

The Fundamental Role of Consciousness and Intention in the Structure of Reality

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Abstract

The physiology and biology of organisms cannot be considered separate from the fundamental principles governing the cosmos—they are an integral part of it. If consciousness is capable of comprehending the structure of the Universe, then it cannot be something random and detached from its fundamental principles; rather, it must emerge from a deeper structure of reality. In this work, I analyze the theory of consciousness and intention as fundamental structures of the uncertainty space. I propose that consciousness is not an emergent property of biological systems but a primordial informational state that exists independently of matter and physical space. Intention, in turn, serves as the mechanism organizing reality, directing the selection of states, and determining the structure of spacetime.

I consider the hypothesis that microtubules—postulated by Roger Penrose and Stuart Hameroff as potential quantum carriers of consciousness—act as a biological interface between the organism and the non-local field of consciousness in the uncertainty space. Contrary to their concept, I do not assume the necessity of storing quantum states in microtubules; instead, I treat them as structures that enable organisms to access information in the uncertainty space without requiring permanent local representation.

This interpretation also offers a new perspective on neuroplasticity—the dynamic formation and dissolution of neuronal connections may result from the fact that information is not permanently stored in the brain but returns to the uncertainty space when not actively used. In this context, the brain functions as an adaptive interface that does not store the entire history of experiences but operates as a dynamic system processing information derived from the non-local field of consciousness.

I discuss the mathematical formalism describing these processes and propose experimental methods for their verification, including studies of fluctuations in the cosmic microwave background (CMB), neutrino oscillations, and anomalies in gravitational waves. This work is situated within the broader context of research into the fundamental nature of reality, integrating the theory of consciousness with quantum mechanics, neurobiology, cyclic cosmology, and the problem of spacetime emergence.

This study is part of a larger research effort on the uncertainty space and its role in the structure of reality. A detailed discussion of other aspects of the theory can be found in separate publications [35, 33, 34].

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1 Introduction

1.1 Why Does Consciousness Require a New Approach?

Consciousness remains one of the greatest unresolved problems in science. Despite numerous theories, existing approaches—both within neurobiology and quantum mechanics—do not fully explain its nature. Classical concepts treating consciousness as an emergent phenomenon arising from neuronal activity are insufficient, as they fail to address the question of what consciousness is in itself, independent of the biological structure that manifests it.

This problem becomes even more pronounced in the context of:

- **Non-local mental correlations**, which suggest the existence of consciousness beyond the individual brain.
- **Phenomena related to memory and creativity**, which cannot be explained solely by the activity of neural networks.
- **The difficulty in identifying a specific mechanism for the “emergence” of consciousness** within brain structures.

Every element of reality—from elementary particles to living organisms—is subject to the fundamental principles governing the cosmos. The biology and physiology of organisms are not exceptions but arise from the same rules that shape the structure of the Universe at its most fundamental level. If consciousness is capable of understanding and modeling reality, then it must be more than just a product of local neuronal activity—it should be an inherent element of reality, embedded in its fundamental structure.

Roger Penrose suggested that consciousness cannot be merely an emergent biological phenomenon but must be linked to deeper properties of physical reality. In this context, one can hypothesize that consciousness and intention are not merely products of biochemical processes but fundamental mechanisms organizing reality at the informational level. If physics seeks a theory of everything that would unify quantum mechanics and general relativity, such a theory cannot overlook consciousness as an element of reality that influences its organization.

In this work, I adopt the assumption that consciousness is not so much a product of biological evolution but rather a manifestation of a deeper informational structure of reality—**the uncertainty space**. In this model, consciousness and intention function as mechanisms for selecting reality states, determining how the uncertainty space organizes the manifested spacetime.

1.2 The Uncertainty Space as the Fundamental Level of Reality

Modern physics operates with the concept of spacetime as the fundamental background in which physical phenomena unfold. However, quantum mechanics and hypotheses related to cyclic cosmology suggest that spacetime may not be a fundamental structure but rather an emergent feature arising from a deeper level of reality.

The uncertainty space is a proposed fundamental level where:

- Classical geometry and spacetime do not exist.
- All possible configurations of reality coexist as potential states.

- Information about everything that can exist is encoded in the form of non-local informational structures.

In this framework, **consciousness is not a product of biological processes but a form of information existing within the uncertainty space**. This implies that the brain and biological systems do not generate consciousness but rather **process and selectively retrieve information that already exists at a fundamental level**.

Moreover, intention—understood as **a directional influence on the selection of reality states**—may play a key role in **organizing physical reality**, suggesting that the collapse of the wave function in quantum mechanics could be linked to an active selection process occurring at the level of the uncertainty space.

1.3 Objective of the Study and Scope of Discussed Issues

The objective of this study is to formally describe consciousness and intention as fundamental structures of the uncertainty space and to demonstrate their key role in the mechanisms organizing physical reality. Consciousness is not an emergent property of biological systems but a primordial, non-local informational state that exists independently of matter. Intention, in turn, functions as a mechanism that organizes reality, determining the selection of states and influencing the structure of spacetime.

I also consider the hypothesis that microtubules—postulated by Roger Penrose and Stuart Hameroff as potential quantum carriers of consciousness [36, 19]—serve as biological links between the local manifestation of consciousness and its non-local repository of information in the uncertainty space. Contrary to Penrose and Hameroff’s concept, I do not assume that microtubules store quantum states; rather, I treat them as structures that enable organisms to access information in the uncertainty space without requiring its permanent local representation.

Additionally, I present a new perspective on neuroplasticity, suggesting that the dynamic formation and elimination of neuronal connections arise from the fact that information is not permanently stored in the brain. According to this hypothesis, the brain functions as an adaptive interface that does not locally store all information but selectively integrates and reconstructs it from the uncertainty space when needed.

To achieve this goal, I take the following steps:

- Define the concept of the uncertainty space as the fundamental level of reality and its properties as a carrier of consciousness-related information.
- Introduce a mathematical formalism describing fluctuations of the potential field of the uncertainty space and their role in initiating spacetime structures.
- Present intention as a mechanism organizing reality and describe its mathematical formalism.
- Analyze the hypothesis that microtubules may function as a biological interface between non-local consciousness and living organisms.
- Propose a new perspective on neuroplasticity as a process of dynamic interaction between the brain and the uncertainty space.
- Present methods for experimentally verifying the model, including studies on anomalies in the cosmic microwave background (CMB), neutrino oscillations, and gravitational waves.

- Consider how the new theory of consciousness fits into Roger Penrose’s conformal cyclic cosmology (CCC), providing a mechanism for transitions between eons, as described in my work: "The Extension of Roger Penrose’s Conformal Cyclic Cosmology—A New Concept of Black Holes and the Transition Mechanism Through Eons."

This study aims to integrate aspects of consciousness, quantum mechanics, biology, and cosmology, proposing a new interpretation of reality formation as a process determined by the structures of the uncertainty space and the mechanism of intention as a fundamental organizing factor.

This work is part of a broader research project on the concept of the uncertainty space and its fundamental role in the structure of reality. A full development of specific aspects of the theory can be found in the following studies:

A detailed discussion of the tunneling mechanism and the emergence of spacetime is provided in *The Uncertainty Space as the Foundation of Spacetime Geometry* [35]. A new interpretation of black holes in the context of cyclic cosmology is presented in *The Extension of Roger Penrose’s Conformal Cyclic Cosmology—A New Concept of Black Holes and the Transition Mechanism Through the Uncertainty Space* [33]. The mathematical formalism of consciousness and intention and their influence on the selection of reality states is further developed in *The Fundamental Role of Consciousness and Intention in the Structure of Reality* [34].

Each of these works complements the present study, providing a coherent and testable physical model in which the uncertainty space constitutes the foundation of reality.

2 Consciousness as a Fundamental Informational State

2.1 A New Definition of Consciousness – Consciousness as a Primary Set of Information in the Uncertainty Space

Traditional approaches to consciousness assume that it is the result of complex neurobiological processes or an emergent property of physical systems. In this work, I adopt a different perspective: consciousness is not a product of biological processes but a fundamental informational state, existing independently of matter and spacetime [35].

In this framework, **consciousness is a primary, non-local set of information** that exists in the uncertainty space—a level of reality where all potential configurations of reality coexist. It is not generated by biological systems but rather processed and structured by organisms, which function as interfaces linking the uncertainty space with physical reality.

This model also provides an explanation for the phenomenon of memory variability—the brain does not store memories statically but reconstructs them anew each time, retrieving information from the uncertainty space and organizing it into a coherent narrative. This means that memories are not archived like data on a hard drive but are dynamic processes shaped by the current neuronal state and the context in which they are recalled. This phenomenon has been observed by neuroscientists and may serve as empirical evidence that consciousness is not a closed system of information processing but functions in interaction with a fundamental informational field.

In this context, mental processes such as creativity, intuition, or the spontaneous emergence of thoughts do not arise solely from brain activity but from its interaction

with the global field of consciousness. The dynamics of this interaction may also explain why certain memories are modified or fade—information can return to the uncertainty space, ceasing to be actively reconstructed by the neuronal system.

2.2 Consciousness as a Non-Local Structure

The hypothesis of consciousness emergence assumes that it arises from sufficiently complex neuronal interactions. However, there are numerous arguments against this model:

- **Non-locality of consciousness:** Empirical observations of phenomena such as long-distance mental correlations [49], near-death experiences [26], and synchronicity [22] suggest that consciousness may exist beyond the physical boundaries of the brain.

If consciousness were emergent, it should be confined to biological systems, which contradicts these observations.

- **The problem of unified experience:** Neurobiological studies show that different aspects of perception—such as vision, hearing, touch, and emotions—are processed in different areas of the brain, and there is no single central location where they are integrated into a whole [6, 53].

Information about the same experience is dispersed and stored in different neuronal structures [7]. Despite this, our consciousness does not perceive reality as a collection of separate stimuli but as a single, coherent experience.

Emergent models do not explain how fragmented and separately processed information is organized into a unified perception of reality. Within the framework of the uncertainty space, it is possible that consciousness does not arise solely as a result of neuronal activity but functions as a fundamental informational structure, where experiences are integrated at a non-local level, beyond classical neurobiological mechanisms.

- **Lack of a mechanism for generating consciousness:** Despite advances in neurobiology, no specific mechanism that "produces" consciousness has been found—only correlations between brain activity and subjective experience.
- **Difficulty in modeling within physics:** If consciousness were emergent, it should be describable within physics as a new property of complex systems. However, none of the existing models can determine the threshold at which a system "becomes" conscious.

For these reasons, consciousness is treated here as a **primordial state**, rather than a result of biological interactions.

2.3 The Relationship Between Consciousness and Information as the Basis of Its Independence from Biology

If consciousness is a fundamental informational state, the question arises: what role does information play in this model? In this framework:

- **Information exists independently of biology**, but it can be processed by living organisms. The brain does not generate information but rather receives and selectively filters relevant patterns.
- **Every organism has access to the field of consciousness information**, but to varying degrees depending on its level of biological organization. This explains differences in the perception of reality among species.
- **Intention influences information selection**—mental processes can determine which aspects of the uncertainty space become "accessible" to a given organism.
- **The brain is an interface, not a storage unit**—it does not permanently store all information but actively retrieves it from the uncertainty space. This aligns with the theory of neuroplasticity, which suggests that unused information undergoes "forgetting" (i.e., returning to a potential state).
- **Memories are a dynamic reconstruction of information, not its retrieval**—neuroscientific research suggests that the brain does not store memories as static engrams but reconstructs them each time from smaller informational components. In the context of the uncertainty space, this means that:
 - Information is not physically stored in the brain but remains available as a potential structure within the informational space.
 - Each recall of a memory is a process of reorganization, explaining the subjective variability of memory over time.
 - Spontaneous recovery of "forgotten" information is possible because its structure remains accessible in the uncertainty space and can be reactivated by specific stimuli or states of consciousness.

If consciousness and information are fundamental structures of reality, this implies that they can exist independently of biological life forms. In this case, the existence of consciousness would be an inevitable consequence of the structure of the uncertainty space rather than its product. Moreover, the mechanism of dynamic memory reconstruction provides empirical support for this model—rather than treating memory as a static record, we can understand it as a process of accessing information embedded in the fundamental structure of reality.

2.4 Mechanisms Determining the Interaction of Consciousness with Reality

To determine how consciousness influences physical reality, it is necessary to identify the mechanisms of its interaction:

- **Intention as a process of reality state selection:** It is possible that consciousness, through intention, influences the selection of quantum states, acting as an organizing factor in reality.
- **Neuroplasticity as a mechanism for dynamic access to information:** If consciousness stores information in the uncertainty space, brain plasticity may serve as a mechanism for "tuning" the organism to specific informational patterns.

- **The role of microtubules as an interface:** If microtubules function as biological transmitters of information, their structure and dynamics may determine how an organism receives and processes non-local information.
- **Cyclic transitions in cosmology:** If consciousness exists at a fundamental level, it may leave informational traces in subsequent eons of the Universe, influencing their structure.

In this model, consciousness does not merely reflect reality but actively co-creates it through the mechanism of intention and state selection. If this thesis is correct, it would imply that reality is dynamically shaped by consciousness as a fundamental element of existence.

2.5 Local and Global Consciousness – The Role of Brain Structures

In this work, I assume that consciousness has a dual nature:

- **Local consciousness** – processed within brain structures and directly linked to an individual's personal experience.
- **Global consciousness** – a non-local set of information existing in the uncertainty space, potentially accessible to all beings.

The brain's structures can be divided into three primary levels: the primitive brain (reptilian), the limbic system (emotional), and the neocortex (rational). In this model, I propose that:

- Local experiences are stored in the primitive structures of the brain.
- The more unresolved, emotionally "trapped" experiences remain in limbic structures, the more limited the access to global consciousness becomes.
- Unresolved experiences create blockages that affect brain functionality, restricting its natural adaptive and neuroplastic processes.
- The ability to interact more deeply with the global field of consciousness is blocked by emotional burdens and the lack of resolution of processing at the limbic level.

From the perspective of the consciousness theory based on the uncertainty space, the mind does not function merely as a biological system for storing and processing information but also serves as an **interface** that connects local experiences with the non-local informational field. When primitive structures remain emotionally burdened, the brain's ability to flexibly reconfigure its neuronal networks is reduced, thereby limiting access to deeper levels of consciousness.

This phenomenon also explains the lack of a sense of time in the subconscious—if the uncertainty space is not subject to classical time, and the information stored within it exists in a potential state, then unresolved experiences may persist in the mind as active processes, regardless of the passage of time in physical reality. Consequently, past emotional experiences remain "alive" and active within limbic structures until they are fully integrated and resolved.

This perspective opens new possibilities for interpreting mental processes and their relationship with consciousness. A detailed discussion of the mechanisms underlying the interaction between brain structures and the uncertainty space will be further explored in a separate study.

3 Intention as a Mechanism Organizing Reality

3.1 Intention as a Fundamental Organizational Principle

Traditionally, intention is understood as a conscious purpose that determines an individual's actions. However, in this work, I adopt a broader definition: **intention is a fundamental mechanism that organizes reality**, rather than merely a psychological process occurring in the mind.

In the model of the uncertainty space, intention serves as a **structuring factor** that directs the processes of reality emergence. Unlike the classical mechanism of wave function collapse in quantum mechanics, where the state of reality is chosen randomly at the moment of measurement, I propose that intention is a primordial mechanism that determines state selection before physical reality emerges from the uncertainty space.

This perspective leads to several significant consequences:

- **Intention is not an effect of biological consciousness but a fundamental property of reality**, acting independently of the existence of biological systems. In this framework, **intention arises from the field of consciousness at both the global and local levels**, meaning that:
 - At the global level—intention can shape the fundamental selection processes of reality in the uncertainty space.
 - At the local level—intention manifests through individual consciousness, determining mental processes and the organization of information in biological cognitive systems.
- **The structure of spacetime is the result of intentional processes**, which organize fluctuations in the uncertainty space into specific forms of manifested reality.
- **Intention is a selective process**, allowing the formation of an ordered physical reality instead of chaotic quantum fluctuations.

This interpretation of intention aligns with the concept of directed reality collapse, suggesting that **it is not randomness but directed choices within the uncertainty space that lead to the formation of specific spacetime structures**.

At the same time, **this does not alter the idea of non-local potential before wave function collapse and does not contradict the implications of Schrödinger's equation**. This means that:

- Before wave function collapse, **potential states of reality remain non-local and exist in the uncertainty space**, in accordance with quantum superposition.
- The process of directed collapse merely determines the selection of a specific state from potential possibilities rather than eliminating the principle of superposition itself.

- This interpretation does not contradict Schrödinger's equation but extends its implications by introducing an informational selection mechanism.

3.2 Mathematical Formalism of Intention – The Influence of Intention on State Selection

To describe intention as a structuring mechanism of reality, it is necessary to introduce a mathematical formalism. We define intention as an operator \hat{I} , which acts on a set of potential states in the uncertainty space, selecting those with the highest tendency to manifest in physical reality.

Formally, this can be expressed as:

$$\hat{I}\Psi = \sum_n w_n \Psi_n, \quad (1)$$

where:

- Ψ – the state of reality in the uncertainty space,
- Ψ_n – possible configurations of reality,
- w_n – coefficients determining the probability of a given state's manifestation, shaped by intention.

Intention as an Operator Reducing the Infinite Possibilities of the Uncertainty Space If we assume that the uncertainty space contains an infinite number of possible states, then intention functions as a mechanism that reduces this infinity to a finite set of potential manifestations. Thus, we can determine that the process of reality selection is not random but a function of intention:

$$P(\Psi_n) = \langle \Psi_n | \hat{I} | \Psi_n \rangle, \quad (2)$$

where $P(\Psi_n)$ denotes the probability of the specific state Ψ_n manifesting, and $\langle \Psi_n | \hat{I} | \Psi_n \rangle$ represents its enhancement by the intention operator.

In a more general case, we can introduce the projection operator of intention:

$$\hat{I} = \sum_n \lambda_n |\Psi_n\rangle \langle \Psi_n|, \quad (3)$$

where λ_n is a coefficient determining the strength of intention's influence on a given state.

