brain processes an event, you change the duration of the ‘now.’ You actually change the point at which the present becomes the past. It’s yet another way that the concept of the present is just an illusion, made out of memories and constructed by our brain.” (8, p 41)

The essence of the novel is not only to delve into the technical nuances of time loops, but also to find answers to eternal questions: what happens to the past, and whether time is really an illusion. This work offers the reader not only a compelling plot, but also deep insights into the nature of consciousness and time.

An important theme of the novel is the physical aspect of time. The possibility of going back in time and changing events raises questions about the ways in which time is measured, its immateriality, and the dependence of its linearity on perception.

Despite having an elaborate system of time and conscious references to the theories of modern physics about the nature of time and space, the author promotes the idea that games with time and memory are very dangerous and can lead the world to a catastrophe that is difficult to foresee, calculate and prevent.

Under the careful gaze of the reader, Blake Crouch's *Recursion* will turn from a science fiction novel into a kind of philosophical expedition into the multilayered world of human memory, which conflicts with human consciousness and free will, randomly storing memories that do not please a person.

The problems raised in the novel shed light on moral, ethical and philosophical aspects related to the possibility of changing the past and controlling one's own memories. One of the central themes is the price we are willing to pay for the opportunity to change our past. The novel forces us to reflect on how one perceives and stores one's memories, and how these memories shape one's view of oneself and the world.

Recursion by Blake Crouch leaves a deep intellectual impression, provoking reflection on fundamental questions rooted in human nature, exploring the interdependence of man and the physical, philosophical and psychological aspects of time. The author tackles complex scientific topics, providing the reader with material for reflection and discussion. Crouch skillfully weaves together ideas about multidimensionality, space, and time, sparking reader interest that extends far beyond the fiction.

Creating a compelling plot, Crouch traces the complex psychological transformations occurring to the novel's characters, producing a significant emotional effect on the reader. Questions about memory management, crossing time lines, and influencing the collective consciousness introduce intrigue and immerse the reader in a world of complex moral choices. *Recursion* touches on themes of loss, guilt, responsibility, and sacrifice, conveying emotional tension to the reader, heightening interest in the novel and the issues raised. The possibility of changing the past and influencing the future of the characters suggested in the novel's rapidly unfolding plot creates excitement and thrill, while the possibility of intervening in the course of events creates complex ethical dilemmas. The reader is confronted with questions about the meaning and value of memories, what makes us who we are, and how our decisions affect our own selves.

Blake Crouch's novel, is a multifaceted literary experience that not only engages the reader with a compelling plot, but also invites the reader to a level of deep reflection, leaving a mark not only in the mind but also in the soul after reading.

2.2. Temporal Concepts in Ted Chiang's Stories

Another author of solid 21st century fiction who frequently addresses the theme of time is Ted Chan. His short stories and novels are often characterized by deep scientific and philosophical aspects, including in the area of time and space.

2.2.1. Temporal Paradigm of the novel *The Story of Your Life* by Ted Chiang

The book *The Story of Your Life* tells about a woman scientist who, as a linguist, studies the language of aliens who came to Earth and, getting acquainted with their picture of the world, based on physical laws not peculiar to our system, changes her perception of reality, the author uses to study the theme of time not only theories of physics and philosophy, but also the linguistic theory of Sepir-Whorf, which believes that language affects the worldview and way of thinking of its speakers.

In the alien time paradigm, time does not flow sequentially, but simultaneously, that is, everything exists simultaneously. The protagonist, a linguist, studies the alien language, and her interaction with that language begins to change her own perception of time and events. This creates a unique dynamic where language becomes not just a means of communication, but a form of influence on the understanding of fundamental aspects of reality, such as time. Human beings, in an effort to embrace the vastness of the world, destroy the cozy world, but the thirst for knowledge and understanding pushes people to transcend the boundaries of their universe, their knowledge and capabilities.

The non-linear perception of time in the novel is reinforced by its non-linear structure, in which the fragments of the heroine's life are not displayed in chronological order. Such structural solutions can cause the reader to feel

desynchronized and then gradually restore order, allowing for a better understanding of the character's inner world. It can also effectively convey the idea that the character's experience involves non-linear aspects of time.

Similarities in concept of time and structure between Ted Chiang's *Story of Your Life* and Kurt Vonnegut's *Slaughterhouse-Five* can be noticed. In both cases, the temporal structure is directly related to the characters' inner perceptions. Ted Chiang's book is more closely related to science fiction and philosophical aspects than Kurt Vonnegut's *Slaughterhouse-Five*. In Kurt Vonnegut's *Slaughterhouse-Five*, the concept of time implicates the psychological instability of the protagonist, Billy Pilgrim. In this work, the time jumps experienced by the hero defy strict scientific explanation and can be seen as a manifestation of psychological stress. Unlike Ted Chiang's *Story of Your Life*, where the temporal concept is more prescribed. *The Story of Your Life* gravitates more towards science fiction and attempts to conceptualize the time system in terms of solid science.

In the work, the author can combine relativistic conceptions of time, which have a scientific basis, with a more philosophical and even metaphysical approach. On the other hand, he still considers the possibility of perceiving time from a point of view unprecedented and inaccessible to modern science. The possibility of perceiving time as a single moment does not affect its parameters as a physical phenomenon, does not contradict scientific ideas about time, such as relativity and irreversibility of processes, including the death of the protagonist's daughter.

2.2.2. Temporal Paradigm of the story *The Merchant and the Alchemist's Gate* by Ted Chiang

Ted Chiang's story *The Merchant and the Alchemist's Gate* is a fabulously stylized fantasy story inspired by the atmosphere of *One Thousand and One Nights*.

In the heart of the city of Baghdad lived a merchant, the inventor of the Time Gate. By passing through this gate, a person could be twenty years ahead of time or go back in time. Here are three fascinating stories of what time travel can lead to. One of the travelers succeeded, another remained poor, and the third ended up a pauper.

