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Neuronal World: Illusionistic Explanation of the Empirical Reality

Vladislav Kondrat

Abstract

The neurophilosophical concept of the neuronal world posits that brain activity (rhythms) creates a sophisticated virtual reality. According to the neuronal world model (NWM), virtual reality is a continuous construct of the brain, meticulously crafted through the electromagnetic synchronisation of neurons. The brain orchestrates the empirical world through a dynamic interplay of sensory inputs and neuronal states, with brain rhythms at the core of this process. Central to the model are its intricate components, including the self-model, which integrates various mentalisation modules to conjure the compelling illusion of subjectivity. Essential neuronal rhythms, particularly gamma and alpha oscillations, play crucial roles in sensory integration and cognitive stability, weaving the complex tapestry of perceptual experiences. High-frequency gamma rhythms dominate the empirical world, constructing detailed sensory experiences, while alpha and beta rhythms integrate sensory data with memory and imagination, fostering sophisticated cognitive functions. The neuronal activity results in a non-cohesive and fundamentally illusory representation of reality. By illuminating these mechanisms, the neuronal world model challenges conventional notions of consciousness, proposing a paradigm shift that views reality as an elaborate illusion crafted by neuronal processes. This perspective questions the very existence of consciousness as traditionally understood, advocating for a more accurate conception based on the neuronal world. Thus, it reshapes entrenched and simplistic approaches to studying consciousness, highlighting the need to rethink understanding reality. The aim of this article is to describe how the brain simulates virtual reality from the perspective of the neuronal world model, revealing the mechanisms underlying this neurosimulation.

Key Words: neuronal world, neurorhythmics, virtual reality, neurophilosophy, consciousness illusion, illusionism, neuroethics, depression

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Introduction

Is the world as it appears? This timeless question has intrigued thinkers since antiquity, inspiring many answers. Traditionally, most hypotheses have been anchored in various reasoning and logical inference forms. However, if reasoning about the world is indistinguishable from the world itself, does it hold any epistemic value? While reasoning does have its merits, it falls short in the quest for absolute truth if not grounded in empirical data. The conundrum of comprehending the world lies in the fact that the brain — the principal architect of empirical reality — is constrained by several intrinsic factors: 1) illusions, which constitute the minimal level of illusions (MLI), such as the perception of personality as a real, stable entity; 2) delusions, which form the minimal level of delusions (MLD), exemplified by the belief in direct contact with objective reality. Overcoming these constraints without knowing the mechanisms by which they are created is as impossible as avoiding death. Just as a person with vitreous floaters cannot stop seeing the floaters in their visual field, so can't any brain without specialised knowledge of its workings, unable to dispel the myriad illusions spun by the evolutionary spokes of neurons. The strange of this condition lies in the brain's utter lack of awareness of its functioning, resulting in self-imposed chains of naïve interpretations that inevitably follow from every delusion and distorted perception of the world. For this reason, no philosopher has fully explained the world, though some have come very close. The truth that this work aims to demonstrate is simple yet counterintuitive: the entire observable world (but not the objective universe), including the "self," is continuously created by the brain as the virtual reality. In this regard, the model of the neuronal world avoids the extremes of solipsism and eternalism.

Numerous misconceptions obstruct the path to truth, but the most pernicious is the belief that some essence, foundation, or meaning underlies the world — an illusion crafted by neuronal networks. It is challenging to imagine how many philosophers have fallen into this cerebral trap, especially since most European thinkers are naive realists who believe that the world is real rather than illusory. In almost every philosophical system, one can find an element posited as the basis of reality. A cursory examination of some of the most influential thinkers of the past suffices to confirm this. For Plato, it was the eternal ideas existing beyond the world of appearances, mere shadows of the immutable and inaccessible forms that can only be known intellectually. There is now an explanation for why Plato and many others who followed him succumbed to this profound misconception. This error stems from introspection modelled by the brain and the dissociation of the empirical content of the neuronal world. The notion that Plato, Kant, Schopenhauer, and others identified some essence of the world, whether an idea or a thing-in-itself, is neither an intellectual achievement nor a truth. Instead, it manifests a typical activity of all living organisms' brains — the creation of an abstract model of the neuronal world. These thinkers labelled the essence and foundation of reality as merely neuronal replicas of empirical objects within the neuronal world. However, if, as claimed, this element is immutable and unshakeable, i.e., unconditioned by causes, then how, I ask, can it be created by the brain, i.e., conditioned by physical (electromagnetic synchronisation of neurons) and chemical (neurotransmitter balance) causality?