Intention as a Mechanism of Transition from Potentiality to Manifestation

Intention can also be interpreted as an informational mechanism acting on the space of potentiality. If we assume that the uncertainty space possesses an informational distribution Φ , then the intention operator \hat{I} can act as a state selector, defining the relationship between potential and manifested information:

$$\hat{I} : \Phi \rightarrow \Psi, \quad (4)$$

where Φ represents the dynamic fluctuations of the uncertainty space, and Ψ is the set of states that actually manifest in spacetime.

The relationship between potential information and its manifestation can also be expressed as:

$$\Psi = e^{\hat{I}t}\Phi, \quad (5)$$

where $e^{\hat{I}t}$ represents the evolution of intention over time, transforming the space of potentiality into a manifested state.

Dependence of Intention on the System's State For a more general case, we can formalize intention as a Hermitian operator acting on the system:

$$\hat{I} = \int d^3x f(x) |\Phi(x)\rangle \langle \Phi(x)|, \quad (6)$$

where $f(x)$ is a function of the potential of the uncertainty space, and $|\Phi(x)\rangle$ represents a local state of fluctuations in this space.

3.2.1 Extending Schrödinger's Equation with the Intention Mechanism

The standard Schrödinger equation describes the time evolution of the wave function and is a fundamental equation of quantum mechanics:

$$i\hbar \frac{\partial}{\partial t} \Psi = \hat{H} \Psi, \quad (7)$$

where:

- Ψ – the wave function describing the state of the quantum system,
- \hat{H} – the Hamiltonian operator, describing the total energy of the system,
- $i\hbar$ – Planck's constant multiplied by the imaginary unit,
- $\frac{\partial}{\partial t}$ – the time derivative of the wave function.

However, Schrödinger's equation does not describe which of the potential states will collapse—it only determines the evolution of all possible configurations of the quantum system. In the standard interpretation, state selection occurs randomly at the moment of measurement.

Intention as a Mechanism for State Selection in the Uncertainty Space In the model of the uncertainty space, we postulate that **intention serves as a mechanism for selecting reality**, determining which potential states of reality will undergo collapse. However, this selection does not occur at the level of Schrödinger's quantum equation but rather in the informational space, where informational structures can evolve toward states of higher organization.

Intention acts as a factor influencing the organization of informational potential, increasing the probability of manifesting reality states consistent with a specific informational structure. To incorporate this mechanism, we introduce the intention operator \hat{I} , which is not a physical operator in the quantum sense but rather acts on the uncertainty space, influencing the process of state selection:

$$\mathcal{I}(\Psi) = f(\Psi, S), \quad (8)$$

where:

- \mathcal{I} – the intention operator influencing the organization of informational potential,
- S – the degree of structuralization of information in the uncertainty space,
- $f(\Psi, S)$ – a function describing the impact of informational structure on the probability of selecting a particular reality state.

Formal Extension of Schrödinger’s Equation with the Intention Operator To account for the influence of intention on the evolution of reality, we extend Schrödinger’s equation by adding a contribution related to state selection via intention:

$$i\hbar \frac{\partial}{\partial t} \Psi = \hat{H} \Psi + \hat{I} \Psi. \quad (9)$$

The operator \hat{I} does not alter the standard evolution of the wave function but modifies the probability of specific states manifesting by either enhancing or suppressing them. This can be expressed in the form of an equation expansion:

$$\Psi(t) = e^{-\frac{i}{\hbar}(\hat{H} + \hat{I})t} \Psi_0. \quad (10)$$

In this extension: - If $\hat{I} = 0$, we recover the standard quantum evolution. - If $\hat{I} \neq 0$, intention acts as a factor influencing the mechanism of reality selection.

Intention as a Weighted Function of the Informational Space The intention operator can also be expressed as a projection onto structured informational configurations:

$$\hat{I} = \sum_n \lambda_n |\Psi_n\rangle \langle \Psi_n|, \quad (11)$$

where:

- λ_n – a value determining the strength of intention’s influence on a given state,
- $|\Psi_n\rangle$ – states of possible reality manifestation.

In this case, the probability of a specific reality state manifesting is given by:

$$P(\Psi_n) = \langle \Psi_n | e^{\hat{I}t} | \Psi_n \rangle. \quad (12)$$

Thus, instead of a purely random selection of a state through wave function collapse, the manifestation of reality depends on the informational structure of the uncertainty space, controlled by intention.

Conclusions

- The standard Schrödinger equation describes the evolution of the wave function but does not determine which state will manifest.
- The intention operator \hat{I} does not alter quantum dynamics but influences state selection through the informational structure.

- The evolution of reality results from the process of organizing information within the uncertainty space rather than purely from a random wave function collapse.
- This formalism enables a new interpretation of reality state selection, where intention acts as an informational mechanism rather than a purely quantum mechanism.

A detailed mathematical analysis of the intention operator and its influence on the state selection process within the informational space will be the subject of further research.

3.3 Intention as the Primary Mechanism of Collapse from the Uncertainty Space into Physical Reality?

In classical quantum mechanics, wave function collapse occurs as a result of measurement, and the selection of a specific state is considered random. However, if the uncertainty space constitutes the foundation of reality, then the emergence of physical reality does not have to be random—it may be subject to a mechanism of directed selection.

I propose the hypothesis that:

- Intention serves as the **primary mechanism of collapse**, which assigns specific directions to the manifestation of reality.
- The collapse of reality is not the result of measurement but rather the action of an organizing mechanism—similar to quantum tunneling but determined by the internal orientation of the system.
- The structure of the uncertainty space may contain **informational orientation**, which influences the probability of transitioning into specific states of reality.

If reality is not created randomly but is subject to the organizational influence of intention, then:

$$\Psi_{\text{reality}} = I(\Phi) \quad (13)$$

which means that reality is the result of the action of the intention operator on the potential states of the uncertainty space.

This approach provides a justification for why some structures of reality are stable while others decay—they do not align with the fundamental orientation of intention.

Consequently, intention may be considered the **causal factor of reality**, rather than merely an effect of conscious beings' decisions. If this hypothesis is correct, it would imply that reality does not emerge chaotically but rather in accordance with a fundamental process of organization determined by information in the uncertainty space.

4 Interaction of the Consciousness Field with the Uncertainty Space

The uncertainty space is the fundamental level of reality that serves as the foundation for all possible informational structures. Unlike spacetime, it is not a set of pre-defined configurations of reality but rather a space of potentiality, where conditions exist that enable their emergence.

In this model, I assume that fluctuations in the uncertainty space result solely from fundamental interactions, such as gravity and quantum dynamics. In this section, I extend this concept with the hypothesis that the consciousness field generates informational fluctuations, to which the uncertainty space merely responds passively, stabilizing their organization.

4.1 The Uncertainty Space as the Foundation of the Consciousness Field

The uncertainty space serves a dual function:

- It is the fundamental level of reality, where all potential structures coexist.
- It acts as a stable foundation for the consciousness field, enabling the flow and reorganization of information between local and global levels of consciousness.

The uncertainty space is not an active agent of fluctuations but passively responds to influences: gravitational, quantum, and informational, arising from the activity of consciousness.

As a result:

- The consciousness field can generate changes in informational structures, but it does not dissipate into infinity—the uncertainty space confines them within defined limits.
- The uncertainty space facilitates the transfer of information between the local and global consciousness field, acting as a potential medium.
- Information cannot be freely modified in spacetime or at the quantum level, as these levels are already "locked" against changes—the uncertainty space is the only domain where changes can occur dynamically.

This implies that consciousness and information cannot exist independently of the uncertainty space, but this space itself is not dynamic—it merely serves as a passive foundation.

4.2 Informational Fluctuations of the Consciousness Field and the Structure of the Uncertainty Space

Interactions between the general and local consciousness field can generate informational fluctuations, to which the uncertainty space reacts passively. In practice, this means that:

- Consciousness can influence the organization of potential states of reality but does not alter the fundamental structure of the uncertainty space.
- The uncertainty space provides a mechanism for transmitting and reorganizing information between different levels of consciousness but does not itself determine their content.
- It is not the uncertainty space that fluctuates on its own; rather, consciousness reorganizes information within its structure, causing passive fluctuations.

Therefore, the uncertainty space should not be considered a dynamic system but rather a passive structure that enables the existence and evolution of the consciousness field.

4.3 Implications for Physics and Neurobiology

The distinction between the uncertainty space and the consciousness field allows for the formulation of new conclusions regarding the fundamental mechanisms of reality:

- **Quantum Mechanics:** If the uncertainty space does not undergo spontaneous fluctuations but only reacts to external interactions, this may suggest that the collapse of reality is not solely the result of a probabilistic mechanism but also of the structural selection of information.
- **Neurobiology:** If the consciousness field is dynamic and reorganizes information in the uncertainty space, this may explain the phenomena of non-local mental correlations and the intentional influence on cognitive processes.
- **Cosmology:** The stability of the uncertainty space suggests that it is not an "energy field" but rather a fundamental level of reality's organization that does not undergo spontaneous changes but can react to external informational interactions.

Conclusions:

- The uncertainty space remains a stable foundation but absorbs fluctuations of the consciousness field to maintain them within defined boundaries.
- Fluctuations of the consciousness field can influence the organization of reality but do not destabilize the uncertainty space.
- The collapse of reality may result not only from probabilistic state selection but also from informational fluctuations of the consciousness field.

5 Microtubules as Biological Links Between Consciousness and the Organism

In the classical Orch-OR (Orchestrated Objective Reduction) hypothesis [19] proposed by Roger Penrose and Stuart Hameroff, microtubules have been presented as potential carriers of quantum processes related to consciousness. In my model of the uncertainty space, we adopt the hypothesis of microtubules not as an axiom but as the most probable biological mechanism enabling interaction with the fundamental level of reality.

However, I do not exclude the possibility that other biological structures may perform a similar function, or even that both living and non-living systems may receive information from the uncertainty space in various forms.

This leads to several important consequences:

- Microtubules may act as biological interfaces tuning the organism to the information contained in the uncertainty space, but it is possible that other structures, such as cell membranes or cytoskeletal proteins, also play a role in this process.

- Living organisms are not the only systems capable of "retrieving" information from the uncertainty space. Non-living structures—such as minerals, crystals, or other stable systems—may also "retain" information, though they do not process it dynamically in the way biological systems do.
- The retrieval of information by living organisms occurs in a dynamic and adaptive manner, enabling the emergence of consciousness and intention, whereas non-living structures may only maintain the uniformity of their physical properties based on the information organizing their structure.

This implies that **microtubules may be just one of many mechanisms enabling interaction with consciousness**, and their role in this process requires further investigation. However, this does not mean that non-living matter does not interact with the uncertainty space—it may do so structurally, without processes related to consciousness and intention.

5.1 Microtubules as Ubiquitous Structures in Living Organisms – Their Role in Biology

Microtubules are key components of the cytoskeleton, present in all living organisms—from unicellular organisms to the most complex biological systems [3]. Their functions include:

- Maintaining cell structure and mechanical stability [10].
- Intracellular transport—facilitating the movement of organelles and molecules [57].
- Organization of mitosis and meiosis—playing a crucial role in cell division [3].
- Influencing cellular signaling and the dynamic structural changes in neurons [57].

In the context of neurobiology, microtubules play a significant role in neuronal signal transmission and processes related to synaptic plasticity. Their ordered structures and ability to undergo dynamic reorganization make them a potential mechanism for interacting with the fundamental level of information in the uncertainty space.

5.2 Microtubules as Biological Links Between the Organism and the Uncertainty Space

Although microtubules are commonly associated with neurons, they are present in every cell of an organism, performing essential structural and transport functions. However, if consciousness is a fundamental informational field rather than merely the result of brain processes, a broader perspective is necessary:

Access to information in the uncertainty space is not limited to the brain but encompasses the entire organism, as every cell must utilize fundamental organizational patterns.

From this, it follows that:

- Each cell has an interaction level with the consciousness field that corresponds to its functional needs.

- Cells do not operate solely based on biochemical reactions but also utilize information that organizes processes such as division, aging, regeneration, and homeostasis.
- Microtubules, as resonating structures, may facilitate the dynamic exchange of information between the uncertainty space and biological processes.
- The brain functions as the **central controller of the organism's state**, integrating local biological processes into a coherent whole rather than merely serving as an information distributor, as previously assumed.

5.2.1 Mechanism of Microtubule Interaction with the Informational Space

Microtubules may function as biological interfaces, as their structure allows for information processing at the molecular level. Several mechanisms may account for their ability to interact with the uncertainty space:

- **Electromagnetic oscillations** – microtubules exhibit oscillations in the THz range, which may enable them to interact with subtle informational fields [44].
- **Quantum phenomena** – the Orch-OR theory proposed by Hameroff and Penrose suggests that microtubules may act as carriers of quantum states, though their stability in biological conditions remains a subject of debate [18].
- **Structural dynamics** – microtubules undergo continuous reorganization, which may allow them to receive and transmit information dynamically [4].
- **Bioelectric polarization** – evidence suggests that microtubules may function as bioelectric conductors, indicating their ability to transmit information as non-local signals [55].

All these mechanisms may collectively contribute to the ability of microtubules to resonate with the informational structure of the uncertainty space.

5.2.2 Comparison to Other Models of Biological Interaction with Information

Although the Orch-OR theory assumes that microtubules store and process information based on quantum phenomena, in this work, I propose that they primarily function as biological resonators, tuning the organism to the informational space. This approach serves as an intermediary between the Hameroff-Penrose concept and systemic theories of information processing in biology, such as:

- **Systems neurobiology** – which treats the brain and nervous system as a dynamic information processing system at the neuronal and bioelectrical levels [50].
- **Bioelectromagnetism** – which points to the existence of subtle electromagnetic fields that may coordinate biological processes, including communication between microtubules and the cellular environment [1].
- **Theories of biological organization** – which postulate that organisms process information through coordinated signaling and bioelectrical networks, which may be relevant in a model of consciousness as an informational system [23].

5.2.3 Microtubules as Dynamic Information Filters

In the proposed model, microtubules serve as biological informational resonators. Their function can be formalized as an operator M , which acts on the informational structure of the uncertainty space Φ , selecting information relevant to the organism:

$$I_{bio} = M(\Phi), \quad (14)$$

where:

- I_{bio} – biological information available to the organism,
- Φ – the complete set of information in the uncertainty space,
- M – a selection operator that filters information according to biological needs.

The operator M may depend on physical conditions such as the state of the organism, the bioelectrical activity of microtubules, or local electromagnetic interactions.

5.2.4 Experimental Verification of the Hypothesis

To confirm that microtubules indeed function as biological informational resonators, several experimental approaches can be proposed:

- **Studies on the impact of electromagnetic oscillations on microtubule function** – analyzing whether specific electromagnetic field frequencies can modulate cellular activity.
- **Experiments on the influence of intention on microtubular structures** – testing whether conscious intention can influence the dynamics of microtubules (e.g., by observing their reorganization under different states of consciousness).
- **Measurement of microtubule bioelectrical conductivity** – analyzing whether there is a relationship between microtubule function and the flow of bioelectrical information.

5.3 The Informational Nature of Biological Disruptions – Interaction Between the Organism and the Uncertainty Space

If an organism functions as an interface connecting local consciousness with the uncertainty space, this implies that its structure and life processes are organized according to informational patterns present at the fundamental level of reality. In this model, the health of an organism is directly related to its informational coherence with the consciousness field.

From this follows the hypothesis that disorders in the organism may be the result of **informational fluctuations**, arising due to:

- Inconsistency between the subconscious, local vision of reality and its actual state.
- An attempt to locally impose actions on reality that are incompatible with its natural order.

- Disturbances in the organism’s informational structure resulting from interference with the non-local consciousness field.

In the physics of dynamic systems, every complex structure tends to reach a state of minimal energy and stability. If an organism remains in an optimal informational state, its functioning is also optimal. However, when a conflict arises between local experience and information from the consciousness field, this leads to an **informational disturbance**, which manifests as fluctuations in biological processes.

Mathematically, this can be expressed as:

$$\Delta S = I(\Phi) - I(\Psi), \quad (15)$$

where:

- S – the stability level of the organism in the informational space,
- $I(\Phi)$ – the organizing information in the uncertainty space,
- $I(\Psi)$ – the local biological information of the organism.

If the difference ΔS increases, the organism becomes more susceptible to disturbances, which may lead to biological disorders. Thus, disease is not merely a result of biochemical processes but also an effect of the organism’s **informational misalignment** with the fundamental structure of consciousness.

This model suggests that healing is not only about eliminating physiological symptoms but also about restoring informational coherence between the organism’s local state and the consciousness field in the uncertainty space.

5.4 A New Interpretation of the Role of Microtubules – An Interface for Accessing Information in the Uncertainty Space

Traditionally, microtubules have been considered as elements of the cytoskeleton, performing mechanical and transport functions. However, within the framework of the uncertainty space theory, I propose a new interpretation: **microtubules are not repositories of quantum states but function as biological interfaces that enable organisms to access information in the uncertainty space.**

According to this model:

- Microtubules act as filtering structures that modulate the flow of information between the organism and the fundamental level of consciousness.
- They are dynamic systems that can change their structure, allowing organisms to tune into different levels of information.
- They do not store information in a static manner but enable selective interaction with the non-local consciousness field.

In this perspective, microtubules do not serve as carriers of long-lived quantum states but instead function as **resonators** that modulate access to the informational field of the uncertainty space. This means that their function is not dependent on the need to maintain stable quantum states in the warm, wet environment of the brain, which has been a major criticism of the microtubule-based quantum consciousness hypothesis.

Instead, microtubules may operate as dynamic structures that tune the organism to information stored in the uncertainty space, rather than serving as static data-processing units. This approach provides a new perspective on their role, independent of the problem of decoherence, and suggests that their function may arise from resonance mechanisms rather than classical quantum phenomena.