The story continues his theme of exploring time. The author, through his works, is clearly interested in the non-linear aspects of time and its effect on the human experience. Here, the author considers not only perception, but also the possibility of physical travel. Ted Chiang presents the Gate as a mystical construct capable of moving people through time. This Gate has two entrances, one leading to the past and the other to the future. What makes the Gate special is its effect on space and time, making it seem as if the past and the future exist simultaneously. This interesting combination of mysticism and science fiction provides the author with an opportunity to explore the philosophical and ethical aspects of time and the fate of the characters. The Gate creates certain constraints that prevent possible temporal paradoxes. For example, it is impossible to physically enter the Gate and change the past without time resolution. The Gate is thus a kind of mechanism that preserves the logic of time lines and prevents possible anomalies. However, the idea of time travel often entails philosophical and scientific dilemmas, including paradoxes. Although the past appears unchanging, interacting with it can bring unexpected results or discoveries. By traveling to the past, one can more deeply understand one's experiences and shed light on the events that shaped one's present. In this case, the author offers the idea that change may not occur in the past itself, but in a person's perception and understanding of the past.

Using the Time Gate does not give complete control over fate, but rather provides the opportunity to choose a shorter or more efficient path, but fate itself remains unchanged. It raises the question of the extent to which a person can

influence their life through such opportunities, and warns against the illusion of total control or alteration of a predetermined path.

The conspicuous invisible obstacle and the stillness of the lamp's flame indicate restrictions on access to certain moments in the past. It is also emphasized that the Gate has its own order and rules, and while it is possible to look into the past, physical influence over it is limited. Such elements create additional complexity and mystery around the use of this Gate.

The idea of time travel in Ted Chiang's story of *The Merchant and the Alchemist's Gate* entails philosophical and scientific dilemmas, including possible paradoxes. For example, the ontological paradox, which manifests itself in the existence of information, such as knowledge of the place where the treasure had been hidden.

2.2.3. Temporal Paradigm of the short story *What to Expect from Us* by Ted Chiang

It is interesting how the author develops his ideas about time in subsequent works. A concept close to the one presented in *The Story of Your Life* is also presented in the author's later work, the short story *What to Expect from Us*. The main idea of the short story is intertemporal communication, specifically the possibility of receiving signals or messages from the future.

This work is an interesting dialog about free will and the impact of “Predictor” technology on people's consciousness. The author raises questions about whether choices can truly be made or whether all actions are predetermined. The impact of technology on human behavior and consciousness is examined, weaving mystical and scientific aspects into the reasoning.

The story imitates the style of essays aimed at parsing a device that predicts the future seconds before it happens. The author uses genre elements of a scientific article to support his concept of time. This also creates a distinctive narrative style and may allow the reader to delve deeper into the aspects of time, including their impact on the past and future.

The interconnectedness of time becomes an occasion to not only question the validity of the modern understanding of time by suggesting that future events affect past events as much as those that have already happened affect what is about to happen. This relationship forces the author, the narrator, and the reader to think about free will in a context where future events and actions are already predetermined. The story raises difficult questions about free will and predestination by drawing attention to the impact of predictor technology on human behavior. The author presents the idea that despite the illusion of free will, the real impact of technology can make choices actually predetermined. In this context, the question is raised as to how much freedom a person has in making decisions, especially when the future seems to be already “coded”. The author presents a dilemma: on the one hand, he calls for pretending that people have freedom of choice, even if it is an illusion; on the other hand, he realizes that freedom of choice may be limited by the impact of technology. Thus, an atmosphere of uncertainty and paradox is created on the issue of free will.

The story raises the issue of akinetic dumbness as a consequence of exposure to the Predictor technology. People who realize that the future may have already been determined may lose motivation to act, experiencing akinetic dumbness, a condition where one sees no meaning in moving or doing things. This realization of limited free will can affect the psyche, causing feelings of helplessness and loss of control.

Most of Ted Chiang's works share a common concept of time, a static concept in which each of the moments in time occur simultaneously.

2.3. Temporal Concepts in Audrey Niffenegger's novels

Audrey Niffenegger's works gravitate more toward humanitarian fiction on the edge of fantasy. Her fantastical elements are usually not rigid or strictly scientific. The plot develops around the possibility of time travel, but the emphasis is on the narrative and the impact of these events on human destinies. The author skillfully incorporates fantastical elements into everyday scenarios, making her novels close to the human experience.

2.3.1. Temporal paradigm of the novel *The Time Traveler's Wife* by Audrey Niffenegger

Audrey Niffenegger's novel, *The Time Traveler's Wife*, intricately weaves the unconventional love story of Clare and Henry within the fabric of a space-time continuum governed by a static theory of time. This theory posits that all events—past, present, and future—exist concurrently.

Within the temporal framework crafted by the author of the novel, Henry's experiences unfold in a spontaneous order for him, while Clare encounters them sequentially. This distinctive conceptual approach, present in Niffenegger's debut novel from 2003, transcends the conventional boundaries of a typical romance, drawing it closer to the realm of science fiction. By embracing the classical physics tenet that time is a seamless and inherent aspect of the world, the author engages in philosophical exploration. The focal point is the impact of individual personality on one's subjectively perceived temporal trajectory, prompting readers to ponder whether time is an objective absolute or merely a relative coordinate, contingent upon human consciousness.

The novel unfolds through encounters between its main characters at various stages of their lives—ranging from Clare's early years at 6 to her elderly age at 82,

and Henry's experiences from 28 to 43. These meetings occur within a temporal framework that both separates and binds them. As the narrative progresses, we witness the development of Clare's character, shaped significantly by her interactions with the adult Henry who traverses time from the future to connect with her. A cultivated and intelligent man, grappling with emotional upheavals, is unexpectedly thrust into the past. In these moments of turmoil, he discovers solace and happiness in the companionship of a young girl who will eventually become his wife. These encounters serve as a crucible for his character, each event, thought, and impression acting as building blocks shaping the intricate mosaic of his personality. The memories forged during these intertemporal meetings become indelible life experiences etched into his consciousness.

The novel employs a non-linear narrative, intricately woven with the concept of temporal transfers, giving rise to multiple non-parallel timelines. There's Clare's timeline, often regarded as the line of reality, adhering to the commonly known dynamic concept of time where the past is concluded, and the future is yet to unfold. Simultaneously, there's Henry's timeline and the timeline of their future daughter, both of whom, as time travelers, experience transfers that immerse them in diverse and emotionally significant periods of their lives. So the average person, travels into his or her past by immersing that retain certain life episodes vividly and unaltered, while simultaneously undergoing modifications that offer a nuanced development and a fresh perspective. This transformative experience allows for a dynamic reevaluation of personal history, shedding new light on familiar moments from an altered vantage point. time travel, in this context, becomes a lens through which one can reexamine and reinterpret their life experiences.

None of the characters' stories unfolds in chronological order within the narrative. The novel initiates with the first encounter of the future lovers, narrated in the present tense within the confines of a city library. As the reader delves into the

story, it becomes apparent that they have already met in that time Clare's present but Henry's past to which he was transferred from a future that that he had yet to live up to.

The narrative unfolds through monologues delivered by the main characters, each recounting events from their own distinct perspective. Alternating between his and her chapters, these monologues are distinctly marked with specific dates and the corresponding ages of the characters. This narrative structure, resembling a diary, exhibits uncomplicated meticulousness in describing events, providing readers with intimate insights into the characters' thoughts and experiences across different ages and moments in time. Probably the same one that Clare started as a child, recording all meetings with Henry and then brought on the first date to prove the fact of their meetings, and from which Henry learned the dates of their rendezvous, to inform Clare in the past, so that she wrote them in a diary and they did not lose each other in the time. The presence of this bootstrap paradox, also known as an ontological paradox, prompts contemplation on the primacy of events, and about the possibility of a record of these dates. If Henry found them out from Claire's records, and Claire recorded them based on Henry's words, then the recorded data that embodies the information seemingly devoid of any original discovery, rendering the conventional fixation of this information on any medium—be it paper or memory—seemingly impossible. However, the novel's temporal structure creates a framework where such paradoxical existence becomes possible, challenging traditional notions of knowledge acquisition and temporal causality.

By time traveling, Henry returns to his past, which he cannot change. Therefore, many times forced to experience the death of his mother in an accident, he was powerless to prevent it, but he was able interact with a younger version of himself. After all, in alignment with the temporal paradigm of the novel, the concept is established that the past remains unalterable: “The choices we’re working with

here are a block universe, where past, present and future all coexist simultaneously and everything has already happened,” (21, p 55) explains Henry.

In the novel, the coexistence of determinism and free will creates a nuanced narrative where the impossibility of altering the timeline coexists with the concept of personal agency. The tension between these two ideas gives rise to a predestination paradox. A compelling example of this paradox unfolds when Clare, aiming to sidestep a predetermined fate, exercises her free will. In a deliberate act of independence, she selects a new home based on her own preferences, diverging from a reliance on her husband's knowledge of the future. “Knowing the future is different from being told what I like” (21, p 54) and eventually she comes to a predetermined result. Philosophy calls this phenomenon the “illusion of free will.”

Having met Clare in the past, Henry showed his free will, influencing her development, just as the matured Clare influenced the formation of Henry's character. So his decision became a link in a closed chain that cannot be broken, due to the fact that each of its elements, being a voluntary decision, is also a fixed fact.

At the same time, despite the opportunity for accurate information coming from the future, due to its fractured nature, life in the world of the novel constitutes a “...chaos, where anything can happen and nothing can be predicted because we can't know all the variables” (21, p 55). The time travel experienced by the characters in the novel serves as a poignant metaphor for the human journey through life. In essence, every individual undergoes a continuous voyage through time, from the moment of birth to the inevitable destination of death. “We are all time travelers in our minds, if not in our bodies.” (21) Furthermore, the concept of memory acts as a temporal mechanism in our lives, intermittently transporting us back to the past or resurrecting past experiences in our present consciousness. With the cards of our past in hand making a free choice in the present, we create the future: “The future depends on what goal we can extract from the present.” (21)

Communication between two people gave rise to their love, which subsequently overcame time and produced something more real than the illusory nature of love – a common child. Perhaps it is the mutual understanding and interpenetration of the spouses who create a common future that weaves their memories into a common story, allowing Henry to move not only through his own life, but also through Clare's one.

In such a way, while the temporal paradigm of the novel may appear paradoxical and seemingly unsupported from a purely physical standpoint, it constitutes a well-thought-out system. This system adeptly accommodates numerous seemingly incompatible philosophical and physical theories regarding the functioning of time. The narrative constructs a coherent framework that, while challenging conventional notions, offers a logical and internally consistent structure to explore the complex interplay of time, consciousness, and human experience.

Interestingly, the author's next novel was the ghost story *Her Fearful Symmetry*. Researcher Barbara Bronlow wrote that traditional ghost stories are essentially an early form of time travel, as they depict living people of the present interacting with the dead – people of the past. The idea of time travel is usually associated with traveling between different time points, but ghost stories provide a different kind of temporal interaction. In them, living characters encounter past events through spirit or ghostly forms. Thus in the novel *Her Fearful Symmetry*, Audrey Niffenegger continues his theme of time by exploring aspects of it through the lens of the supernatural. But the single, basic timeline remains linear in doing so. The author addresses the idea that even within the linear passage of time, past and present are intertwined in a special way.