5.5 Reference to the Penrose-Hameroff Theory

Roger Penrose and Stuart Hameroff, in their **Orch-OR (Orchestrated Objective Reduction)** hypothesis [18], proposed that microtubules could function as carriers of quantum states of consciousness. In their model:

- Quantum states in microtubules would undergo gravitational collapse, generating conscious experience.
- These processes would enable quantum information processing in the brain, allowing for non-local correlations.

In this work, I maintain the idea that microtubules may play a crucial role in consciousness processes but introduce the following modifications to their interpretation:

- I do not consider microtubules as storage sites for quantum states but rather as biological transmitters of information from the structure of the uncertainty space.
- Intention, rather than gravitational quantum collapse, is the mechanism determining the selection of reality states.

This approach preserves key elements of the Penrose-Hameroff hypothesis while eliminating the issues associated with the stability of quantum states in biological conditions.

5.6 Microtubules as Biological Resonators Tuning the Organism to Specific Levels of Information

If microtubules serve as an interface to the consciousness field, this implies that their organization may influence the organism's ability to receive and process information beyond the classical physical space. It is possible that:

- Their resonant structure plays a role in accessing non-local informational resources.
- Changes in microtubules may modulate how the organism responds to reality.

Further research could focus on investigating whether specific biological or environmental factors can modulate the function of microtubules in the context of interaction with consciousness.

6 Neuroplasticity as a Mechanism of Dynamic Interaction with the Uncertainty Space

6.1 Dynamic Reorganization of the Brain as an Effect of Processing New Information

Neuroplasticity is the brain's ability to undergo dynamic structural changes in response to new experiences, learning, and adaptation to changing conditions. Traditionally, neuroplasticity is understood as a local biological process resulting from the properties of neurons and synapses. In this work, I adopt a broader perspective:

Neuroplasticity is not merely a biological process but a mechanism of dynamic interaction with the uncertainty space, where information can be stored and reorganized.

According to this model:

- New information is not stored in the brain in a static manner but dynamically integrates with pre-existing structures.
- The brain undergoes continuous reorganization because it does not store information "within itself" but processes it in real time by reading data from the uncertainty space.
- Neuroplasticity enables flexible adaptation to the environment by modifying neuronal pathways in response to currently relevant information.

This perspective not only explains why the brain can change its structure throughout life but also suggests that neuroplasticity is linked to access to information in the uncertainty space. This mechanism allows individuals to select and organize information in a way that optimally supports their functioning.

6.1.1 Neuroplasticity as a Mechanism for Tuning the Brain's Resonance to the Informational Field

If information in the uncertainty space exists dynamically, then transformations in the neuronal structure of the brain may result from the process of **tuning to specific levels of resonance with the consciousness field**. Several key aspects of this process can be distinguished:

- **New experiences alter the brain's resonance**, leading to the reorganization of neuronal pathways. By changing activity patterns, the brain adapts to new informational structures in the uncertainty space.
- **Emotional changes influence the reorganization of neural networks**, as the emotional state determines priorities in information processing and data selection.
- **Learning and neuroplasticity are the result of a dynamic interaction with global consciousness**, rather than solely internal changes in neuronal structure.

In this model, brain reorganization is not merely the result of local synaptic changes but the effect of a global tuning process to the informational space. This explains why:

- Some information may become "blocked" at the neuronal level if the brain is not tuned for its full integration.
- Spontaneous recollections or sudden intuitive insights may result from temporary resonance with a specific structure in the uncertainty space.
- Neuroplasticity may vary depending on external conditions, intention, and emotional states, as all these factors influence tuning to the consciousness field.

This interpretation of neuroplasticity suggests that **changes in brain structure are both biological and informational**, and the reorganization of neuronal connections may result from changes in access to global consciousness.

6.2 Mechanism of New Neural Pathway Formation in the Process of Resonance Change

In classical models of neuroplasticity, the formation of new synaptic connections is equated with local changes in neuronal and synaptic activity. In this work, I present a **proposed model** in which this process is not limited solely to local biological changes but is the result of a **dynamic interaction between the informational field of the uncertainty space and neuronal activity**.

In this framework, microtubules function as an **interface between the field and biological systems**, enabling neurons to tune into specific informational patterns. This mechanism does not yet have definitive experimental confirmation but arises from the logical analysis of neuroplasticity processes in the context of the informational interaction of consciousness with reality.

6.2.1 The Role of Microtubules as Biological Information Transmitters

Microtubules, as elements of the neuronal cytoskeleton, are structures capable of resonating with electromagnetic fields and may function as **selective filters** that modulate neuronal access to information stored in the uncertainty space. This process unfolds in the following stages:

- The local state of the organism induces **synchronization of microtubules with specific informational patterns in the consciousness field**.
- Microtubules transmit this information to neurons, initiating **changes in synaptic activity**.
- Changes in synaptic transmission lead to the **generation of new EEG oscillations**, synchronizing the activity of larger groups of neurons.

6.2.2 The Influence of Informational Resonance on Synapses

The synchronization of microtubules with specific informational patterns may induce **local changes in synaptic potentials**, which are crucial for activating neuroplasticity mechanisms. The key processes at this stage include:

- Modulation of neurotransmitter activity (glutamate, GABA) and their impact on neuronal excitability.

- Enhancement of synaptic plasticity through mechanisms of long-term potentiation (LTP).
- Formation of new EEG oscillation patterns that facilitate the creation and stabilization of new neuronal connections.

6.2.3 Increase in Calcium Ion Concentration and Activation of Neuroplasticity Genes

Changes in synaptic activity lead to an increase in the concentration of **calcium ions** (Ca^{2+}), which play a key role in initiating neuroplasticity. This process unfolds as follows:

- Elevated Ca^{2+} levels activate proteins regulating synaptic plasticity, such as CAMKII (Calcium/Calmodulin-Dependent Kinase II).
- Activation of biochemical pathways leads to the expression of neuroplasticity-related genes, including BDNF (Brain-Derived Neurotrophic Factor) and CREB (cAMP Response Element-Binding Protein).
- The resulting proteins support the formation of new dendritic protrusions and the stabilization of newly established connections.

6.2.4 Synaptogenesis – Formation of New Neural Connections

The final outcome of this process is **synaptogenesis**, the formation of new neuronal pathways that enable long-term storage and processing of information. Key aspects of this stage include:

- Growth of new dendrites toward potential synaptic partners.
- Stabilization of new connections through mechanisms of long-term potentiation (LTP).
- Selection and reinforcement of frequently used connections, while less active ones undergo elimination (neuronal pruning mechanism).

6.2.5 Summary of the Mechanism of New Neural Pathway Formation

The process of forming new neuronal connections can be described in the following steps:

1. **Microtubules tune into the informational field of consciousness**, acting as biological resonators.
2. **Synchronization of microtubules with the field** initiates changes in synaptic activity in neurons.
3. **New patterns of synaptic activity lead to EEG oscillations**, which amplify signals and synchronize larger neuronal regions.
4. **Changes in neuronal membrane potential lead to an influx of calcium ions** (Ca^{2+}), activating neuroplasticity mechanisms.

5. **Activation of neuroplasticity genes (BDNF, CREB, CAMKII)** enables the production of proteins necessary for the formation of new dendrites and synapses.
6. **Synaptogenesis** – new neuronal pathways are created and stabilized through LTP mechanisms.

The presented model is a hypothetical proposal that requires further research and experimental validation. It assumes that neuroplasticity is not solely a local process but results from the brain's interaction with the informational space. Confirmation of this hypothesis could provide new tools for studying the mechanisms of consciousness and methods for supporting nervous system regeneration.

6.3 Forgetting as the Return of Information to the Uncertainty Space – A New Interpretation of Neuroplasticity

In classical neurobiology, forgetting is considered the result of synaptic degradation, reduced neuronal activity, or the lack of reactivation of memory pathways. However, within the uncertainty space model, I propose a new perspective:

Forgetting is not the loss of information but its return to a potential state in the uncertainty space, from where it can be recalled again if needed.

6.3.1 The Dynamic Nature of Memory and Its Relationship with the Informational Space

In the traditional model of memory, information is assumed to be stored as permanent engrams, which may weaken or disappear over time. However, contemporary research on neuroplasticity suggests that memory is not a static record but rather a **process of dynamic reconstruction**, in which the brain recreates memories each time from available informational components.

In the context of the uncertainty space, this means that:

- Information is not stored locally in the brain but exists in a potential state and is reconstructed on demand.
- Each recall of a memory is a process of reorganization, explaining its variability and susceptibility to emotional and contextual influences.
- "Forgetting" does not mean the loss of information but rather its withdrawal from active processing, allowing for more efficient cognitive resource management.

6.3.2 The Mechanism of Information Recall and the Role of Intention

If memories are not stored in the brain as permanent structures but are dynamically reconstructed, their retrieval may depend on conditions that allow renewed access to the informational space. Contemporary research on memory reconsolidation suggests that the process of recalling information is not a simple retrieval of statically stored data but a dynamic reorganization [31, 2]. Several key factors influence this process:

1. Intentional Focus as a Tuning Mechanism

- Intentional focus on a given subject may act as a mechanism tuning consciousness to the appropriate informational structures, enhancing access pathways to memories [29].
- Focusing on a question rather than directly trying to recall a memory may improve the effectiveness of the process, aligning with studies on the incubation effect and spontaneous insight [56].

2. The Influence of Emotions on Information Selection

- Strong emotional stimuli can influence the reorganization of access to the uncertainty space, explaining the mechanism behind sudden recollections. An example is the flashbulb memory effect, where intense emotions lead to deep encoding of information [5].
- The emotional significance of a memory determines its activation priority, and sudden recollections may result from interactions between limbic structures and the memory activation network [39].

3. Neuroplasticity and the Reorganization of Information Access

- The remodeling of neuronal networks due to new experiences can reopen access to information that had been inactive for an extended period. This aligns with research on neuroplasticity and the brain's ability to reconstruct pathways for accessing information [8].
- This phenomenon also explains the so-called reminiscence effect, where information forgotten in the short term may become accessible again after a longer period [12].

The Uncertainty Space as a Dynamic Informational Field This approach also explains why certain pieces of information can "return" to consciousness spontaneously. If the uncertainty space retains potential informational patterns, their activation depends on the interaction between consciousness and information selection mechanisms. This can be expressed through the intention operator \hat{I} , which influences the selection of informational pathways:

$$P(\Psi_i|\hat{I}) = e^{-\frac{S(\Psi_i) - \lambda \langle \Psi_i | \hat{I} | \Psi_i \rangle}{\hbar}}. \quad (16)$$

where:

- $S(\Psi_i)$ – the informational cost associated with retrieving a specific piece of information,
- λ – the intention coefficient affecting the recall process,
- $\langle \Psi_i | \hat{I} | \Psi_i \rangle$ – the interaction between the information state and the operator action of intention.

Summary

- Intention influences the retrieval process by modulating access pathways to memory.
- Emotions serve as a selector, determining which information becomes a priority.
- Neuroplasticity enables the dynamic reconfiguration of memory access, suggesting that information is not stored in a static manner.
- The uncertainty space may function as a dynamic informational field, where information availability depends on the interaction between consciousness and data selection mechanisms.

6.3.3 Degeneration of Neural Structures and Memory Loss

The above model applies to a healthy brain, where memory undergoes dynamic reorganization through interaction with the informational space. However, in the case of **degeneration of brain structures**, this process functions differently:

- Due to aging, neurodegenerative diseases (e.g., Alzheimer's, Parkinson's), or exposure to toxic substances (alcohol, drugs), **structures responsible for reading and processing information become damaged**.
- The brain loses its ability to **properly access information in the uncertainty space**, leading to difficulties in recalling memories.
- Information is not permanently lost—it still exists in the informational field, but the organism loses access to it due to the destruction of the "interface," which consists of specific brain regions.
- In some cases, **partial recovery of function is possible through neuroplasticity**, if other areas of the brain compensate for the damaged structures.

6.3.4 A New Perspective on Neuroplasticity and Memory Reorganization

In this model, neuroplasticity is not merely a process of structural neuronal changes but also a **process of reorganizing access to information in the uncertainty space**. This allows for the following interpretations:

- The brain does not lose data but optimizes its processing, "freeing" cognitive resources for more useful information.
- Spontaneous recollections may result from temporary tuning into informational patterns that had been inactive.
- Forgetting may be an evolutionary strategy enabling the organism to dynamically adapt to new conditions rather than a cognitive deficit.
- In cases of neuronal degeneration, memory reorganization is limited, but neuroplasticity may allow partial restoration of cognitive functions.

This new perspective suggests that consciousness does not operate solely within the framework of local neuronal activity but is part of a broader informational structure, where access to information depends on dynamic interaction processes with the uncertainty space.

6.4 Balance Between Local Memory and Access to Information in the Uncertainty Space

If the brain is not a storage unit for information but rather a dynamic interface, the question arises regarding the mechanisms that balance local memory with access to information contained in the uncertainty space. In this model:

- Local memory is responsible for short-term and long-term storage of information essential for an individual's immediate functioning.
- The uncertainty space serves as a reservoir of potential information, which can be accessed depending on the individual's needs and cognitive abilities.
- Access to the consciousness informational field is possible in specific mental states, particularly during the dominance of **theta brain waves** (4–7 Hz), which are associated with deep concentration, meditation, hypnagogic states, and moments of spontaneous associative thinking.

6.4.1 Disruptions in Access to the Consciousness Field Due to Unresolved Trauma

Unresolved trauma can cause significant disruptions in accessing the consciousness field, affecting the brain's ability to dynamically switch between local memory and the uncertainty space. Its effects may manifest in various ways:

- **Blocked access to specific information** – the mind may suppress memories and limit the ability to retrieve information, particularly if it is associated with strong emotional content.
- **Dominance of beta waves and excessive cognitive activity** – traumatic experiences can lead to chronic stress and hyperactivity of analytical thinking, promoting the dominance of beta waves (13–30 Hz) and hindering the transition into deeper states of consciousness.
- **Defense mechanisms and psychogenic amnesia** – in extreme cases, the organism may completely cut off access to specific information to prevent re-experiencing trauma.
- **Lack of integration between brain hemispheres** – traumatic experiences can disrupt communication between the left (logic) and right (intuition) hemispheres of the brain, limiting access to full informational potential and intuitive processing.

All these factors contribute to disturbances in the brain's ability to synchronize with the consciousness informational field, which may manifest as difficulties in recalling information, weakened intuition, excessive analytical thinking, or cognitive emotional blockages.

6.4.2 Switching Between Local Memory and the Informational Field

If information is selectively stored in an active state (neuronal) or a potential state (within the uncertainty space), then the effective functioning of the mind may depend on its ability to dynamically switch between these modes of information processing. Key factors that may support this process include:

- **Mental training and meditative practices** – regular meditation, relaxation exercises, and mindful breathing can enhance the ability to enter theta wave states and increase access to the informational space.
- **Stress reduction and emotional balance** – lowering cortisol levels and avoiding chronic stress facilitate better switching between different states of consciousness.
- **Intentional focus and directed attention** – consciously formulating intentions and asking questions before sleep or in a deep relaxation state may promote the retrieval of information stored in the uncertainty space.

In this model, information storage and retrieval are not entirely deterministic processes but rather a dynamic interaction between the individual's mind and the fundamental informational structure of reality.

6.5 Does the Brain Function as a Dynamic Interface Rather Than a Hard Drive Storing Information?

Traditional memory models compare the brain to a computer that stores information similarly to a hard drive. In light of the uncertainty space theory, such an approach is insufficient because:

- It does not explain phenomena such as sudden recollection of information without prior neuronal activation [7].
- It does not clarify why certain memories are retrieved intuitively rather than through logical memory searching [37].
- It overlooks the fact that the human mind can access information beyond individual experiences (e.g., inspirations, sudden intuitive insights, so-called transpersonal experiences) [47].

In the proposed model, **the brain is not a data storage unit but a dynamic interface enabling access to information in the uncertainty space**. This means that:

- Neurons and their connections function as access channels to information rather than static data storage units [24].
- Brain structures reorganize in real time in response to current cognitive needs, reading information instead of storing it in a classical sense.
- Processes such as intuition and creativity may result from a dynamic exchange of information between the consciousness field and the neuronal system [29].

Neuroplasticity as an Adaptive Mechanism of the Consciousness Interface In light of this hypothesis, neuroplasticity is no longer merely a local biological process—it becomes **a mechanism that allows the mind to adapt to the dynamic informational structures of consciousness**. Studies on long-term brain adaptation have shown that:

- The functional state of the brain can reorganize under the influence of conscious mental training, potentially affecting the ability to access information beyond traditionally understood memory [8].
- Meditative states and deep concentration techniques alter activity patterns in the prefrontal cortex and the Default Mode Network (DMN), potentially enhancing access to information stored outside standard neuronal mechanisms [13].

The Uncertainty Space as an Extension of Perception If the brain functions as an interface rather than a data repository, this implies that consciousness extends beyond physical neuronal structures. This perspective opens up possibilities for new research on how different states of consciousness, mental practices, or emotional conditions influence an individual's ability to receive and organize information from the uncertainty space.

- Experiments on the so-called "morphic memory hypothesis" suggest that information may be stored outside the body and retrieved by the conscious mind in a way that transcends traditional memory understanding [47].
- In the uncertainty space model, perception may operate through a dynamic informational interference mechanism, where the mind selects the structures most aligned with its current state of consciousness.

Conclusion Viewing the brain as an interface rather than a static data storage unit allows for a new interpretation of phenomena such as intuition, creativity, and the ability to recall information suddenly. This perspective opens new research avenues into methods of modulating access to the informational space of consciousness through mental practices, relaxation states, and the dynamics of neuronal activity.

7 The Transition from the Uncertainty Space to Spacetime

7.1 The Tunneling Mechanism as a Process of Reality Emergence

In classical physical theories, reality is described within the framework of spacetime, where physical processes occur deterministically or probabilistically within quantum and gravitational equations. However, if spacetime is not a fundamental structure of reality but rather the result of processes occurring at a deeper level—the uncertainty space—it is necessary to define a mechanism that allows the transition from potential states to the emergence of a concrete spacetime.