2.5. Time loop Concept in *Before I Fall* by Lauren Oliver

The time loop is an extremely popular trope in literature. The most famous example of the use of the time loop theme that set the trend for its use was the movie *Groundhog Day*. Its title became a household name and is used to describe situations where events seem to repeat themselves or where a person finds themselves in a cyclical, stuck time. Many subsequent authors have used *Groundhog Day* as inspiration, creating their own versions and interpretations of the theme. The concept of the “time loop” is sometimes explained scientifically, but in most cases it incorporates mythical or metaphysical elements. . Such interpretations usually serve broader purposes, such as exploring human nature, the meaning of life, accepting fate, or changing the future.

In many works that utilize the “time loop” plot device, time is seen as subjective and changeable, dependent on the perception of a person or living being. A character whose perception of time is desynchronized with the perception of those around them is given the ability to manipulate the time stream. If a character can perceive time differently than those around them, it gives them the ability to foresee events. A character who is desynchronized in their perception of time can experience events several times before they happen for others. This could also be an exploration of psychological aspects.

In modern American literature, the novel *Before I Fall* by Lauren Oliver uses this device. After the accident, the protagonist wakes up in the same day over and over again, reliving the consequences of her past actions over and over again. The entire story centers on Sam's last day and her death in a car accident. The main character finds herself in a cyclical situation where she experiences the same day over and over again. This motif allows the author to explore not only the impact of

past actions on the present, but also introduces elements of learning, self-discovery, and change through repetition.

The novel is positioned as chronofiction, but based on the assumption that there are no real time warps in the novel, but only the dying girl's thoughts about how things might have happened if she had spent the day differently the novel has more of a philosophical and metaphorical character rather than overt science fiction elements. There is an element of a time loop in the novel, but it remains unclear whether it is real or only in the heroine's imagination. The author leaves the question of the reality of the time loop open to interpretation. This approach gives freedom to different interpretations and interpretations.

One of the possible interpretations could be in purgatory, an intermediate state between the world of the living and the dead where the soul undergoes certain tests or purification. In such a context, the time loop could be a form of test or an opportunity for the heroine to reconsider her life and make a conscious choice.

The idea of a looped section of time in a postmortem state, whether it be purgatory, hell, or heaven, is found in various works. The graphic novels *Lucifer* by Neil Gaiman and *Preacher* by Garth Ennis explore the theme of time in the context of hell, presenting it as a looped section where the sinner relives his worst moments over and over again. The series *Supernatural* weaves into its plot the image of heaven as a place where a person experiences the best moments of his life.

Assuming the chronofiction element in the novel, the trigger for the heroine's time warp was either an emotional shock (which is similar to the concepts of Rodney and *The Time Traveler's Wife*) or a conscious decision to return to a certain moment in her life and change the outcome of events. In both cases, the heroine herself is a manipulator of time, consciously or unconsciously passing it through her consciousness.

2.5.1. Accidental travel to the past as a separate category of chronofiction

The fantastic subgenre of accidental travel revolves around a displaced person or people who are transported to and have to survive in another world. Curiously, the already mentioned novel *Pines* can be put into the same category. But unlike Crouch's novel, *What the Wind Knows* immerses the character and the reader not into the world of the future, but into the past. This plot device is quite widespread in contemporary American literature, which allows us to distinguish the accidental travel to the past as a separate category of chronofiction. For the works of this category the ontology of time as a physical and philosophical phenomenon is not the main focus of attention. The violation of the linearity of chronology becomes more of a plot device, necessary to start a chain of events, but not in the focus of attention in itself. Consequently, the works in this category belong mainly to the humanitarian fiction or fantasy.

Modern authors use this plot device as a way to reflect on important and often ambiguous moments in history. Transporting characters into the past allows authors to examine historic eras through the perspective of contemporary people, raising questions about values, mores, and sociocultural aspects. This technique also allows readers to gain a better understanding of their own place in history and reflect on how they would have acted in similar situations.

In novels such as *What the Wind Knows*, *Outlander*, and *Kindred*, it creates an opportunity to immerse the reader in different historical contexts and eras. These works utilize temporal transitions to provide readers with a unique perspective on key events and challenges faced by societies in different periods. *What the Wind Knows* examines Ireland's struggle for independence, *Outlander* explores the events of World War II, and *Kindred* transports readers to the slave era in Maryland. Each work serves as a kind of chronicle of historical events.

2.5.1. Temporal paradigm of the novel *What the Wind Knows* by Amy Harmon

Amy Harmon's novel *What the Wind Knows* delves into the intricate relationship between time, history, and individual self-awareness.

The novel *What the Wind Knows* is about time as a unit of measurement and a physical quantity that has a mystical ability not only to be suddenly interrupted, but also to repeat itself, offering a second chance to a person, a nation and the historic process.

The work raises the theme of man's deep connection to his ancestors and to the history of his people. This connection affects an individual's self-awareness in a world filled with tradition and the timeless intertwining of actions and their consequences. History is an open book, that gives you a glimpse into the past and a chance to change the present.

In Amy Harmon's *What the Wind Knows*, the tale revolves around Annie Gallagher, who, in honoring her grandfather's Eoin last wishes, finds herself transported back to Ireland during its struggle for independence in the early 20th century. The narrative, primarily from Annie's viewpoint, intricately weaves historical events into her personal journey, underscoring the profound impact of history on individual self-awareness. Ireland is the overall setting for the majority of the novel, with the exception of a few scenes in which Annie and Eoin are at Eoin's home in Brooklyn. Ireland holds a special appeal for Annie, partly because it is where Eoin was born and raised. He strived there all his life as to the Promised Land, as to happiness, as to childhood, which did not disappear, but remained somewhere outside time and space: "I miss her people. I miss her smell and her green fields. I miss the sea and the timelessness. She is... timeless. She hasn't changed much." Despite his deep affection for Ireland, he refuses to visit the country with his

granddaughter, claiming it's too perilous for Annie. It's only when she experiences time travel that she comprehends the true meaning behind his words.