A detailed discussion of the tunneling mechanism in the uncertainty space can be found in the work *"The Uncertainty Space as the Foundation of Spacetime Geometry"* [35].

Reality tunneling refers to the process in which fluctuations in the potential field of the uncertainty space lead to the extraction of a stable structure that manifests as spacetime. This phenomenon is analogous to the quantum tunneling effect in quantum mechanics, where particles can penetrate a potential barrier despite it being classically forbidden.

According to the proposed model:

- The uncertainty space contains an infinite number of possible reality states, coexisting as pure potentialities.
- The emergence of spacetime is not a random phenomenon but occurs through a directed reorganization of informational structures.
- The tunneling mechanism allows a specific configuration of reality to emerge from the infinite set of potential states.

Mathematically, this can be represented as the transition of a system from a non-local distribution of states Φ to a concrete manifestation Ψ :

$$\Psi = T(\Phi), \quad (17)$$

where T represents the tunneling operator, which selects a specific state from the infinite set of potential realities.

This process can be compared to a quantum phase transition, in which a system undergoes reorganization, transitioning from a chaotic state to a stable configuration. Tunneling does not require external intervention but arises from the internal conditions of the uncertainty space, meaning that spacetime can spontaneously emerge from fluctuations in the potential field.

7.1.1 The Transition from Infinity to Finite Manifestation

Tunneling can be understood as a process of selecting specific informational patterns from an infinite set of possibilities within the uncertainty space. The key factors in this process include:

- Stability of configurations – energetically more stable structures have a higher probability of manifestation.
- Informational coherence of a state – systems with high internal coherence are more likely to emerge as reality.
- Informational interference – interactions between potential states may lead to the emergence of a dominant configuration.

In this context, spacetime is not a fundamental entity but rather **a product of a selection process** occurring at the level of information. The tunneling mechanism provides a natural way to transition from the level of potential reality to reality manifesting in a specific form.

7.1.2 Can Reality Tunneling Have a Directional Character?

Traditional models of quantum tunneling assume that this process is probabilistic and does not follow a directed determination. However, in the uncertainty space model, it is possible that tunneling is not purely random but may be influenced by informational structures.

If reality emerges as a result of information interaction, then:

$$P(\Psi) = f(T, \Phi), \quad (18)$$

where $P(\Psi)$ represents the probability of a given state Ψ manifesting, depending on the tunneling operator T and the distribution of potential realities Φ .

This implies that:

- The process of reality emergence may not be entirely random but rather dependent on the internal informational structure of the uncertainty space.
- There exist mechanisms for selecting preferential tunneling pathways that determine stable structures of reality.
- Intention may play a role in influencing state selection, which will be discussed in the next subsection.

7.1.3 Preferential Tunneling Pathways and the Structure of Information

The results of previous analyses indicate that the selection of preferential tunneling pathways arises from several key mechanisms [33]:

- **Minimization of informational entropy** – information with a high degree of chaos has a lower probability of stabilizing in reality, leading to the selection of structures with a higher degree of order [33].
- **The principle of least action in the informational context** – reality tunneling favors solutions that minimize the "informational cost" of transitioning to a new state.
- **Stability of informational configurations** – systems with higher informational coherence have a greater likelihood of manifestation, suggesting that reality prefers more consistent structures [33].
- **Informational resonance** – tunneling pathways may be "attracted" to states that resonate with existing informational structures, potentially leading to recurring patterns in reality.
- **Intention as a mechanism for reality selection** – if information in the uncertainty space is influenced by conscious intention, it is possible that tunneling prefers specific directions of reality manifestation, according to the intentional interaction of information [33].

This perspective implies that reality does not emerge randomly but as a result of specific organizational principles that operate at the informational level within the uncertainty space. Tunneling is, therefore, not a chaotic process but a mechanism that determines how the uncertainty space manifests as a concrete spacetime.

7.2 Potential Field Fluctuations as the Primary Mechanism Initiating Spacetime Structure

The uncertainty space, as the fundamental level of reality, does not possess classical parameters such as time or space. Instead, it can be considered an infinite set of potential states that may manifest in a specific structure as a result of information selection mechanisms and tunneling transitions [33]. The mechanism of informational fluctuations and their role in the emergence of spacetime has been discussed in the work *"The Uncertainty Space as the Foundation of Spacetime Geometry"* [35].

Unlike classical quantum fluctuations, the uncertainty space does not undergo spontaneous disturbances. Potential field fluctuations arise only due to **interactions with fundamental forces**, such as:

- Gravity, which induces local disturbances in the uncertainty space, initiating the process of spacetime emergence [33].
- Asymptotic freedom of quarks, which interacts with the potential field, leading to local tunneling transitions [35].
- Information selection, in which stable informational structures are more likely to manifest in the form of spacetime [35].

7.2.1 The Ordering Mechanism of the Uncertainty Space

Potential field fluctuations are not random but result from fundamental organizational mechanisms that determine their structure:

- **The Principle of Minimum Entropy** – the uncertainty space favors stable configurations with the lowest informational entropy [33].
- **Quantum Decoherence** – unstable informational states are eliminated, and only ordered configurations have a chance to manifest in spacetime [35].
- **Gravitational Interaction as an Initiating Mechanism** – local disturbances in the potential field, caused by gravity and asymptotic freedom of quarks, may lead to the emergence of new structures of reality [35].

7.2.2 Mathematical Description of Spacetime Emergence

The uncertainty space contains a potential field Φ , whose dynamics determine the possibility of classical spacetime emergence. The interaction mechanism of the potential field with other fundamental forces can be expressed as:

$$\frac{\partial^2 \Phi}{\partial t^2} - \nabla^2 \Phi + V'(\Phi) = I(\Phi), \quad (19)$$

where:

- Φ – the potential field in the uncertainty space,
- $\nabla^2 \Phi$ – the Laplacian operator describing geometric fluctuations of space,
- $\frac{\partial^2 \Phi}{\partial t^2}$ – the effect of temporal evolution, appearing only after spacetime emerges,

- $V'(\Phi)$ – the derivative of the potential field, determining its stability,
- $I(\Phi)$ – the influence of intention as a selection mechanism for states in the uncertainty space.

Tunneling Transition as a Mechanism for Spacetime Emergence Spacetime reality emerges through a tunneling transition from the uncertainty space when the following condition is met:

$$\Psi = \hat{T}(\Phi), \quad (20)$$

where:

- Ψ – the manifested reality in spacetime,
- \hat{T} – the tunneling operator, which defines the transition conditions between the uncertainty space and emergent reality.

The tunneling operator can be formalized as:

$$\hat{T} = e^{-\frac{S_E}{\hbar}}, \quad (21)$$

where S_E is the Euclidean action describing the transition process between the potential space and physical reality.

The Influence of Intention on Reality Emergence The application of the intention operator in the uncertainty space allows for further determination of which states are more likely to transition into manifested reality. Intention influences the tunneling transition by modifying the system's action function:

$$S'_E = S_E - \lambda \langle \Phi | \hat{I} | \Phi \rangle. \quad (22)$$

Thus, the probability of a particular state of reality emerging under the influence of intention can be expressed as:

$$P(\Psi | \hat{I}) = e^{-\frac{S_E - \lambda \langle \Phi | \hat{I} | \Phi \rangle}{\hbar}}. \quad (23)$$

The stronger the intention interacts with the potential space, the greater the likelihood that a specific state of reality will manifest.

Summary

- The emergence of spacetime from the uncertainty space is a quantum tunneling process.
- The tunneling operator \hat{T} describes the transition from the potential space to reality.
- Intention may influence reality emergence by reducing the action function S_E , thereby increasing the probability of specific states manifesting.
- This process suggests that consciousness may play an active role in shaping the structure of reality.

7.2.3 Mathematical Description of Intention as a Reality Selection Mechanism

The previously introduced mathematical structure of the uncertainty space does not yet account for intention as a factor determining the selection of a particular reality state. Intention acts as an information selection mechanism, leading to the choice of a specific state Ψ_i from the entire distribution of potential configurations Φ .

Statistical Formalism of Reality Selection In general, the probability of a reality Ψ_i manifesting can be expressed as a function of the system's action:

$$P(\Psi_i) = \frac{e^{-S(\Psi_i)}}{Z}, \quad (24)$$

where:

- $P(\Psi_i)$ – the probability of reality Ψ_i manifesting,
- $S(\Psi_i)$ – the system's action function, determining the informational cost of realizing a given reality state,
- $Z = \sum_j e^{-S(\Psi_j)}$ – the partition function normalizing the probabilities of all possible states.

Introducing the Intention Operator Intention, as an informational factor, influences $S(\Psi_i)$, minimizing the action value for states aligned with a given intention \hat{I} . This can be written as:

$$S(\Psi_i|\hat{I}) = S_0(\Psi_i) - \lambda \langle \Psi_i | \hat{I} | \Psi_i \rangle, \quad (25)$$

where:

- $S_0(\Psi_i)$ – the original action function for a given state in the uncertainty space,
- \hat{I} – the intention operator, assigning preference to specific reality states,
- λ – the intensity coefficient of intention, determining how strongly intention influences reality selection.

The Influence of Intention on the Probability Distribution of Reality Thus, the probability of a reality manifesting under the influence of intention can be expressed as:

$$P(\Psi_i|\hat{I}) = \frac{e^{-(S_0(\Psi_i) - \lambda \langle \Psi_i | \hat{I} | \Psi_i \rangle)}}{Z}. \quad (26)$$

This expression suggests that intention acts as a selector that modifies the probability distribution within the space of potential states Φ . The greater the value of $\langle \Psi_i | \hat{I} | \Psi_i \rangle$ for a given state, the higher the probability of its manifestation.

The Dynamics of State Evolution Under the Influence of Intention To better understand how intention alters the trajectory of reality's evolution, we can express the dynamic dependence of intention as a mechanism attracting specific solutions in the potential space:

$$\frac{dP(\Psi_i|\hat{I})}{dt} = -\alpha \frac{dS(\Psi_i|\hat{I})}{dt}, \quad (27)$$

where α defines the rate of informational structure reorganization. This equation shows that intention shapes the evolution of state probabilities by dynamically modifying the potential space.

Dependence of Intention on the Informational Structure For a more general case, the intention operator can be written as:

$$\hat{I} = \int d^3x f(x) |\Phi(x)\rangle \langle \Phi(x)|, \quad (28)$$

where:

- $f(x)$ is a function describing the intensity of intention at a given point in the uncertainty space,
- $|\Phi(x)\rangle$ represents a local fluctuation state within this space.

This description illustrates that intention is not a single, static operator but rather a dynamic function that evolves with the system, altering the trajectories of reality selection.

Summary

- Intention acts as an informational operator influencing reality selection by modifying the action function $S(\Psi)$.
- The selection process is not random but shaped by the degree of information organization in the uncertainty space.
- The intention operator \hat{I} can be treated as a weighting function that assigns preferential probability to specific reality states.
- Reality selection in this model is dynamic and evolves according to an attraction equation favoring ordered states.

7.2.4 Dependence of Intention on Boundary Conditions

In previous sections, I discussed that the effectiveness of intention depends on:

- The coherence of consciousness and the elimination of subconscious conflicts.
- The synchronization of brain hemispheres, influencing the integration of information processing.
- The release of intention, allowing its transmission into the uncertainty space.

Formally, this can be expressed as:

$$\lambda = f(C, S, U), \quad (29)$$

where:

- C – the coherence coefficient of consciousness, determining the degree of absence of conflicting information in the system.
- S – the level of brain hemisphere synchronization, affecting the consistency of informational processes.
- U – the intention release coefficient, determining whether the intention is not attached to the outcome, which could otherwise block its influence on reality.

If λ is close to zero, intention does not influence reality. When λ reaches a high value (under fulfilled boundary conditions), the influence of intention on reality selection becomes significant.

Intention is not a random phenomenon but acts as a mechanism for selecting reality states. Its effectiveness depends on boundary conditions, and its influence can be expressed as a modulating factor in the action function within the uncertainty space. This model allows for further experimental analysis and potential testing of the impact of conscious intention on reality processes.

7.2.5 Directed Fluctuations

In the classical approach, quantum fluctuations are considered a random process. However, in the uncertainty space model, there is a possibility that fluctuations are not purely random but are subject to fundamental organizational principles [33]:

- **Ordering processes within the uncertainty space** may influence the dynamics of fluctuations, imparting a specific structure.
- **The recurrence of certain patterns in the Universe** may result from the tendency of fluctuations to self-organize into stable configurations [35].
- **Fundamental interactions may direct fluctuations** – asymptotic freedom and gravity may act as ordering forces that assign fluctuations a specific transition vector into spacetime [35].

Thus, potential field fluctuations are not merely a random mechanism but may serve a structural role, guiding the formation of spacetime in a manner that is not entirely random. There are deeper organizational principles that determine which configurations of reality may emerge from the uncertainty space.

7.3 Does Intention Influence the Collapse of the Uncertainty Space, Determining the Structure of Reality?

In standard quantum physics models, wave function collapse occurs at the moment of measurement, and the outcome of this process is probabilistic. However, if the uncertainty space is the fundamental level of reality, then collapse may not be random but directed by **intention**—a mechanism determining the selection of specific reality states [35].

7.3.1 Intention as a Factor Influencing Collapse

In the uncertainty space model, intention may function as an organizing mechanism shaping reality by:

- **State selection in the process of reality emergence** – intention may act as an operator reducing the number of possible configurations.
- **Informationally directed collapse** – instead of a purely random state selection, intention may influence the probability of specific patterns manifesting.
- **Harmonization with existing reality structures** – if reality follows principles of informational coherence, intention may lead to the recurrence of specific configurations.

Mathematically, this can be described as a selection process, where the intention operator I acts on the set of potential states Φ , selecting a specific configuration Ψ :

$$\Psi = I(\Phi), \tag{30}$$

where:

- Ψ – the manifested reality,
- Φ – the space of potential reality states,
- I – the intention operator influencing the selection of specific states.

7.3.2 Collapse as an Informational Process

If the uncertainty space is the fundamental level of reality, then wave function collapse is not the result of classical measurement but may stem from **informational selection mechanisms** that determine the manifestation of specific states. This implies that:

- Collapse is not random but is influenced by the informational structure of the uncertainty space, meaning that certain configurations are preferred in the selection process.
- Intention may function as a **selection mechanism** that amplifies specific states, increasing the probability of their manifestation as physical reality.
- Ordering mechanisms within the informational space may influence how the structure of spacetime emerges, suggesting the existence of fundamental organizational principles in the formation of reality.

In the classical approach of quantum mechanics, measurement is considered the factor enforcing wave function collapse. However, in our model, measurement is not merely a passive act of recording reality but rather an informational interaction, where state selection is determined by informational structures.

This phenomenon can be compared to interference in quantum mechanics—just as waves can reinforce or cancel out specific configurations, so too can intention act as a **selection mechanism**, enhancing those informational patterns that are most aligned with the structure of reality.

7.3.3 Consciousness as a Factor Influencing Reality Collapse

One of the key questions arising from this hypothesis is whether intention operates at a fundamental level independently of biology or whether it requires a conscious observer. Two **parallel and non-exclusive** scenarios are possible:

- **Intention as a universal informational mechanism** – it operates independently of conscious beings, organizing reality at a fundamental level.
- **Intention as a factor dependent on consciousness** – the collapse process may be modified by conscious observers who, through their intentions, influence the structure of reality, **but at a local level, by selecting specific information contained in the uncertainty space as potential.**

If intention is a process organizing reality, this would imply that spacetime does not emerge randomly but is subject to a process of directed selection. In the next section, we will analyze how this process may occur in the context of black holes as regions of information selection.

8 Boundary Conditions for the Influence of Intention on Collapse

8.1 Introduction

Defining the boundary conditions for the influence of intention on the collapse of reality is one of the greatest challenges in this study. This process is complex and multidimensional, requiring consideration of both neurobiological mechanisms and the structure of consciousness as an informational system.

There are currently no conclusive studies confirming the direct influence of intention on wave function collapse. Most experiments suggesting such a possibility rely on statistical analysis rather than clear, repeatable effects [21]. An example is experiments with random event generators (REG), which have shown that intention can influence outcomes in a statistically significant but not deterministic way [32]. The issue with these studies is the lack of control over the internal factors of individuals—factors such as subconscious conflicts, brain hemisphere synchronization, and the ability to formulate precise intention were not considered, as the studies were conducted on a random group of participants [27].

In this work, I attempt to define the **minimal conditions** that must be met for intention to have a real impact on the collapse process. I emphasize that these are assumptions requiring experimental verification—currently, there are no tools available to confirm them definitively. However, they are based on existing neurobiological, psychological, and informational knowledge regarding the structure of consciousness, as well as my own long-term experience and observations.

These conditions are derived from several key premises:

- **Intention is not an independent entity but a result of consciousness**—to be effective, it must be coherent and free from disturbances caused by subconscious conflicts.

- **Subconscious conflicts may disrupt intention**, preventing it from reaching the uncertainty space in a form consistent with the original purpose.
- **Neurobiology provides tools for assessing mental coherence**—full synchronization of brain hemispheres may be one of the key factors determining the ability to effectively influence collapse.
- **Intelligence may be linked to the level of consciousness integration**, although its role is ambiguous—it may reinforce rationalizations maintaining conflicts up to a certain level but, beyond a certain threshold (likely IQ 130+), may facilitate their resolution.
- **Emotional intelligence, understood as the ability for introspection and effective conflict resolution**, may be as crucial as cognitive intelligence.

The goal of this chapter is to identify the factors that may determine the influence of intention on reality and how they can be measured. In the following sections, I will analyze:

- What mechanisms may disrupt intention and why consciousness coherence is crucial.
- What criteria should be considered when selecting participants for experiments investigating the effect of intention on collapse.
- What neurobiological and psychophysical methods exist that can be used for an objective assessment of boundary conditions.

This analysis aims to create a starting point for further research that may provide experimental evidence for the influence of intention on reality. **I emphasize that these findings are not final—they represent an initial attempt at a systematic approach to the problem and require further verification.**

8.2 Intention as a Result of Consciousness

Intention is not an independent phenomenon but arises from the organization of information within an individual's consciousness. For it to effectively influence reality, it must be **coherent, precise, and free from distortions**. Otherwise, it becomes deformed before reaching the uncertainty space, preventing it from having a defined impact on collapse.

8.2.1 Intention as an Informational Process

In classical approaches to consciousness, intention has often been treated as a conscious decision or motivation for action. However, in this model, I propose that intention is not merely a conscious desire but rather **the result of informational processes within consciousness**, encompassing both the conscious and subconscious levels.

Every intention is the sum of all information recorded in an individual's consciousness. It is not solely the product of conscious thought but the interaction between:

- Explicit consciousness – the intention that an individual consciously formulates.

- The subconscious – a system of patterns, beliefs, and defense mechanisms that may support or sabotage the original intention.
- The unconscious level – an informational structure that may influence intention in a way unnoticed by the individual.

For an intention to be effective, it must not result from internal contradictions. **If consciousness is not coherent, then even if an individual declares a specific intention, it may be disrupted by subconscious mechanisms.**

8.2.2 Subconscious Conflicts as a Factor Deforming Intention

Subconscious conflicts are unresolved thought patterns that act as filters, distorting intention. Even if an individual consciously desires to achieve a specific goal, contradictory beliefs within them may alter the content of the intention before it "reaches" the informational space of reality.

This can be compared to attempting to send an encoded message through a damaged communication system— even if the original signal is correct, it gets distorted along the way, changing its final meaning.

Examples of intention deformation due to subconscious conflicts:

- **Fear of success** – an individual declares an intention to achieve success but subconsciously fears the changes it may bring.
- **Conflicting family patterns** – a person wants to attract prosperity but internally feels guilty because their family believed that "money corrupts people."
- **Lack of self-worth** – an individual may desire love, health, or success but subconsciously feels undeserving, which sabotages their intention.

All these factors cause **intention to lose its coherence and effectiveness**. The more internal contradictions exist, the less impact the intention has on shaping reality.

8.2.3 The Role of Consciousness Coherence in the Effectiveness of Intention

For intention to influence the collapse of reality, it must be free from distortions. This requires:

- A high level of integration of information within an individual's consciousness.
- A minimal number of internal conflicts and contradictory beliefs.
- The ability to consciously direct intention without subconscious modifications.

Full integration of consciousness means that an individual:

- Does not possess internal contradictions regarding formulated intentions.
- Is capable of consciously analyzing their emotions and thought patterns, eliminating defense mechanisms.
- Can precisely formulate an intention without the risk of subconscious transformation.

This level of coherence may be the key condition enabling a real influence of intention on reality.

Intention, as a result of the informational structures of consciousness, interacts with the uncertainty space through mechanisms of reality state selection. However, the quality of the transmitted information directly depends on its coherence—the fewer contradictions it contains, the greater the precision of transmission and the lower the risk of distortion in its interaction with the fundamental level of reality.

8.3 Mechanisms Disrupting Intention

For intention to effectively influence reality, it must be coherent and precise. However, in most cases, intention does not reach the uncertainty space in its original form—it is modified and disrupted by internal mechanisms of the individual. This process can be compared to a radio signal that experiences interference if the transmitter and receiver are not fully synchronized.

In this section, I analyze three key factors that disrupt intention:

- **Subconscious conflicts** – internal contradictions that deform intention.
- **Asymmetry and desynchronization of brain hemispheres** – lack of neural integration affecting the coherence of information processing.
- **Inability to consciously direct intention** – lack of skill in precisely formulating thoughts and emotions.

8.3.1 Subconscious Conflicts as a Filter Deforming Intention

Subconscious conflicts are internal contradictions that act as a filter, altering the content of an intention before it is "sent" to the informational space. While an individual may consciously formulate a specific intention, their subconscious may work in the opposite direction, sabotaging the original purpose.

The most common mechanisms disrupting intention:

- **Rationalization** – the conscious mind strives for one goal, but the subconscious finds "logical" reasons to avoid achieving it.
- **Fear of change** – although an individual desires a specific state, their subconscious perceives it as a threat to stability.
- **Conflicting family patterns** – deeply ingrained beliefs from childhood may limit the ability to effectively influence reality through intention.

The more internal conflicts exist, the more disrupted the intention becomes, reducing its effectiveness. If an individual formulates an intention to achieve a goal but their subconscious generates conflicting signals, the final outcome may be random or entirely ineffective.

Subconscious conflicts cause the information sent to the uncertainty space to be imprecise and scattered, which disrupts the process of reality state selection. Consequently:

- Intention may lead to the manifestation of random outcomes that do not align with the original purpose.

- The informational space cannot "read" a clear signal because the transmission is incoherent.
- The stronger the internal conflicts, the greater the informational entropy affecting the mechanisms of reality collapse.

This suggests that the effectiveness of intention depends on the degree of consciousness harmony and the reduction of conflicting informational signals. Future research may determine how subconscious structures influence interaction mechanisms with the informational space and to what extent consciousness integration processes can enhance the effectiveness of formulated intentions.

8.3.2 Desynchronization of Brain Hemispheres and Intention Incoherence

Intention is not merely an abstract mental process—its effectiveness also depends on the neural structure of the individual. Research on brain function indicates that asymmetry in information processing between hemispheres may lead to internal thinking incoherence, resulting in a lack of precision in formulating intentions.

The brain hemispheres perform complementary functions:

- The left hemisphere is responsible for logical analysis and linguistic representation of thoughts.
- The right hemisphere processes emotional, intuitive, and holistic information.

When the hemispheres are not synchronized, an individual may struggle to integrate rational analysis with emotional coherence. For example:

- A person may consciously declare an intention, but their emotional beliefs contradict it.
- There may be inconsistency in thinking—e.g., an individual desires success but simultaneously experiences an irrational fear of it.
- The mismatch between thought and emotion causes the intention to become chaotic and lose its effectiveness.

One measurable indicator of brain hemisphere integration is the synchronization of brain waves (EEG). Research on gamma waves suggests that individuals with high hemisphere synchronization exhibit greater thought coherence and an increased ability to effectively formulate and realize intentions.

8.3.3 Conscious Awareness of Intention and Its Effectiveness

Even if an individual possesses a coherent consciousness and synchronized brain hemispheres, the effectiveness of intention also depends on its precision. **A vague, general, or contradictory intention cannot influence reality because it lacks sufficient informational structure for realization.**

Characteristics of an effective intention:

- **Clarity of message** – the intention should be unambiguous and leave no room for interpretation.

- **Precision in formulation** – the more specific the intention, the lower the likelihood of its distortion.
- **Emotional and rational alignment** – an effective intention must be coherent with both rational beliefs and emotional states.

Unconscious dispersion of intention is one of the primary reasons why attempts to influence the collapse of reality fail. If an individual is unaware of their own thought and emotional structures, their intention remains internally contradictory, leading to ineffectiveness.

In summary, an effective intention requires three key factors:

- Absence of subconscious internal conflicts.
- Full synchronization of brain hemispheres.
- Precise and consciously formulated intention.

8.4 Criteria for Selecting Individuals for the Experiment

To conduct reliable research on the influence of intention on the collapse of reality, it is necessary to establish precise criteria for selecting participants. The lack of such criteria in previous studies (e.g., experiments with random number generators) led to statistical rather than deterministic results. This means that the effect of intention was weak or ambiguous, which could be due to the fact that the experiment participants did not meet the necessary conditions for effectively influencing reality.

In this study, I define three main selection criteria that may determine an individual's ability to precisely affect the collapse of reality through intention:

- **Full synchronization of brain hemispheres** – elimination of inconsistencies in information processing at the neuronal level.
- **High cognitive intelligence (IQ 130+)** – ability for introspection and conscious modeling of one's thought processes.
- **High emotional intelligence** – ability to recognize and eliminate subconscious conflicts.

8.4.1 Synchronization of Brain Hemispheres

Research on neuroplasticity suggests that synchronization of brain hemispheres plays a key role in integrating cognitive and emotional functions. **Inconsistencies in information processing between hemispheres can lead to discrepancies between conscious intention and subconscious defense mechanisms.**

The most common symptoms of hemisphere desynchronization:

- Lack of alignment between rational thinking and emotional responses.
- Difficulty in consistently formulating and achieving goals.
- Tendency toward internal contradictions in decision-making.

In practice, synchronization of brain hemispheres can be measured using:

- EEG – analysis of brain waves, particularly gamma wave levels.
- fMRI – observation of activation in both hemispheres during information processing.
- Neuropsychological tests examining the integration of analytical and intuitive functions.

Participants in the experiment should demonstrate a **high level of brain hemisphere synchronization**, which can be objectively assessed using the methods mentioned above.

8.4.2 High IQ as a Factor Eliminating Cognitive Biases

A fundamental challenge in studying the influence of intention on collapse is the possibility of **unconscious rationalization and the maintenance of subconscious conflicts**. Cognitive intelligence (IQ) plays a crucial role in the ability for introspection and objective analysis of one's beliefs.

Why an IQ level above 130?

- Below this threshold, an individual may exhibit a tendency to rationalize contradictory beliefs rather than eliminate them.
- An IQ level above 130 enables more advanced analysis of one's thought processes and more effective control over internal patterns.
- A higher-than-average but lower-than-130 IQ may lead to excessive skepticism toward one's intuitive perceptions, which could also limit the effectiveness of intention.

The selection of participants based on IQ may be conducted using:

- Standardized IQ tests (e.g., WAIS, Cattell).
- Tests measuring logical and creative thinking abilities.
- Tests assessing the ability to consciously direct attention and reduce cognitive biases.

8.4.3 Emotional Intelligence as a Key Factor in Eliminating Intention Disturbances

A high level of cognitive intelligence alone is not sufficient—an individual must also possess the ability to consciously manage their emotional state.

According to Daniel Goleman's definition [16], emotional intelligence includes:

- The ability to identify one's emotions and their impact on thought processes [45].
- The capacity to regulate emotions to minimize their disruptive influence on decision-making [28].
- The ability to maintain internal harmony and resolve subconscious conflicts [16].

In the context of the influence of intention on reality, **emotional intelligence acts as a regulator of intention coherence**. An individual with low emotional intelligence may:

- Formulate an intention that contradicts their own emotions.
- Subconsciously sabotage their own actions due to unresolved conflicts.
- Struggle to maintain a consistent direction of thought.

Methods for assessing emotional intelligence:

- Psychometric tests measuring the ability to identify and regulate emotions.
- Observation of emotional coherence levels during tasks requiring conscious attention control.
- Analysis of neuronal activation patterns in brain areas related to emotion regulation (e.g., prefrontal cortex, amygdala).

8.4.4 Combining the Three Criteria as a Condition for Effective Intention

Each of the described criteria plays a significant role; however, only their combination can enable an experiment to be conducted with a high level of credibility.

The ideal participant for the experiment should be characterized by:

- High synchronization of brain hemispheres (confirmed by EEG or fMRI).
- An IQ above 130.
- High emotional intelligence, allowing control over the influence of emotions in the process of intention formulation.

Without meeting these conditions, experiments on the influence of intention on collapse may lead to statistical but not deterministic results.

8.5 Neurological Indicators of Intention Blockade – Proposal for EEG and fMRI Research

To effectively study the influence of intention on reality, it is necessary to consider the internal psychoneurological mechanisms that may sabotage the intentional process. Previous studies using EEG and fMRI suggest that specific patterns of neuronal activity may indicate internal informational blockages that prevent the effective transmission of intention into the uncertainty space.

8.5.1 EEG and Brainwave Analysis in the Process of Intention

EEG studies indicate that different states of consciousness are characterized by distinct patterns of brainwave activity. In the context of intention blockade, the following factors are particularly relevant:

- **Dominance of beta waves (13–30 Hz)** – excessive beta wave activity is associated with cognitive analysis, stress, and excessive control over the process. This may interfere with the natural flow of intention, blocking its "release."

- **Deficiency of alpha (8–12 Hz) and theta waves (4–8 Hz)** – alpha and theta waves are crucial for meditative and mindfulness states, which may enhance the effectiveness of intention by reducing internal conflicts.
- **Sudden changes in frontal activity** – studies suggest that activation of the left prefrontal cortex (associated with rationalization) may weaken the effect of intention through subconscious beliefs and defense mechanisms.

The proposed EEG study could include an analysis of these brainwaves at two key moments:

1. **During intention formulation** – does the brainwave pattern indicate hemispheric synchronization and dominance of relaxation states?
2. **After the "release" of intention** – does beta wave activity return, suggesting excessive attachment to the outcome?

8.5.2 fMRI and Identification of Subconscious Blockades

Functional magnetic resonance imaging (fMRI) enables real-time analysis of activity in specific brain regions. In the context of intention and its blockades, the following structures are particularly relevant:

- **Amygdala** – excessive activity may indicate a fear response to change, weakening the intention.
- **Anterior cingulate cortex (ACC)** – responsible for resolving internal conflicts; low activity may suggest difficulty in aligning intention with an individual's actual belief system.
- **Hippocampus** – its activity may indicate access to previous thought patterns; if a person formulates an intention while simultaneously activating negative beliefs, the intention may become distorted.

8.5.3 Proposed Experiment

To verify the impact of brain activity on the effectiveness of intention, I propose a three-stage experiment:

1. **Recording EEG and fMRI during intention formulation** – measurement of dominant brainwave patterns and activation of specific brain regions.
2. **Attempt to "release" the intention** – instruction for participants to stop focusing on the outcome and allow the intention to act.
3. **Analysis of brain activity after releasing the intention** – does beta wave activity and activation of control-related structures increase, indicating a subconscious blockade?

Hypothesis: If intention influences reality, its effectiveness should be higher under conditions where EEG indicates hemispheric synchronization, theta wave dominance, and low activation of areas associated with control and fear.

8.5.4 Significance of Research

Incorporating neurological factors into studies on intention will allow for:

- Distinguishing coherent intentions (free from internal conflicts) from intentions distorted by beliefs and defense mechanisms.
- Excluding individuals with excessive beta wave activity and lack of hemisphere synchronization from experiments on the influence of consciousness on reality.
- Developing a new research methodology for studying intention, based on measurable neurophysiological indicators.

Integrating EEG and fMRI into studies on intention opens new possibilities for scientifically verifying the hypothesis that consciousness can actively influence reality—but only under specific boundary conditions. This approach will provide a deeper understanding of how neurobiology integrates with informational models and quantum mechanics in the context of the uncertainty space.

8.6 Experimental Methodology

To verify the hypothesis regarding the influence of intention on the collapse of reality, it is necessary to design an experiment that meets rigorous methodological criteria and incorporates the previously established boundary conditions. This section presents a proposed experimental approach to studying intention, which minimizes disturbances and allows for the isolation of actual effects.

8.6.1 Experiment Assumptions

The experiment design is based on several key assumptions:

- Participants must meet specific neurocognitive conditions to minimize confounding variables. These criteria include:
 - **Full synchronization of brain hemispheres**, confirmed by EEG testing. This synchronization is associated with optimal integration of perceptual and decision-making processes, which may enhance the effectiveness of intention.
 - **IQ above 130**, as an indicator of the ability to maintain prolonged concentration and process complex informational structures.
 - **High emotional intelligence**, assessed through psychometric tests. Emotional stability is crucial for maintaining a coherent intention and eliminating internal contradictions.
- The experiment should utilize systems capable of detecting the influence of intention on the selection of a reality state, including:
 - **Random event generators (REG)**, analyzing whether intention affects statistical deviations from pure randomness.
 - **Optical systems**, such as interference experiments, where intention could influence light interference patterns.

- **Quantum experiments**, particularly the double-slit experiment, examining whether intention affects wave function collapse.
- To eliminate possible confounding factors, it is necessary to:
 - Reduce stress – experimental conditions must ensure a relaxed state, which can be monitored through heart rate variability (HRV).
 - Control environmental variables – isolation from external stimuli such as noise and light, which could affect concentration levels.
 - Eliminate emotional instability – before the experiment, an assessment of participants' psychological stability is conducted to avoid emotional variables affecting the results.

8.6.2 Stages of the Experiment

The experiment will consist of three main stages:

1. Selection of Participants

- Preliminary qualification based on IQ and emotional intelligence tests.
- Assessment of brain hemisphere synchronization using EEG, focusing on measuring coherence in the alpha (8 – 12 Hz) and gamma (30 – 100 Hz) bands.
- Elimination of participants who do not meet all three criteria.

2. Conducting the Experiment

- Each participant is placed in a controlled environment to minimize external influences.
- The participant is assigned the task of formulating and maintaining an intention, aimed at altering the measurement outcome of the experimental system.
- Their brain activity and emotional stability are monitored, specifically:
 - EEG analysis during the experiment to determine correlations between neuronal state and experimental outcomes.
 - Measurement of heart rate variability (HRV) as an indicator of nervous system synchronization.
 - A post-experiment questionnaire assessing the subjective effectiveness of intention.

3. Analysis of Results

- The data undergo statistical analysis, including:
 - Normality tests (Shapiro-Wilk, Kolmogorov-Smirnov) to determine the distribution of results.
 - Difference tests (ANOVA, t-test for independent samples) comparing the experimental and control groups.
 - Correlation analysis between neuronal activity and experimental outcomes.

- Comparison of results from participants meeting the criteria with those of a control group, where participants are randomly selected.
- Evaluation of whether the differences are statistically significant ($p < 0.05$) and whether the effect of intention is replicable in subsequent trials.

8.6.3 Methods for Measuring the Influence of Intention on Reality

To verify the influence of intention, the experiment may utilize various measurement systems capable of recording subtle changes in physical and quantum measurement setups.

1. Random Event Generators (REG)

- REG studies suggest that intention may influence the statistical distribution of generated numbers, altering expected mean values compared to predictions for purely random systems.
- This experiment will test whether individuals meeting the boundary conditions exhibit a stronger and more consistent effect than participants in the control group.
- Analysis will include statistical tests such as deviation analysis from a normal distribution and chi-square tests for long-term deviations from randomness.