As Annie navigates this unfamiliar era, her experiences become a lens through which readers witness the broader historical landscape. Harmon strikes a delicate balance between Annie's adaptation to the past and her ability to draw on her research skills as a writer. This duality not only renders Annie a multilayered character but also injects tension into the plot, creating intrigue.

As Annie navigates this historical odyssey, she ends up at Garvagh Glebe, Eoin's childhood home, and discovers the shocking revelation fact that the young boy in the household is her grandfather. Mistaken for her great-grandmother, Annie strives to conceal her true identity, adding a layer of tension to the narrative. The story unfolds through Annie's perspective, but the inclusion of Thomas Smith's journal entries at the end of each chapter provides a unique glimpse into his thoughts and feelings, cleverly developing his character and deepening the understanding of the sense of Irish struggle for independence events, the period when Ireland and England almost reached a peace agreement allowing the creation of a Free Irish State, but with a catch: an oath of allegiance to the Crown had to be sworn and some of the Irish provinces had to be incorporated into England. It was a compromise that would allow Ireland to recover from a series of rebellions and conflicts and live a quiet, peaceful life. Like any compromise it was not accepted by parts of Ireland. This historical background adds depth and context to the events in the novel. The contradictions associated with political historical events enrich the book, give it realism and allow the reader to delve deeper into the atmosphere of the time. The author skillfully weaves real historical events into the artistic plot, allowing the reader to experience them against the background of human destinies and internal conflicts of the characters. This approach can make the work more fascinating and, at the same time, stimulate the reader to think about the meaning of the past and its

impact on our today. The interweaving of fictional and real characters adds depth and realism to the work. It is an interesting technique that allows you to create a rich and multifaceted artistic world.

The character of Thomas Smith, a kind and devoted to his ideas doctor entangled in the Irish struggle, adds a romantic dimension to the story.

The romance between Annie and Thomas is central to the plot, with Annie revealing him the truth about her time travel. Thomas, a supporter of Irish independence, grapples with the fear of an inexplicable phenomenon and the inevitability of Annie`s returning to her own time. Their love story unfolds against the backdrop of historical upheaval and personal challenges. The narrative takes a dramatic turn when Annie faces danger in the past, ultimately disappearing and reappearing on the shores of the lough in 2001.

As Anne settles into Garvagh Glebe, inheriting the property from Eoin, she learns of her pregnancy with Thomas's child and decides to remain in Ireland. The novel concludes with the couple's reunion, portraying a poignant blend of love, history, and the resilience of the human spirit. In *What the Wind Knows*, Amy Harmon masterfully weaves a poetic exposition with a dynamic narrative that underscores the profound impact of history, myths and legends, language and literature on individual lives, emphasizing the enduring connection between the past, present, and future.

The novel draws attention to the succession of generations, to the amazing chain of coincidences, events, meetings and partings, which are intertwined in the history of the family from generation to generation, leading in the end to the birth of each new person who is a derivative of the lives of all previous generations, with their achievements and mistakes, talents and shortcomings, losses and life

experience, whose plans and hopes, realized in reality or unattainable yet, are passed on to the descendant as the main intellectual-emotional inheritance, transformed into traditions and meaningful symbols that preserve the memory of past years and centuries.

Beginning her journey into the past by searching for ancestors' graves in a local cemetery in Ireland, pondering the importance and duration of human memory, Annie tries to find her roots. But turning to the graves as a symbol of death and the end, she discovers the possibility of moving from here to the past with the help of memory, which she considers to be mainly preserved in books. Therefore, she turns to them in the local library and seeks to put all important thoughts and discoveries into new books to preserve the elusive past. But accustomed since childhood, talking with her late grandfather, to listen and hear the interlocutor, she discovers that the bearers of knowledge about the past are people who witnessed important events or their attentive descendants, who do not let go of the thread of the connection of times and preserve historical memory, turning relatives, neighbors and strangers into a people with culture and traditions that have become “markers of humanity, of time, of life.” (15, p 45).

Harmon's storytelling prowess is particularly evident in her seamless integration of historical elements. The juxtaposition of a haven in Thomas' home against the backdrop of Irish upheaval underscores the significance of historical context. The danger that arises from Thomas' associations with Irish leaders adds a layer of complexity to Anne's predicament, highlighting her struggle to navigate a time fraught with mistrust and secrecy.

Ultimately, *What the Wind Knows* delves into the intertwining dynamics of personal awareness and historical influence, using Anne's journey as a conduit to

explore the intricate relationship between individuals and the historical tapestry that shapes them.

In *What the Wind Knows*, despite the lack of scientific justification, the time distortion is perceived as the result of mystical or magical phenomena related to the lake. For Anne Gallagher, the lake becomes a bridge between the present and the past. It transports her to 1921, to the place of her doppelganger, the second Anne Gallagher, her grandfather's mother, who disappeared during the riot. The plot thus contains the trope of local temporal anomaly. Such anomalies, are associated with a place and suggest that anyone who interacts with it is susceptible to their effects. Such anomalies can take many forms and manifestations, from magical or fantastical elements to science fiction concepts. The presence of a local anomaly in the novel automatically implies that time in the novel is not a product of human perception, but an independent physical quantity with objective, measurable properties.

This anomaly links two specific time periods – contemporary times and the 1920s. But time on the different sides of the anomaly is not synchronized. So after living for over a year in the 1920s the heroine returns to the present less than a week after leaving. It is also interesting to note that despite the unsynchronized time lines, there is some correlation, which may imply certain rules or laws governing the functioning of this anomaly within the novel, because all manipulations with the anomaly take place in the first chronology exactly in the order in which they took place in the second one.