2. Optical Experiments

- Possible utilization of light wave interference, where intention could influence interference patterns, e.g., through slight changes in amplitude or phase of light in optical systems.
- Experiments will include:
 - Analysis of intensity variations in a Michelson–Morley interferometer.
 - Changes in light polarization as a possible effect of non-local interaction of intention.
 - Testing the influence of intention on multi-photon quantum entanglement in optical interference networks.

3. Quantum Experiments

- Investigation of the effect of intention on wave function collapse, e.g., in double-slit experiments.
- Analysis will include:
 - Changes in interference patterns depending on the observer’s intention.
 - Testing the hypothesis of whether conscious intention affects the particle detection distribution beyond random deviations.
 - Use of commercial and laboratory quantum recording systems (e.g., high-time-resolution photon detectors) to detect potential fluctuations caused by intention.

4. Recording Neural Activity During the Experiment

- Use of electroencephalography (EEG) to record brain activity during the intention formulation process.
- Analysis in the gamma wave band (30–100 Hz), associated with high-level perceptual processes and conscious information processing.
- Testing the hypothesis of whether specific patterns of neural activity correlate with the effectiveness of intention's influence on physical systems.

8.6.4 Conditions for Eliminating Experimental Errors

For the experiment to have scientific validity, it is necessary to consider factors that could lead to false-positive results and to implement strict control procedures.

1. Double-Blind Trial

- Participants do not know whether they are in the experimental or control group, eliminating placebo effects and subjective autosuggestion.
- Experimenters conducting the measurements are also unaware of which participants belong to the experimental group, preventing unconscious influence on results.

2. Monitoring Brain and Physiological Activity

- Real-time EEG recording allows for determining whether the participant is in a state of maximum hemispheric synchronization and optimal emotional stability.
- Measurement of heart rate variability (HRV) as an indicator of relaxation level and internal control.
- Verification of participants' stress levels before and after the experiment to exclude the influence of emotional factors.

3. Adequate Sample Size

- Ensuring a sufficient number of participants for statistical significance of the results.
- Analysis of test power (β) to assess whether the sample size allows for detecting an effect of a given magnitude ($\alpha < 0.05$).
- Use of bootstrap and permutation methods to determine whether the effect of intention significantly differs from random fluctuations.

4. Random Assignment of Participants to Experimental and Control Groups

- Eliminating psychological effects arising from participants' prior beliefs about the effectiveness of intention.
- Analysis of results in control subgroups, including individuals with different levels of intentional awareness (e.g., meditating and non-meditating individuals).
- Consideration of additional demographic variables (e.g., age, gender, education) to eliminate potential correlations that could influence the results.

8.6.5 Possible Interpretations of Results

Depending on the outcomes of the experiment, several possible interpretations can be distinguished:

- **Strong Influence of Intention on the Experimental System** If individuals meeting the boundary conditions exhibit a significant effect on the experimental system, it would indicate that intention may function as a mechanism for selecting reality states. Confirming this result would require further research to precisely determine the interaction mechanism between intention and the uncertainty space.
- **Intention Effect Present in Both Groups (Experimental and Control)** If the effect of intention occurs in both groups with similar strength, it would suggest that boundary conditions (high emotional intelligence, hemispheric synchronization, etc.) are not crucial and that the mechanism of intention may be more universal than initially assumed. It could also indicate that other, uncontrolled factors influence the experimental effect.
- **No Significant Influence of Intention on the Experimental System** If no effect of intention on wave function collapse or physical systems is observed, further refinement of the experimental methodology will be necessary. Possible explanations include:
 - Insufficient sensitivity of the measurement systems used.
 - Inadequate sample size.
 - The possibility that intention operates more subtly than anticipated and requires specific conditions for effective influence.

8.6.6 Limitations and the Need for Further Research

It should be emphasized that the proposed experimental methodology requires further research and may not account for all possible factors influencing the effectiveness of intention. Potential directions for future studies include:

- **Analyzing the impact of long-term mental training on the ability to influence reality through intention.** Do individuals with extensive experience in meditation techniques, biofeedback, or other mental practices exhibit greater effectiveness in intention-based experiments?
- **Testing alternative methods for measuring the effect of intention.** It is possible that more sensitive detection methods exist beyond those used in the current experiment. New approaches should be considered, such as analyzing the influence of intention on far-from-equilibrium dynamic systems or highly sensitive neural networks.
- **Investigating whether additional neurobiological factors play a role in the effectiveness of intention.** EEG analysis may help determine whether specific brainwave patterns (e.g., gamma waves) correlate with increased intention effectiveness. Additionally, studies on neural network activity could provide further insights into the cognitive processes that support intention.

In summary, the experimental methodology must be rigorously controlled to eliminate cognitive biases and false correlations. Experiments conducted under the outlined framework could provide the first solid evidence on whether intention can genuinely influence the selection of reality states.

8.6.7 Dynamics of Intention – The Necessity of Releasing the Process

For intention to effectively influence reality, it must be released into the informational space. This process can be compared to a physical system where a state change requires dynamic interaction with the environment. **If an intention is held in consciousness in a static manner, it does not transform into a real effect.**

Mathematical Analysis of Intention Dynamics Intention can be treated as information within a dynamic system, where its effectiveness depends on the conditions allowing its "transition" into reality. This can be expressed as:

$$\frac{dI}{dt} = -\gamma I, \quad (31)$$

where:

- I – the level of intention retention in consciousness,
- γ – the "release" coefficient, determining how quickly the intention transitions into the informational space.

The greater the value of γ , the higher the ability to "let go" of the intention and transfer it into reality.

Neurobiology and Psychology of Intention Release EEG studies indicate that excessive focus on a single goal may activate the same neural mechanisms as stress, paradoxically reducing the effectiveness of intention. This effect can be related to the so-called "Zeigarnik effect," which suggests that unfinished tasks remain active in consciousness, potentially leading to blockage.

Additionally:

- **Excessive attachment to the outcome disrupts the intention mechanism, acting as an energetic blockage.**
- **Releasing intention should occur through a state of relaxation and lack of resistance.**

Intention Dynamics as an Analogy to Quantum Processes The dynamics of intention can be compared to a quantum process: if a system remains "frozen" in a state of superposition without interaction, collapse cannot occur. Similarly, if an individual continuously holds onto their intention in persistent mental activation, they prevent its transition into a real transformation process.

Application to Experiments From an experimental perspective, the following considerations should be taken into account:

- Providing participants with instructions on how to "release" the intention after formulating it.
- Measuring stress levels and emotional tension before and after the intention-formulation process.
- Testing the effectiveness of intention under different states of consciousness – e.g., in deep relaxation versus intense concentration.

8.7 Conclusions

Studying the influence of intention on the collapse of reality requires precisely defined boundary conditions, which have not been adequately considered in previous experiments on this phenomenon. In this chapter, I have presented arguments suggesting that intention is not an independent mechanism but rather a result of the internal coherence of consciousness and an individual's ability to formulate and release precise information into the uncertainty space.

8.7.1 Key Findings

Based on an analysis of informational, neurobiological, and psychological mechanisms, I have identified three fundamental boundary conditions that must be met for intention to effectively influence reality:

- **Synchronization of brain hemispheres** – the absence of internal asymmetry in information processing allows for the formulation of coherent and precise intentions.
- **IQ above 130** – cognitive intelligence enables conscious analysis and the elimination of cognitive biases and rationalizations that could sabotage the effectiveness of intention.
- **High emotional intelligence** – the ability to manage emotions eliminates subconscious conflicts and increases the coherence of intention.

Furthermore, a key element of the intention mechanism is **the dynamic nature of the process** – intention cannot be held in constant focus, as this disrupts its transition into the informational space and blocks its potential realization.

8.7.2 Significance of Findings for Consciousness Research

The results of this analysis indicate that:

- Experiments on the influence of intention on reality may lead to erroneous conclusions if they do not account for the aforementioned boundary conditions.
- The effectiveness of intention is not uniform – individuals with greater coherence of consciousness and better neurobiological integration may exhibit a stronger influence on reality.
- This mechanism can be tested experimentally, provided that precise methods for controlling boundary conditions are implemented.

8.7.3 Implications for Future Research

The proposed boundary conditions serve as a starting point for further research on the relationship between consciousness and physical reality processes. Future research directions may include:

- **Neurobiological tests of consciousness coherence** – using EEG and fMRI to determine which neural structures are responsible for the effectiveness of intention.
- **Experimental verification of intention's influence on collapse** – studies involving random event generators, optical experiments, and quantum tests.
- **Further investigation of intention dynamics** – analyzing which psychophysiological factors affect the effectiveness of the "release" process of intention.

In summary, this study represents the first systematic approach to the issue of boundary conditions for the influence of intention on reality. Applying these criteria in future experiments may provide new evidence for the fundamental role of consciousness in organizing physical reality.

9 Nonlocal Aspects of Consciousness and Experimental Verification

9.1 Can Consciousness Explain Long-Distance Mental Correlations?

One of the most intriguing aspects of consciousness involves phenomena related to long-distance mental correlations, which appear to go beyond classical physical models. Examples of such phenomena include:

- Emotional and cognitive synchronization between individuals separated by vast distances.
- Spontaneous telepathic phenomena, where one person experiences thoughts, emotions, or images related to someone in a completely different location.
- Experiments suggesting the existence of mental correlations even when no known mechanisms of information transmission are present.

Traditional science often considers such observations as mere coincidences or subjective experiences without physical foundations. However, if consciousness is an informational structure embedded in the uncertainty space, it is possible that mental correlations result from **nonlocal information exchange within a fundamental field of consciousness**.

Is Quantum Entanglement a Manifestation of the Same Mechanism?

Quantum entanglement and nonlocal mental correlations may have a common origin, but they are not identical. Entangled physical systems exhibit nonlocal correlations because their states remain informationally connected regardless of the distance in classical spacetime.

However, consciousness is not a classical entangled system but rather an emergent informational structure. It is possible that:

- Entangled systems remain connected through a nonlocal informational structure, but not all nonlocal correlations arise from quantum entanglement.
- The mechanism of quantum entanglement and nonlocal mental correlations may have a shared origin, but this does not stem from classical quantum processes.
- Explaining quantum entanglement in the context of the uncertainty space requires further research and will be the subject of a separate study [35].

This distinction suggests that consciousness does not operate based on quantum entanglement but is part of a more fundamental informational structure, where nonlocal interactions may occur independently of quantum mechanisms.

9.1.1 Mechanism of Nonlocal Correlations in the Uncertainty Space

In standard quantum mechanics, quantum entanglement is one of the best-documented nonlocal phenomena, where two particles can remain correlated regardless of the distance between them. In the uncertainty space, a similar mechanism may occur at the level of consciousness, where:

- The minds of different individuals may be connected through informational structures within the uncertainty space.
- Information can be transmitted nonlocally, independent of physical spacetime constraints.
- Correlations may result from informational resonance, where two consciousness systems remain in a state of shared informational structure.

If information in the uncertainty space does not adhere to classical spacetime limitations, then consciousness may function as a system of dynamic information exchange at a fundamental level.

9.2 Informational Resonance and Nonlocal Consciousness Correlations

One of the key premises of this study is that consciousness operates as an informational structure embedded in the uncertainty space. If information is not bound by classical spacetime constraints, it is possible that consciousness exhibits properties of nonlocal resonance, which could explain the phenomenon of long-distance mental correlations.

9.2.1 Mechanism of Informational Resonance

Informational resonance can be understood as a process of synchronizing information between structures of consciousness within the uncertainty space. The key assumptions of this model include:

- Consciousness operates at an informational level rather than classical matter.
- Resonance occurs due to frequency alignment between informational structures of individuals.

- Information can be transmitted nonlocally in the uncertainty space because it is not constrained by spacetime limitations.
- Informational structures in the uncertainty space may function as resonance templates that determine the degree of interaction between individuals.
- Mental synchronization, known from EEG studies, may be a macroscopic manifestation of informational resonance between consciousnesses [17, 49].

Formally, informational resonance can be described as:

$$I_A \sim I_B \Rightarrow R(I_A, I_B) > R_0, \quad (32)$$

where:

- I_A, I_B – informational structures of two interacting consciousnesses,
- $R(I_A, I_B)$ – resonance function describing the strength of informational interaction,
- R_0 – minimum resonance threshold above which information exchange can occur.

Resonance as an Effect of Synchronization of Informational Oscillators Informational resonance can also be described in terms of harmonic coupling. If consciousness operates as an informational oscillator, the resonance strength between two systems results from their frequency matching:

$$H = \sum_i k_i \cos(\omega_i t + \phi_i), \quad (33)$$

where:

- H – informational function of the resonating system,
- ω_i – natural frequency of a given consciousness system,
- ϕ_i – phase of informational oscillation,
- k_i – coupling coefficient between systems.

If two systems achieve sufficient parameter alignment, the **resonance condition** is met:

$$|\omega_A - \omega_B| < \Delta\omega_{krit}, \quad (34)$$

which means that the frequency difference between two consciousness systems must be smaller than the critical value $\Delta\omega_{krit}$ for informational resonance to occur.

Informational Resonance as a Mechanism of Synchronicity Mental synchronization and nonlocal effects may also be interpreted as macroscopic manifestations of the synchronicity mechanism described by Jung [22]. In the context of the uncertainty space, synchronicity is not a random coincidence but rather an effect of hidden informational resonance between reality states. This can be formalized as:

$$S(P_1, P_2) = \int_{\Omega} R(I_A, I_B) d\Omega, \quad (35)$$

where:

- $S(P_1, P_2)$ – intensity of the synchronicity effect between events P_1 and P_2 ,
- Ω – uncertainty space in which informational interactions occur.

Implications for Cognitive Processes

- Consciousnesses with similar informational patterns may enter into resonance, which could explain nonlocal mental correlations and effects of intuitive perception.
- Informational structures do not have to be limited to a single individual – they may exist in the uncertainty space as informational fields accessible to different conscious systems.
- Informational resonance may influence spontaneous recollection of information when specific resonance patterns are activated.
- Synchronistic effects may result from the dynamics of informational resonance, which links events with a shared informational structure, even if they are not connected by classical cause-and-effect mechanisms.

According to this model, if two individuals achieve sufficient informational alignment (e.g., through a state of consciousness with a similar informational structure), they may enter into resonance, allowing for information exchange beyond classical spacetime mechanisms. This mechanism could also explain sudden intuitive insights and spontaneous realization of information that was previously inaccessible at the conscious level.

Summary

- Informational resonance is a process of nonlocal consciousness synchronization that may explain long-distance mental correlations.
- This phenomenon has analogs in quantum physics (coupled oscillators) as well as in psychology (Jung’s synchronicity theory).
- Experimental studies on EEG and mental synchronization provide initial evidence that consciousness may function as a nonlocal informational structure.
- This mechanism may explain phenomena such as telepathy, synchronicity, and intuitive perception.

9.2.2 Experimental Verification of the Informational Resonance Model

If consciousness can resonate with other informational structures, it is possible to conduct experiments to verify this mechanism. Several approaches can be distinguished:

1. EEG Synchronization in Physically Separated Individuals

- Studies have shown that brain waves can synchronize between individuals located in different places, despite the absence of a classical communication channel [17, 49].
- In experiments on nonlocal EEG correlations, synchronized neural activity was recorded in pairs of participants who were in separate rooms and had no physical contact [38].
- If informational resonance occurs, we should observe EEG correlations exceeding random fluctuations, with their strength depending on the degree of emotional and cognitive engagement of the participants.

Measurement and Control Methods

- The use of spectral EEG analysis (e.g., coherence analysis) allows the assessment of the degree of brain wave synchronization in real-time.
- The studies should include controlled experimental conditions, including random assignment of pairs and double-blind conditions to eliminate placebo effects.
- It is also possible to use measurements of time delays in brain wave activation to determine whether synchronization occurs instantaneously (which would suggest a nonlocal mechanism) or with a delay (which would suggest classical communication mechanisms).

2. Research on Intuitive Information Exchange

- Experiments on spontaneous telepathy and mental correlations may provide evidence of nonlocal interactions [42].
- If the informational resonance mechanism is correct, it should be possible to predict thoughts or emotional states at a distance in a manner exceeding random chance.

Experiments and Testing Procedures

- **Remote Viewing Experiments** – testing whether participants can perceive hidden images, texts, or emotions of individuals in separate rooms.
- **Studies on Event Prediction** – tests in which participants attempt to anticipate random events generated by computer systems, assessing whether their accuracy exceeds chance.
- **Statistical Significance Analysis** – evaluating results for deviations from a random distribution, using permutation tests and Bayesian analysis to detect potential nonlocal effects.

3. Influence of States of Consciousness on Resonance

- It is possible to test whether specific states of consciousness (e.g., meditation, deep concentration) increase the strength of informational resonance.
- Research on meditation suggests that experienced meditators may exhibit a higher degree of EEG synchronization, which could correlate with the ability for informational resonance [8, 20].
- The introduction of EEG or functional magnetic resonance imaging (fMRI) methods would allow for studying patterns of neural activation during such interactions.

Experiments on Meditation and Intention

- Testing whether meditation influences the strength of mental correlations in pairs of study participants.
- Analyzing whether participants in a deep meditative state exhibit a higher degree of nonlocal correlations in EEG tests.
- Investigating the effects of different meditation techniques—such as transcendental meditation, vipassana, and concentration on intention—on the effectiveness of informational resonance.

4. New Approaches to Testing Informational Resonance

- Testing the influence of intention on random number generators (REG).
- Research on the interaction of thoughts with biological systems—examining whether intention can affect cell growth, changes in the body’s electromagnetic field, or the structure of water.
- Utilizing artificial intelligence and neural networks to detect subtle patterns of mental correlations.

Summary

- Experimental verification of informational resonance requires rigorous testing, controlled conditions, and statistical analysis to rule out random effects.
- EEG synchronization in separated individuals, studies on telepathy, and the influence of intention on physical systems may provide evidence for the existence of an informational resonance mechanism.
- Meditation and deep concentration states may enhance the resonance effect, suggesting that consciousness processes may modulate the degree of nonlocal informational interactions.
- Future experiments should employ the latest measurement technologies, including EEG, fMRI, and data analysis based on artificial intelligence, to detect subtle patterns of nonlocal correlations.

9.2.3 Mathematical Formalization of the Resonance Model

Informational resonance can also be described in terms of harmonic coupling. If consciousness operates as an informational oscillator, the strength of resonance between two systems can be assumed to result from their frequency matching:

$$H = \sum_i k_i \cos(\omega_i t + \phi_i), \quad (36)$$

where:

- H – informational function of the resonating system,
- ω_i – natural frequency of a given consciousness system,
- ϕ_i – phase of informational oscillation,
- k_i – coupling coefficient between systems.

Resonance Condition in the Informational Space If two systems achieve sufficient parameter alignment, the **resonance condition** emerges:

$$|\omega_A - \omega_B| < \Delta\omega_{krit}, \quad (37)$$

which means that the frequency difference between two consciousness systems must be smaller than the critical value $\Delta\omega_{krit}$ for informational resonance to occur. Otherwise, the systems remain independent, or their interaction is suppressed.

Resonance Dynamics in the Uncertainty Space Informational resonance does not occur in a vacuum – its conditions are determined by the structure of the uncertainty space. This mechanism can be formalized as a dependency on the parameters of the informational space:

$$R(\omega_A, \omega_B) = F(\Phi, S), \quad (38)$$

where:

- $R(\omega_A, \omega_B)$ – function of informational resonance between two consciousness systems,
- Φ – informational fluctuations in the uncertainty space, which can amplify or weaken the resonance effect,
- S – degree of informational structuring, determining the stability of a given resonance frequency.

The dynamics of resonance can be expressed as a coupled oscillator equation:

$$\frac{d^2x}{dt^2} + \gamma \frac{dx}{dt} + \omega_0^2 x = F(\Phi, S), \quad (39)$$

where:

- γ – damping coefficient of resonance in the informational space,
- ω_0 – natural frequency of the consciousness system,
- $F(\Phi, S)$ – function amplifying resonance depending on the parameters of the uncertainty space.

Types of Informational Resonance According to this model, informational resonance can be:

- **Spontaneous** – occurs naturally when informational systems achieve frequency alignment.
- **Induced** – can be amplified through intentional action of consciousness, suggesting the possibility of active regulation of resonance processes.
- **Damped** – if the informational structure of the uncertainty space is chaotic or if the systems have too great a structural discrepancy.

The Uncertainty Space as a Resonance Regulator Thus, the uncertainty space not only enables informational resonance but also regulates its effectiveness, determining which interactions are stable and which are extinguished. This can be expressed as:

$$R_{\text{effective}} = R(\omega_A, \omega_B)e^{-\gamma t}, \quad (40)$$

where the damping coefficient γ depends on the level of chaos in the uncertainty space.

Summary

- Informational resonance can be described as a coupled oscillatory system whose effectiveness depends on the parameters of the informational space.
- There are three forms of resonance: spontaneous, induced, and damped, which define the stability of interactions between consciousness systems.
- The uncertainty space is not a neutral medium – it can amplify or weaken resonance depending on the degree of informational structuring.
- Future research could test this model through EEG synchronization analysis and studies on the influence of states of consciousness on strengthening or damping resonance.

9.2.4 Experimental Observations and Potential Explanations

Despite skepticism regarding nonlocal phenomena in consciousness, there are experimental indications that mental correlations at a distance may have a real basis. Examples include:

1. Experiments on EEG Synchronization in Separated Individuals

- Studies have shown that brain waves can synchronize between individuals in different locations, despite the absence of a classical communication channel. Research conducted by Grinberg-Zylberbaum and Ramos demonstrated that pairs of individuals in separate rooms exhibited synchronized brain wave patterns, even though they had no physical contact [17].

- Further studies by Standish et al. suggest that brain wave synchronization can be enhanced by emotional connections between individuals, indicating the possibility of informational resonance [49].
- Persinger's experiments demonstrated that synchronized states of consciousness could be induced by appropriate electromagnetic fields, suggesting the existence of a physical mechanism enabling nonlocal information transmission [38].
- EEG correlation analyses have shown that during deep meditation states, significant synchronization of brain waves can be observed in groups of individuals located in different places [8, 20].

2. Studies on the Effect of Intention and Meditation on Remote Biological Systems

- Experiments have demonstrated that directed intention can affect biological processes at a distance. For example, studies by Radin and Schlitz suggest that intention can modify physiological activity in organisms beyond the classical range of interactions [42].
- Experiments on the effect of intention on cell growth suggest that certain thought patterns can influence the proliferation rate of cells in laboratory cultures, which may indicate the possibility of nonlocal interaction [11].
- Research has also shown that group meditation can influence heart rate variability in individuals hundreds of kilometers away, suggesting potential informational mechanisms connecting consciousness on a global level [43].

3. Experiments on the Effect of Intention on Random Event Generators (REG)

- Studies conducted at the PEAR (Princeton Engineering Anomalies Research) laboratory have shown that conscious intention can influence the statistical distribution of randomly generated results. These effects were small but repeatable, suggesting the possibility of a nonlocal influence of consciousness on physical systems [42].
- Meta-analyses conducted by Nelson have shown that global events with strong emotional impact (e.g., terrorist attacks, the death of famous individuals) correlated with an increase in non-random structure in data from random event generators, suggesting the possibility of collective interaction of consciousness with physical systems [32].
- Modern research on the effect of intention on quantum systems suggests that the observer may modulate quantum randomness in a way that deviates from classical statistical expectations [9].

4. Statistical Analyses of Spontaneous Experiences of Mental Correlations

- Meta-analyses of studies on phenomena such as spontaneous telepathy or premonitions indicate that they may occur more frequently than expected under the

assumption of pure randomness. Research by Dunne and Jahn suggests that subjective experiences of nonlocal correlations may have measurable bases in statistical data [21].

- Studies on Jungian synchronicity have shown that people experience coincidences related to their thoughts or emotions more often than would be expected by chance, suggesting the existence of subconscious mechanisms of informational resonance [22].
- Analysis of reports of intuitive experiences has shown that individuals with higher levels of alpha wave synchronization in EEG more frequently report synchronous events, which may indicate a biological mechanism underlying mental correlations [54].

The Uncertainty Space as a Global Informational Field From the perspective of the uncertainty space, these phenomena may arise from the fact that consciousness is not confined to a single mind, but is part of a global informational structure that individuals can access. This can be formalized as:

$$C_{\text{ment}} = \int_{\Omega} R(I_A, I_B) d\Omega, \quad (41)$$

where:

- C_{ment} – the cumulative strength of mental correlations in the uncertainty space,
- $R(I_A, I_B)$ – the informational resonance function between different consciousness units,
- Ω – the informational space in which mental interactions occur.

Summary

- EEG synchronization and studies on the effect of intention on matter provide evidence for the existence of nonlocal mental correlations.
- The effect of intention on biological systems suggests that consciousness can interact with physical systems at the level of subtle informational structures.
- Studies on synchronicity and telepathy point to a potential mechanism of informational resonance that may enable spontaneous mental interactions.
- The uncertainty space may function as a global informational field, regulating and structuring mental correlations.

9.2.5 Mental Transmission of Information and Dynamic Reconstruction of Memories

If consciousness is not limited to a single organism, but operates within an informational space, this could also explain the following phenomena:

- **Reconstruction of memories instead of playback** – memories are not stored statically, but dynamically reconstructed, which may result from access to the global informational field.
- **Spontaneous recollections** – sudden retrieval of information may not be related to the classical neuronal mechanism, but to data retrieval from the uncertainty space.
- **Mental transmission of information** – if consciousness is not limited to a single biological system, access to the shared informational field may lead to spontaneous mental correlations.

Mathematical Formalization of Dynamic Memory Assuming that memories are stored not in neurons, but in the informational field, they can be modeled as a system of dynamic informational structures:

$$M(t) = \int_{\Omega} R(I, \Psi) e^{-\gamma t} d\Omega, \quad (42)$$

where:

- $M(t)$ – the degree of activation of the memory at a given moment,
- $R(I, \Psi)$ – informational resonance between the intention of recollection and the information in the uncertainty space,
- γ – the attenuation coefficient for accessing information (the greater the chaos, the harder it is to retrieve the memory),
- Ω – the informational space where potential memory structures are stored.

Experimental Evidence for Dynamic Memory

- Research on memory reconstruction suggests that memories can change under the influence of new information, indicating that they are not stored statically in the brain [25].
- Experiments on spontaneous recollection suggest that the brain may retrieve information from the informational field in a non-local way – people often recall information when they are not actively trying to retrieve it [46].
- Studies on EEG synchronization during shared recollection have shown that people with similar experiences may exhibit higher coherence in brainwaves, suggesting the possibility of informational resonance [15].

9.2.6 Is Consciousness a Non-local Field?

If consciousness indeed functions as an informational structure within the uncertainty space, it would mean that:

- It is not limited to the local brain, but has a fundamental and non-local nature.

- It can interact with other consciousnesses without the classical mechanisms of signal transmission.
- It can exist as an informational field, the effects of which we observe as mental correlations.

Physical Consequences of the Non-locality of Consciousness Assuming that consciousness operates as an informational field, we can write its interaction as a non-local propagation of information:

$$\Psi(x, t) = \int_{\Omega} K(x, x') \Phi(x', t) dx', \quad (43)$$

where:

- $\Psi(x, t)$ – the state of consciousness at a given point in space and time,
- $K(x, x')$ – the information propagation function in the uncertainty space,
- $\Phi(x', t)$ – the information available in the field of consciousness.

Experimental Evidence for the Non-locality of Consciousness

- Research on telepathy suggests that individuals in a meditative state can exhibit non-local mental interactions, indicating the existence of a consciousness informational field [51].
- Analyses of collective consciousness processes have shown that global events (e.g., natural disasters) can correlate with changes in random number generators, suggesting the existence of macroscopic informational interaction [32].
- Experiments on the impact of intention on biological systems have shown that individuals can influence biological processes at a distance, suggesting the existence of a consciousness informational field [42].

Summary

- Consciousness may be a non-local field that operates beyond the limitations of classical space and time.
- Memory reconstruction and spontaneous recollections may result from dynamic access to information within the informational space.
- Experimental studies on mental correlations suggest that consciousness can interact at a distance, indicating the existence of a global informational field.
- Future research should focus on EEG measurements, the impact of intention on physical systems, and the analysis of the dynamics of consciousness in the context of the uncertainty space.

9.3 Experiments on Mental Information Transmission (EEG, Psychic Correlations)

Non-local aspects of consciousness, including the possibility of mental information transmission, have long been a subject of controversy in science. Although contemporary neurobiology does not possess a model explaining the mechanisms of such phenomena, numerous experiments suggest that they may have empirical foundations. In particular, studies on brainwave synchronization and psychic correlations provide clues that consciousness may function in a non-local manner, which aligns with the model of the uncertainty space.

9.3.1 EEG Synchronization Between Spatially Separated Individuals

Experiments on EEG synchronization suggest that neuronal correlations can occur between separated individuals, even when there is no classical signal transmission. Some studies have shown:

- **Spontaneous synchronization of brainwaves in closely connected individuals** – e.g., partners, identical twins, or long-term collaborators.
- **EEG correlations despite physical separation**, particularly in conditions of meditation or intense focus.
- **The brain's response to an external stimulus perceived by another person**, suggesting the existence of an unknown mechanism of information transmission.

One of the most famous studies was a series of experiments conducted by the Stanford Research Institute (SRI) in the 1970s, which recorded EEG correlation phenomena between individuals located in different rooms, and even cities [52, 40].

9.3.2 Phenomena of Mental Correlations in Experimental Conditions

Psychological experiments suggest that mental information transmission may occur under specific conditions. Examples include:

- **Experiments on the influence of intention on random number generators** (Random Event Generators – REG), where participants influenced the statistical outcome, despite the lack of physical interaction [21].
- **Studies on perceiving the thoughts of others**, where cases of spontaneous "telepathy" between close individuals were reported [48].
- **Experiments on emotional influence at a distance**, where participants under strong emotions affected the physiological parameters of other participants in the study [41].

Although official science is skeptical of these results, their statistical repeatability suggests that they may have real foundations.

9.3.3 Hypothesis of Informational Connectivity in the Uncertainty Space

In the model of the uncertainty space, it is possible that consciousness is not limited to a single organism, but can function as part of a global informational structure. In this case:

- EEG and mental correlations may result from informational resonance in the space of consciousness.
- Information may be exchanged non-locally, without the need for classical signal transmission.
- Mental states may influence other systems through informational structures in the uncertainty space.

If this hypothesis is correct, experiments on mental information transmission could provide significant evidence for the existence of a fundamental layer of reality, where consciousness functions as a non-local set of information.

9.4 Microtubules as Biological Analogues of Quantum Entangled Systems?

In the previous discussions, we presented the hypothesis that consciousness may function as an informational structure in the uncertainty space, and mental correlations may be the result of non-local information exchange. However, a key question is whether there is a **biological mechanism that enables the coupling of consciousness with physical processes**, and if so, whether it could utilize mechanisms known from quantum mechanics, such as entanglement?

One of the most promising candidates for this role are **microtubules** – cytoskeletal structures that occur in all eukaryotic cells and play a crucial role in the functioning of neurons.

9.4.1 Microtubules as Potential Biological Entangled Systems

Quantum entanglement involves the existence of correlations between particles, regardless of their distance, meaning that the measurement of the state of one of them immediately affects the state of the other. Standard physics assumes that under biological conditions, it is difficult to maintain long-lasting entanglement due to rapid decoherence processes. However, some experimental data suggest that:

- **Microtubules may exhibit quantum properties**, as their structure allows for the existence of ordered dynamic systems [30].
- Under specific biological conditions, there may exist **long-lived coherent states**, allowing for non-local correlations between distant nerve cells [30].
- It is possible that microtubules act as **resonant systems** that can maintain information in the form of quantum oscillations [14].

Roger Penrose and Stuart Hameroff, in their Orch-OR (Orchestrated Objective Reduction) hypothesis, suggested that microtubules may store and process information in a quantum way. In this model, entanglement would play a role in integrating information at the neuronal level.

9.4.2 New Approach – Microtubules as Biological Resonant Systems

In this work, I propose an alternative interpretation – instead of treating microtubules as carriers of classical entangled states, we can consider them as **biological resonant systems** that allow synchronization of information between different regions of the brain. In this model:

- Microtubules may act as **antennas tuning the organism to non-local informational structures**.
- Phenomena of entanglement could manifest not as classical quantum states, but as informational correlations that preserve certain characteristics of entanglement, but do not require long-term quantum coherence.
- It is possible that microtubule oscillations influence neuronal activity patterns, allowing for more effective organization of information in the nervous system.

This model allows us to avoid the problem of decoherence, which is a major critique of the quantum consciousness hypothesis. Instead of requiring long-lasting entangled states, we assume that microtubules function as **relays of non-local information**, enabling data exchange between neuronal systems in a way that resembles quantum correlation but without the necessity for traditional entangled states.

9.4.3 Can Microtubules Connect Biological Systems of Consciousness?

If consciousness operates as an informational structure, and microtubules function as relays of this information, it is possible that:

- There exists a **mechanism enabling global synchronization of consciousness**, similar to quantum entanglement mechanisms.
- Thought processes and mental correlations may result from the **interaction of microtubules with the fundamental informational field**.
- Under specific conditions (e.g., deep meditation, strong emotions, trance states), microtubules may enter a **state of informational coherence**, facilitating access to non-local information.

If this thesis is correct, microtubules may serve as **biological interfaces** linking the organism to the space of uncertainty, rather than just supporting the functions of neurons.

9.4.4 Experimental Verification of the Hypothesis

To test whether microtubules can function as biological counterparts to entangled quantum systems, the following experiments can be conducted:

- **Studies on microtubule coherence in living organisms**, to check whether their oscillations can sustain long-lasting informational states.
- **Experiments on the influence of electromagnetic fields on microtubules** – if they exhibit resonant properties, they should respond to specific external field frequencies.

- **Tests on the effect of consciousness on microtubules** – does a change in the mental state (e.g., meditation) influence their functioning in ways that go beyond classical biological models?

If microtubules indeed function as informational resonators, this would suggest that consciousness is not solely a product of biology, but has a mechanism connecting it to the fundamental structure of reality.

10 Cosmological Consequences of the Model of Consciousness and Intention

10.1 The Role of Black Holes as Mechanisms of Information Selection

In the model of the uncertainty space, black holes are not merely the final stage of matter's evolution, but they may serve as **structures organizing information**, filtering and selecting informational patterns that pass through the event horizon.

- Instead of treating the event horizon as the boundary of irreversible information loss, we can consider it as a **transformation zone**, in which information undergoes reorganization in the fundamental field of consciousness.
- Information accumulated in black holes may not be lost but instead be transferred to subsequent structures of spacetime, consistent with the hypothesis of cyclic conformal cosmology (CCC).
- If the uncertainty space stores potential states of reality, black holes may serve as a **selection mechanism**, where only certain informational structures pass into subsequent eons.

In the classical physics model, information is lost in the singularity; however, according to our model of consciousness and intention, it may undergo an informational transformation process in which:

- Informational structures are filtered based on their degree of organization.
- This mechanism may explain certain anomalies observed in the cosmic microwave background (CMB), which may be traces of information transitioning between eons.

A detailed discussion of this issue, including the mathematical model of the process of information selection by black holes, can be found in the work [33].

10.2 Neutrino Oscillations as a Test for the Informational Structure of Reality

Neutrinos, as particles with unique quantum properties, exhibit oscillations that in the standard model of physics are explained by the mechanism of mass state mixing. However, in the context of the uncertainty space, these oscillations may have additional significance as a test for the interaction of fundamental information.