It is probably inspired by Irish folklore and stories of travelers entering the fabulous land or abode of fairies or fays. The Irish folklore tradition is rich in various myths and legends, including tales of mysterious places where reality and magic merge. These stories often contain elements of time, space and transitions between worlds.

There are some similarities to the story of Rip Van Winkle, which is an American short story written by Washington Irving inspired by Irish folklore. The main character, Rip, falls asleep in the mountains and wakes up decades later. Time has passed, but it turns out to be a lost cause for him as he does not perceive the changes around him. In Rip Van Winkle's case, the mountains serve as a kind of temporal boundary or barrier beyond which time changes. The mountains thus become a kind of “portal” between different time periods. In *What the Wind Knows*, the lake and the mystical anomaly related to it serve a similar role.

An important aspect of *What the Wind Knows* is the bidirectional nature of the time portal. This means that characters can not only travel from the present to the past, but also back.

The novel contains elements suggestive of an ontological paradox, usually associated with a self-contradiction in the idea of the essence of an object or event, such as when an object must simultaneously exist and not exist.

““You told me the story of Cú Chulainn, Annie. I was afraid, and you let me sleep in your bed. Doc kept watch all night long. I could hear the hound in the wind.”

“Eoin, I didn't tell you the story of Cú Chulainn. You told me. So many times. You told me,” I corrected him, straightening his blankets. He clutched at my hand.

“Yes. I told you. You told me. And you will tell me again. Only the wind knows which truly comes first.”” (1, p 26).

But, one cannot call them paradoxes in their purest form, because the object itself is not a product of the loop and could have been obtained by each of the characters from another source. In this case, although the story of Cú Chulainn itself is not a product of the loop (it exists independently of the characters), the knowledge of the story that is passed between the characters is created through the cyclical nature of time. One character tells another character a story, then they switch roles in the future, and the second character tells the same story to the first.

There are no pure ontological paradoxes in the novel, due to the characters' conscious desire to avoid them. Thus Eoin does not show Annie the books she has written (in the past for him, but in the future for her), so that when she is ready she will create them herself, without relying on the knowledge and ideas that would be the product of the loop. The characters' determination to avoid creating contradictions in the timeline emphasizes their conscious refraining from interfering with the passage of time. They clearly strive to maintain the integrity of the timeline, which affects the dynamics of the plot and the ethico-philosophical aspects related to time.

Although the characters, including the protagonist, are periodically tormented by ethical questions about changing the timeline and trying to avoid timeline violations, it can be assumed that even her willful attempts to influence anything would not have succeeded. The fact that some evidence of her time in the past (such as her grandfather's memories, the legend of the drowned girl, and references to books she had not yet written) took place before she made her journey hints at the predestination of the journey. In other words, the novel demonstrates the idea of “enclosed time”, where certain events and the course of history remain unchangeable.

There is an analogy with the Greek myth of Cassandra. Cassandra was a prophetess who was given the gift of foreknowledge of the future, but at the same time was incapable of changing the course of events. Like Cassandra, the heroine faces the difficulty that her predictions and knowledge of the future are distrusted by others. The discovery by her great-great-great-grandmother of a letter containing data on upcoming events only aggravates her situation, turning her into an object of suspicion. Her mistaking her for a hostile espionage agent and subsequent assassination attempts results in displacement to the present day, literally ripping her life off in the 1920s. This explicit juxtaposition to the Cassandra myth introduces an

element of tragedy and emphasizes the theme of misunderstanding and isolation experienced by Annie due to her knowledge of the future.

2.5.2. Temporal paradigm of the novel *Kindred* by Octavia Butler

If Amy Harmon's novel is written to glorify history, Octavia Butler's *Kindred* uses the plot device of accidental travel to draw attention to unseemly and complex aspects of history, especially those related to slavery and discrimination. In *Kindred* the main character, Dana, a young black woman from a comfortable but not ideal 1976 finds herself in 1819 in the estate of slave owner Tom Tom Weylin. It turns out that Dana is related to Tom's son, Rufus, and appears in his life when he gets into danger. Dana, on the other hand, is just trying to survive and adapt and just hopes to get home. Octavia Butler uses the science fiction element to create an opportunity for the reader to relive historical events in their own experience and gain a deeper understanding of their impact on modern times.

Despite the presence of time-travel elements, according to Butler herself, *Kindred* does not lend itself to the strict genre definition of science fiction. The author noted that her work lacks a scientific approach, and thus she categorized it as “dystopian fantasy”. Critics also often categorize *Kindred* as a neo-slave narrative and psychological horror. Such labels emphasize not only the use of time in the narrative, but also the profound treatment of complex social and historical issues such as slavery and discrimination.

The structure of the *Kindred* novel differs from the synchronistic timelines presented. Beginning with a flashforward in the prologue, the novel proceeds to sequentially display the main character's timeline in chronological order throughout the remainder of the narrative. The protagonist's timeline does not match the timeline of the world she is in. The protagonist experiences different eras, finding herself in the past, but also facing challenges and dangers that impact her personal timeline.

In the case of Octavia Butler's novel *Kindred*, the anomaly that causes Dana to be transported back in time is not local in the sense of limiting its effects to location. The novel does not provide specific scientific explanations for the origin of the temporal anomaly. Instead, it is presented as something mysterious and connected to the emotional experiences of Dana and Rufus. Dana is transported to the past in moments when Rufus faces mortal danger. His bond with Dana creates a kind of dependency, and when he is in a critical situation that causes fear or threat to his life, this is also a trigger for temporal transference, turning him into a kind of temporal beacon or magnet. Meanwhile, Dana's own emotional reactions to the threat to her life act as a catalyst for the reverse transference.

Other family members, as well as some other characters who are descendants of Rufus, can also experience temporal transitions. The motif of a genetic connection between Dana and Rufus is clearly expressed in the novel, which seems to influence these characters' ability to time manipulation. The idea of a genetic predisposition to time travel in the novel *Kindred* adds an interesting heredity factor to the theme of time travel. This allows the author to view the temporal aspects as something that can be inherited from one generation to the next. This view emphasizes the theme of the connection between past and present through the lens of genetic inheritance.

The concept of a genetic link to time, as in *Kindred* and *The Time Traveler's Wife*, has similar features. Both novels play with the idea that the ability to time travel can be inherited or somehow linked to the characters' genetic code. Both novels use the emotional state of the characters as a trigger for time travel. Both novels, *Kindred* and *The Time Traveler's Wife*, also draw attention to the moral aspects of time travel when the characters are faced with difficult moral decisions related to their ability to travel through time and influence past events.

The difference in the flow of time between Dana's world and Rufus' world in *Kindred* adds an interesting aspect to the plot. It is possible to calculate the ratio of the flow of time between the times of 1976 and the 19th century. Exactly until the system fails and Dana is brought out to Rufus when Alice hangs herself in the barn. For Dana, days have passed – for Rufus, on the other hand, not years, but only a few months. It is possible that for Dana and Rufus, time is not physically synchronized, but rather synchronized in their perception. This may be related to their emotional and psychological states, creating a kind of mental bridge between different time points.

The subjective experience of time becomes a focal point, with Dana perceiving her absence in terms of minutes, while those who stay in the single timeline insist it is only a matter of seconds. This discrepancy emphasizes the complex interplay between emotional states and temporal perception.

““You know how long you were gone?”

“A few minutes. Not long.”

“A few seconds. There were no more than ten or fifteen seconds between the time you went and the time you called my name.”” (3, p 16).

In the *Kindred*, changing the timeline proves to be a complex and contradictory process. Dana, the main character, attempts to influence events to prevent negative consequences for herself and other characters. However, her efforts are often influenced by complex circumstances and constraints. Fundamentally, the novel emphasizes the idea that some key events in history, such as the fate of certain people, are irreplaceable. Dana's time travels concern her family lineage, and her actions cause her to become part of her own past. This creates a sense that certain aspects of the timeline are inevitable.

CONCLUSIONS TO CHAPTER II

In modern chronofiction, two key categories of authors can be distinguished: the first, which include literary writers like Chang, Niffenegger, and Blake, consciously create unique concepts of time, often drawing on modern scientific advances and considering philosophical concepts. The second, like Harmon, Butler, and Oliver, utilize chronofiction stereotypes like the time loop or accidental time travel. The second category is more inspired by previous works of fiction than science fiction and, in part, inherits its temporal structure from them. However, even when using common plot elements, authors create fascinating and original variations of well-known concepts. By combining different elements, they give their works a unique character and depth.

Thus, both categories of authors have contributed to the development of the chronofiction genre, bringing to it both modern research and interesting reinterpretations of classic themes and motifs.

Science fiction literature is a springboard for experimenting with traditional notions of time. Authors in this genre, often science and technology-oriented, use theories of physics, such as relativity theory and quantum mechanics, to construct their systems of time. These systems may include time loops and paradoxes. For example, the use of relativity theory to explain time travel lends science fiction works a scientific credibility by creating detailed and logical time systems. For example, Blake Crouch, in his novel *Recursion*, immerses the reader in a world where the possibility of reliving moments in the past over and over again changes not only the fates of the characters, but also the perception of time through memory. Ted Chang's short story *The Story of Your Life* offers a new perspective on the relationship between predestination and freedom in the context of the simultaneous existence of all time. Despite the science-fiction bias, a humanistic emphasis is

important in the works studied in this paper, exploring moral and ethical issues in the context of time, such as free will or choice. Audrey Niffenegger, author of *The Time Traveler's Wife*, raises issues of love and loss, using time loops as a metaphor for the inevitability and uncertainty in life. In Lauren Oliver's *Before I Fall*, the author explores how the repetition of events within a time loop shapes the characters' character and actions.

Humanitarian authors who focus more on the human and sociocultural aspects turn to the philosophy or psychology of time. They explore the impact of time perception on human experience, society and moral aspects. Here the emphasis is on the emotional and moral aspects of the human relationship with time, providing a deeper understanding of its role in human life.

The modern historical era has inherited from previous generations certain knowledge and beliefs, rituals and traditions that form the basis of the cultural unconscious of modern man. The unique cultural features of entire peoples at certain stages of history become the key to understanding their actions, emotional reactions and intellectual discoveries. This cultural code is reflected in literature, influencing its thoughts, content and ways of constructing the artistic world.

Novels describing a journey into the relatively distant past explore the complex dependence of the historical memory of the next generations on the cultural heritage handed down to descendants by previous eras, which significantly affects the self-identification of modern man.

What the Wind Knows by Amy Harmon and *Kindred* by Octavia Butler offer unique temporal paradigms by discussing accidental journeys into the past and their impact on the characters' personal development.

While immersing themselves in historical scenarios, the artistic creators subtly reveal the impact of time on the mental makeup of the individual and the collective memory of society.

Emphasizing the importance of the succession of generations, they draw attention to the regularities in the development of the historical process and the significant influence of accidents and minor influences, to the logical chain of events leading to the cultural peculiarities of entire nations that preserve them in the form of symbols and traditions.

In such a context, the works become not only a literary text, but also a platform for reflection on how time loops and cultural transformations determine our perception of reality.

Chrono-fiction novels, by describing the cultural differences between contemporaries of different eras, invite readers to consider how the past shapes our present and future. These works become a bridge between different eras, allowing readers to see history as something living and ever-changing, rather than as a dry set of facts in chronological order. Thus, modern chrono-fantasy novels become not only a literary experiment, but also a philosophical exploration of social time, political history, and cultural memory.