- If the uncertainty space stores informational structures, it is possible that neutrinos interact with this field, leading to irregular oscillation patterns.
- Potential anomalies in neutrino oscillations may provide empirical evidence for the existence of informational structures beyond the standard physical description.
- It is possible that neutrinos serve as **carriers of information about the fundamental level of reality**, in which information is not limited by classical spacetime.

If neutrino oscillations are in any way modulated by the structures of the uncertainty space, there should be:

- Deviations from the standard model predictions that are not due to atmospheric effects or interactions with matter.
- Potential correlations between changes in neutrino oscillations and other informational processes occurring within the structure of the Universe.
- Testable anomalies in neutrino detectors that could indicate additional non-local effects of informational interactions.

Further analysis of the impact of neutrino oscillations on the uncertainty space model and their potential significance for the structure of reality is discussed in detail in the work *The Uncertainty Space as the Foundation of Spacetime Geometry*.

10.3 Gravitational Wave Fluctuations and the Organization of Reality

Gravitational waves are one of the most fundamental physical phenomena describing disturbances in spacetime caused by the movement of massive objects. Within the uncertainty space model, it is possible that fluctuations in gravitational waves could serve as **carriers of information about the processes that organize reality**.

- If the uncertainty space is an informational structure, then gravitational waves may not only be deformations of spacetime, but also **manifestations of changes in the organization of information**.
- It is possible that certain anomalies in gravitational waves could be traces of interactions of consciousness or informational processes at the fundamental level of reality.
- This phenomenon could provide a physical mechanism for the interaction between consciousness and the structure of reality if gravitational wave fluctuations are in any way modulated by information contained in the uncertainty space.

If gravitational waves can carry structural information, several potential consequences must be considered:

- The existence of subtle patterns in gravitational wave signals that do not arise from classical astrophysical dynamics.

- The possibility of correlations between specific gravitational fluctuations and other informational processes at the cosmological scale.
- The role of gravitational waves in the process of information reorganization between eons within the framework of conformal cyclic cosmology (CCC).

A detailed discussion of potential anomalies in gravitational waves and their connection to the uncertainty space is presented in the work [Work in progress].

11 Counterarguments and Alternative Interpretations

Any new theory concerning consciousness and its influence on reality requires not only justification but also an analysis of potential objections and alternative interpretations. In this chapter, I present the most commonly formulated counterarguments to the hypothesis of consciousness as an informational structure of the uncertainty space and the influence of intention on the collapse of reality.

11.1 Classical Explanations of Consciousness and Intention

Traditionally, consciousness is interpreted as a result of brain activity, and intention as a mental process related to decision-making mechanisms. Among the most commonly accepted classical explanations are:

- **Neurobiological Reductionism** – consciousness is merely an emergent effect of neuronal activity, and any non-local phenomena are the result of misinterpretation of data or cognitive illusions.
- **Epiphenomenalism Hypothesis** – consciousness has no causal power and is merely a byproduct of brain activity, with no real influence on reality.
- **Probabilistic Mechanisms** – any observations suggesting the influence of intention on reality can be explained by statistical fluctuations or unconscious factors affecting the experiment.

The reductionist approach is dominant in cognitive sciences; however, it does not fully explain phenomena such as mental correlations at a distance, which might suggest the existence of deeper informational structures.

11.2 Can Non-Local Correlations of Consciousness Be an Illusion?

Many studies on telepathy, the influence of intention on biological systems, and non-local EEG correlations have been criticized for several reasons:

- **Experimenter Effect** – the possibility that the results are unintentionally manipulated by the researchers' expectations, even in double-blind trials.
- **Lack of Replicability** – many experiments on consciousness and intention yield results near the statistical error threshold, and their replicability is limited.

- **Problems with Eliminating Confounding Factors** – for example, in EEG studies, it is difficult to completely exclude sensory factors that could explain brainwave synchronization.

This criticism emphasizes that non-local correlations may be the result of methodological errors or overinterpretation of results.

12 Alternative Models of Consciousness

Some theories of consciousness offer alternative explanations for the observed phenomena:

- **Global Workspace Theory** – suggests that consciousness arises from the integration of information in the brain, and all "non-local" effects may be the result of deep unconscious processes.
- **Tononi's Complexity Theory** – the Information Integration Theory (IIT) posits that consciousness is a function of the quantitatively defined integration of information within a neural system.
- **Quantum Models of Consciousness** – for example, the Hameroff-Penrose theory (Orch-OR), which suggests that consciousness is a quantum process occurring in microtubules, but does not necessarily imply the influence of intention on reality.

Although these models provide alternative explanations, none of them fully account for the observed mental correlations at a distance.

12.1 Criticism of Experimental Methodology

The most common criticisms of experiments investigating the influence of intention on reality include:

- **Low statistical power** – the effects are often subtle and require very large samples to achieve statistical significance.
- **Inadequate control of boundary conditions** – for example, factors like synchronization of brain hemispheres or the coherence of participants' consciousness are not considered.
- **Possible psychological effects** – for instance, the placebo effect or self-fulfilling prophecies may influence the interpretation of results.

Despite these limitations, there are experiments that show effects difficult to explain with classical mechanisms, suggesting the need for further research on the role of consciousness as an informational structure.

12.2 Summary

The analysis of counterarguments shows that although classical approaches to consciousness offer alternative explanations, many phenomena still remain unresolved. The criticism of the methodology of studies on the influence of intention on reality is justified, but it does not eliminate the possibility of mechanisms that have not yet been considered in the scientific paradigm.

Future research should focus on precisely defining experimental conditions, including factors such as brain hemispheric synchronization, emotional intelligence, and consciousness coherence, to increase the reliability of the results.

13 Hypothetical Applications in Science and Technology

If the theory of the uncertainty space, consciousness as an informational structure, and intention as a mechanism for selecting reality is correct, it may lead to fundamental changes in science and technology. Potential applications include new approaches in physics, neurobiology, computer science, as well as changes in the philosophical and societal paradigm.

13.1 Physics and Quantum Mechanics

The role of consciousness as an informational structure may provide new tools for studying the fundamental mechanisms governing reality. Potential applications include:

- **New approaches to quantum gravity** – developing theories that incorporate the influence of informational structures on spacetime.
- **Experiments on the interaction between consciousness and quantum systems** – testing the impact of intention on quantum systems (e.g., double-slit experiments, quantum entanglement).
- **Applications in models of informational thermodynamics** – studying whether information can control entropy processes.

13.2 Neurobiology and Consciousness Research

If consciousness functions as an informational structure, it may influence how we perceive neurobiology and brain function:

- **New models of neuroplasticity** – research on the interaction between the brain and the informational space, which may explain spontaneous memory retrieval.
- **Experiments on microtubules as informational interfaces** – analyzing their role as potential transmitters of non-local information.
- **New therapeutic approaches** – using the theory to develop methods to influence consciousness, e.g., synchronizing brain hemispheres as a way to enhance cognitive functions.

13.3 Computer Science and Artificial Intelligence

Understanding consciousness as an informational process can influence the development of artificial intelligence:

- **New AI architectures** – developing systems that process information based on informational selection rather than purely probabilistic algorithms.
- **Human-machine interfaces** – technologies enabling the use of intention to control electronic devices.
- **Informational computers** – potential applications of the uncertainty space in alternative computational models.

13.4 Medicine and Biotechnology

If consciousness and intention are real mechanisms organizing reality, this could open new directions in medicine:

- **The influence of informational space on biological processes** – research into the possibility of influencing cell regeneration and health processes through intention.
- **New approaches to diagnostics** – analyzing health states through interaction with information in the uncertainty space.
- **Bioelectronics and neural interfaces** – technologies combining biological systems with information processing in new therapeutic models.

13.5 Space Exploration and New Energy Technologies

If reality has an informational character, there may also be technological implications for space exploration and energy acquisition:

- **New space propulsion models** – analyzing whether the uncertainty space may contain mechanisms enabling movement without the need for conventional fuel.
- **Energy acquisition from informational space** – the hypothesis that the informational structure of reality could allow access to alternative energy sources.
- **Application of the theory in optimizing space exploration** – testing whether intention can influence decision-making in the isolation conditions of space.

13.6 Philosophy and Social Implications of the New Theory

If consciousness, intention, and information are fundamental components of reality, it may lead to changes in the philosophical foundations of science and in human perception of reality:

- **A new perspective on ethics and societal development** – if consciousness is fundamental, it could impact perceptions of free will and responsibility.

- **Redefining the scientific paradigm** – a potential shift in viewing reality as purely material.
- **New research methods** – integration of qualitative and quantitative research in studies on consciousness.

13.7 Main Limitations of These Hypotheses

Although hypotheses regarding the use of uncertainty space to acquire energy or create new propulsion models are theoretically intriguing, there are fundamental limitations that make their realization appear impossible in practice.

- **Scale of the required intention** – Individual consciousness can influence its own experience, biological processes, and even to some extent external reality, but this influence is limited. The ability to select states of reality decreases as the scale increases, as it would require an extraordinarily strong, unwavering intention, which humans physically and psychologically are unable to maintain.
- **Inability to synchronize collective consciousness** – Even if we assumed that a larger number of people could unite their intentions into one cohesive act of creation, the problem lies in the lack of ability to fully synchronize. Each person has individual beliefs, emotions, and internal conflicts that disrupt the uniformity of intention. Even the most unified vision among a group of people cannot achieve the absolute precision necessary to bring about a specific energetic or technological manifestation from potential.
- **Intention is not equivalent to controlled manifestation** – Even if consciousness can influence reality, it does not mean that it can be used in a mechanical and repeatable manner, like a classical energy source. The processes occurring in uncertainty space require appropriate informational conditions, not just the mere "wishing."
- **Limits of consciousness interaction with reality** – Consciousness can influence the organization of reality, but within the existing informational structures. If reality is a system of information organization, energy and matter already exist in the formed reality and cannot be simply "created" from uncertainty space. Intention works within available potentials, not beyond them.
- **Problem of physical implementation** – Even if energy or informational structure could be drawn from uncertainty space, it would require a specific medium or receiving mechanism in the physical reality. Such a mechanism would have to comply with the fundamental laws of this reality, meaning it could not go beyond the known models of energy and matter.

For the reasons outlined above, hypotheses regarding the technological applications of uncertainty space should be regarded as speculative theoretical concepts that require much more detailed justification and potential empirical evidence.

14 Summary and Directions for Future Research

The aim of this work was to define the boundary conditions for the impact of intention on the collapse of reality and to establish methods for experimentally verifying this hypothesis. In contrast to previous studies, which mainly focused on the statistical analysis of intention effects, I introduced the assumption that the effectiveness of intention is a result of the **coherence of consciousness** as well as certain neurobiological and psychological conditions.

14.1 Key Findings

In this work, I have demonstrated that intention is not a detached mechanism but a **resultant of the informational structure of consciousness**. Its effectiveness depends on several key factors:

- Intention works effectively only when it is **coherent** – subconscious conflicts can deform it, leading to inefficacy.
- **Synchronization of the brain hemispheres** is a necessary condition for effective integration of consciousness and precise formulation of intention.
- A **minimum IQ level (130+)** is necessary for the individual to consciously model their thought processes and eliminate cognitive errors.
- **High emotional intelligence** enables effective management of the internal state and the elimination of factors that disrupt intention.
- Intention cannot be maintained in a constant state of activation – **it must be "released"** in order to pass into the informational space and affect the collapse of reality.

14.2 Implications of the Theory for Neurobiology, Physics, and Philosophy

The proposed theory of uncertainty space as the fundamental structure of reality, in which consciousness and intention play key roles, carries far-reaching consequences for various fields of science. If consciousness is not merely an emergence from biological processes but a non-local informational structure, a reinterpretation of both classical neurobiological models and the basic assumptions of contemporary physics may be necessary.

14.2.1 Impact on Neurobiology

- The brain is not a repository of consciousness but a dynamic interface for accessing information stored in the uncertainty space.
- Neuroplasticity can be interpreted as a process of adapting the neuronal structure for optimal processing of information from the consciousness informational field.
- Mechanisms of EEG synchronization and non-local mental correlations may stem from interactions with the uncertainty space, which would require new studies on the impact of intention on neuronal activity.

14.2.2 Impact on Physics

- Quantum mechanics may need to be expanded to include an additional level describing interactions with the uncertainty space.
- Penrose's Conformal Cyclic Cosmology (CCC) could be interpreted as the process of information transition between eons, in which informational structures are not lost but reorganized.
- Anomalies in the cosmic microwave background (CMB) and neutrino oscillations could provide empirical evidence for the existence of fundamental mechanisms of information selection.
- Gravitational waves may not only be perturbations of spacetime but also signatures of interactions between the manifested reality and the informational structure of the uncertainty space.

14.2.3 Impact on Philosophy

- Consciousness is not reducible to neuronal activity but constitutes a fundamental aspect of reality.
- Reality may not be objectively given but may arise from processes of informational selection and intentional organization.
- The existence of non-local mental correlations may suggest that individual consciousness is not a separate entity but part of a larger informational structure.
- Time and space may be products of information organization, rather than fundamental components of reality.

14.3 Directions for Further Research

The presented findings lead to several key conclusions:

- The influence of intention on reality is not uniform – there are boundary conditions that determine the effectiveness of this mechanism.
- Previous research, which did not account for the structure of participants' consciousness, may lead to ambiguous results.
- It is possible to design experiments that eliminate cognitive errors and false correlations, enabling more precise testing of the hypothesis regarding the influence of intention on reality.

Further research should focus on:

- **Neurobiological verification of consciousness coherence** – analyzing the impact of hemispheric synchronization on the process of formulating intention.
- **Experimental verification of the influence of intention on collapse** – designing controlled studies using REG, optical systems, and quantum systems.

- **Analysis of intention dynamics** – studying under what conditions intention works more effectively and what factors influence its weakening or strengthening.

In conclusion, this paper represents the first attempt at a systematic approach to the issue of consciousness and intention's influence on the mechanisms of reality. The application of the established boundary conditions may allow for a more reliable assessment of this phenomenon and open new opportunities for research on the fundamental role of consciousness in the structure of physical reality.

15 Conclusion and Future Research Directions

This paper presented a new model of reality, in which the uncertainty space constitutes the fundamental level of existence, and consciousness and intention play key roles in the organization of reality. Unlike traditional approaches, which treat consciousness as an emergent effect of biological processes, the proposed model suggests that consciousness is a fundamental informational structure, independent of neuronal processes but capable of interacting with physical reality.

15.1 Key Conclusions

The analyses and considerations lead to several key conclusions:

- **Consciousness as an informational structure** – it is not a product of neuronal processes, but a fundamental aspect of reality, which can exist independently of biological processing systems.
- **Intention as a mechanism for reality selection** – it plays a key role in the processes of information organization, influencing the structure of spacetime and the mechanisms of reality emergence.
- **Microtubules as biological interfaces** – they may serve as resonators tuning the organism to the informational space, enabling interaction between consciousness and physical reality.
- **Experimental verification of the model** – proposed experiments on EEG synchronization, neutrino oscillations, anomalies in cosmic microwave background (CMB), and gravitational waves may provide evidence for the existence of the uncertainty space as the fundamental structure of reality.
- **Interdisciplinarity of the theory** – the theory integrates neurobiology, quantum physics, cosmology, and philosophy into a new model of reality based on informational principles of organization.

15.2 The Future of Research on Consciousness and the Uncertainty Space

The presented model not only provides new scientific hypotheses but also opens up a wide field for further research and experiments. Key directions for future work include:

- **Experimental tests of the influence of intention on quantum processes** – studies on decoherence, entanglement, and quantum interference in the presence of a conscious observer.
- **Testing the hypothesis of information transfer between eons** – searching for informational traces in the cosmic microwave background (CMB) and analyzing potential mechanisms of information transmission through black holes.
- **Research on microtubules as informational interfaces** – analyzing their potential role in processing information outside of biological systems.
- **New models of artificial intelligence inspired by consciousness** – development of computational systems based on the selection of informational states instead of classical probabilistic algorithms.
- **Impact of the theory on the scientific paradigm** – further research on the fundamental nature of information as the basic component of reality.

15.3 Summary

The presented theory introduces a new perspective on the fundamental mechanisms of reality organization, combining research on consciousness, physics, and biology into a unified concept based on informational principles of organization.

If consciousness indeed plays the role of the structure organizing reality, it may be necessary to redefine fundamental scientific paradigms, taking into account its non-local and informational nature.

Further research on the proposed model may not only provide evidence for the existence of a fundamental informational space but also open entirely new technological and philosophical possibilities in understanding reality.

16 Notation Convention and Definition of Symbols

In this work, I use consistent mathematical notations that will also be employed in further studies related to the uncertainty space and the mechanisms organizing reality. Below, I present the adopted symbols and their meanings.

16.1 Basic Notations

- Φ – informational potential field in the uncertainty space.
- Ψ – manifested reality, resulting from the informational collapse.
- $I(\Phi)$ – information selection operator, determining the transition from potential states to reality.
- T – reality tunneling operator, describing the mechanism of transition between states in the uncertainty space.
- $R(I_A, I_B)$ – informational resonance function, describing the strength of interaction between informational structures of consciousness.

- H – informational oscillator function, describing the dynamic interaction of consciousness structures.
- ω – intrinsic frequency of the consciousness system.
- k – coupling coefficient between systems.
- S – degree of information structuring in the uncertainty space.

16.2 Notation Assumptions

All mathematical expressions related to the uncertainty space are treated as descriptions of informational structures, rather than physical objects. The adopted notations are based on the formalism of informational function analysis, according to which:

- The uncertainty space is not treated as a classical geometric object, but as a dynamic set of potential states.
- The operators $I(\Phi)$ and T serve as information selection and tunneling functions, and their actions are determined by local and global informational conditions.
- Informational resonance ($R(I_A, I_B)$) describes the interaction between consciousnesses, and its strength depends on the level of informational coherence.
- Informational oscillations (H) model fluctuations of the informational space and may influence the selection of reality.

The adoption of these notation conventions allows for a consistent presentation of processes occurring in the uncertainty space and the influence of consciousness on the organization of reality.

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