The authors of contemporary chrono-fiction novels, describing a journey into a relatively distant past, emphasize the complex relationship between time, historical memory, and individual self-identity. They explore generational succession, identifying patterns and accidents in the historical process. Traveling back in time becomes a means of deeply analyzing the evolution of human experience and the cultural heredity passed on from ancestors to descendants.

GENERAL CONCLUSIONS

Literature throughout the centuries has paid great attention to the concept of time as a philosophical category, in the process becoming not only a reflection but also an active creator of new concepts. The variety of genres and styles reflected the evolution of the literary view of time as an important component of any work.

Literature of the XXI century reflects modern scientific and philosophical ideas about time, integrating them with classical ideas. Authors make extensive use of modern theories of physics while addressing philosophical questions about the nature of time, its relationship to human existence, memory, and identity. These themes are evident in various genres such as science fiction, fantasy, drama, and contemporary realism. These works not only redefine temporal concepts, but also utilize complex structures to affect the reader, e.g:

Non-linear structures where events do not unfold in chronological order. This creates a sense of temporal disorder, forcing the reader to become more involved in the construction of the story.

Flashbacks – this is a technique in which the author takes the reader back in time by recounting events that precede the current moment. This allows the plot to unfold by providing important details from the characters' lives.

Flashforwards are a return to the future, foreshadowing events that are still to come. This method can maintain intrigue and create suspense.

Parallel Stories: Authors can have parallel stories that take place in different time periods. This can emphasize the theme of time as cyclical or create juxtaposition between eras.

Time loops: this technique relates to the looping of events, where characters may find themselves in the same situations over and over again. This can explore the concept of fate and the fluidity of time.

The concept of multiple realities suggests the existence of multiple parallel worlds. This can lead to the possibility of interacting with different versions of characters and events.

Nonlinear artistic techniques give authors the freedom to experiment with time, reinterpret it, and create deep layers of meaning in their works.

By utilizing various artistic techniques (such as plot stacking, intertwining time lines, and alternate realities) to construct nonlinear time structures authors of contemporary American literature seek not only to reinterpret time concepts but also to influence the reader.

A new sense of time appears in the literature written by authors who continue the traditions of postmodernism. As the main condition for the flow of life, it is present in every work of fiction, but unfolding in its own rhythm, which is not necessarily parallel to the reader's time, it draws him into its field, forcing him to plunge into the events of the work at the will of the author. Contemporary American literature, overcoming the influence of the increased pace of life, globalization and clipped consciousness of today's man, seeks to establish a frank dialogue with the reader, and make him the main character of the work. It uses irony and intertextual cues to eliminate banality from falsity, heroism from pathos, and chaos from vanity. Such literature finds the high and important moments in life, relying on each reader's subjective perception of time.

Seeing the world outside the standard familiar framework can be a challenge for someone with ingrained ideas about world order. Science fiction literature makes us think about the prospects of science and the possibilities of our brain to expand

the boundaries of the real pushing our consciousness not only to understand, but also to generate new ideas.

The illusory nature of time is the main mystery inspiring temporal literature. It is impossible to reach the future. It slips away and ends up in the future again. The present does not exist until we realize it, but when we do, the present becomes the past.

But memory allows man to accumulate knowledge that becomes the basis of his personality. Memory inscribes our knowledge into our history, which becomes part of the history of our contemporary society, while remaining part of universal history. Minor influences distort the memories of each participant in events gradually distorting history. Literature capitalizes on the dynamic impermanence of time, feeding the culture with new versions of possible stories. of the past depending on the point of view of the author, hero or reader. Human consciousness, memory, and imagination power a time machine that allows a person to travel through time. society accumulates the memories of individuals, creating its own history.

Thus, modern chronofiction novels represent a kind of philosophical treatise on the nature of time, memory and the meaning of human history, emphasizing the multifaceted nature of time and its impact on the lives of characters and readers as the main beneficiaries of artistic expression.

РЕЗЮМЕ

Ця робота представляє дослідження сучасної американської літератури, фокусуючись на темпоральних концепціях та впливі часу на літературний текст. Основний аналіз спрямований на літературознавчий розбір романів, повістей та оповідань відомих сучасних американських авторів, зокрема Теда Чана, Блейка Крауча, Одрі Ніффенегер, Лорен Олівер, Емі Гармон і Октавії Батлер. У роботі детально розглядається використання темпоральних концепцій авторами та їх адаптація під впливом сучасних наукових та філософських ідей.

Основна мета дослідження полягає в вивченні впливу наукових та філософських концепцій на сучасну американську літературу, розглядаючи, як ці концепції відображаються у творах авторів та взаємодіють з часом у літературному контексті.

Структура роботи включає вступ, два розділи (присвячені теоретичному аналізу та літературознавчому розгляду), висновки до кожного розділу, загальні висновки, резюме та список використаної літератури.

Перший розділ є теоретичним, присвяченим аналізу теорії та історії темпоральності та часових концепцій у філософії, фізиці та літературознавстві.

Другий розділ фокусується на вивченні впливу наукових та філософських концепцій на темпоральні аспекти сучасної американської літератури, аналізуючи, як ці концепції впливають на структуру та зміст творів вищезазначених авторів.

У ході дослідження виявлено, що питання простору і часу є ключовими для чисельних наук. Сучасна американська література активно вивчає темпоральні стратегії. Жанр хронофантастики розвивається завдяки авторам,

які створюють унікальні концепції часу, послуговуючись науковою базою та фондом клішованих концепцій перейнятих від більш ранніх творів.

Хронофантастичні романи стали не лише літературним експериментом, але й філософським дослідженням соціального часу, історії та ідентичності.

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