The centuries-long, predominantly European, tendency to search for essences turned out to be an illusion arising from neuronal models, and any conclusions or actions based on it — false and erroneous: in fact, there is not even any such tendency to search for essences, but solely the activity of neuronal systems, continuously modeling virtual reality and various levels of self-description within computed models. Any conceptual construction in this respect is nothing more than a blind algorithm operating to reduce uncertainty and governed by no one and nothing.

The only thing nervous tissue does continuously and persistently is compute probabilities and work toward increasing certainty — but the very necessity of increasing certainty is embedded in the causal and virtually spatiotemporal mechanics of the physical system called “brain.” This means that uncertainty arises only when nervous tissue, through electromagnetic synchronization, constructs virtual reality, for the very process of maintaining transparency of the tunnel of the neuronal world implies intense and ongoing neuronal computation that, on the one hand, generates the simulation or neuronal world, and on the other, creates a primitive and crude self-descriptive model — that is, introspection — one of the components of the model of the subject (ESMNW), which covers less than 1% of the processes that generate virtual reality, including that very self-description. Moreover, this computational algorithm is not intended either for self-knowledge or for the knowledge of anything at all, other than simulating naive social relations, heuristics, reasoning, and evaluations. Without special and many-years-long training, nervous tissue is indeed unfit for discovering any serious truths: its limit lies in modeling social reasoning, "you-models," moral evaluations — which are always false, as they reflect no truth — and in the erroneous construction of representations based on these heuristics and evaluations.

Naturally, nervous tissue did not evolve as a tool for discovering truth, but solely as a set of naive algorithms optimizing survival in a herd, community, or group. Precisely for this reason, the knowledge of truth is so difficult, for it requires the integration into representational maps (AMNW) of counterintuitive and counter-illusory interpretations based on the physicalist truth of absolute determinism. Perhaps neurophilosophical truth truly annihilates all kinds of illusions and delusions, permanently embedded into neuronal systems during biological evolution and genetically laid down through the specific proliferation of the cortex during embryogenesis: 1) the illusion of the existence of a subject, agent, person, or individuality controlling behavior; 2) the illusion of contact with an objective world, i.e., the illusion that what is experienced is real, actual, and not simulated or virtual; 3) the illusion of the truth of moral and any evaluative judgments, supported by the activity of the hedonic scale (HSNW); 4) etc. The model of the neuronal world is the conception that refutes all delusions stemming from the automatic computational activity of the brain. Such a level of truth in neurophilosophy did not arise from nothing but became accessible only after the brain was sufficiently studied following the development of imaging methods in the late twentieth century. Accordingly, as it turned out, the greater part of past philosophical constructions (though not all) are mistaken precisely because the nervous tissue constructing philosophical models and systems lacked knowledge of its own functioning — without which the discovery of absolute truth is impossible — and because of this, the creation of delusions and erroneous descriptions is entirely inevitable.

It is appropriate to define the Neuronal World (NW): NW is a predictive-computational model of objective reality created by any living brain through the electromagnetic synchronisation of neurons. The neuronal world is devoid of integrity, essence, and stability and disintegrates into a conditional abstract-empirical dichotomy. It is crucial to remember that the brain does not directly interact with reality; therefore, only the neuronal world exists, and nothing else is accessible for cognition. In other words, what is known are the relationships between objects within the neuronal model of matter and the properties of the NW tunnel. However, this truth does not deny the knowability of objective reality but merely points to the source of such knowledge. At the same time, the Neuronal World model (NWM) is a theory about how the brain creates virtual reality. The Neuronal World model posits that perception of reality is an ongoing creation of the brain, continuously modelled and remodelled in response to sensory inputs and internal states. The neuronal world is inherently transient and mutable, reflecting the dynamic nature of neuronal processes. The predictive-computational aspect of NW suggests that the brain functions by continuously generating predictions about sensory inputs and adjusting these predictions based on incoming data, a process aligned with the free-energy principle and predictive coding theories (Friston, 2010).

Abstract-empirical dichotomy in the neuronal world

The Neuronal World Model (NWM) establishes a fundamental yet conditional dichotomy between the abstract and empirical components of cognitive and perceptual experience. This dichotomy, critical for understanding how the brain constructs reality, hinges on the interplay between sensory data (empirical) and higher-order cognitive processes (abstract).

The empirical component of the NW is anchored in direct sensory experiences that the brain continuously processes. These sensory inputs — visual, auditory, tactile, olfactory, and gustatory — form the foundational layer of the neuronal world. The empirical model is responsible for the real-time interpretation of these inputs, enabling the modeling of the virtual environment. Recent studies highlight the brain's reliance on predictive coding to manage these sensory inputs, demonstrating how the visual cortex, for example, employs hierarchical predictive models to anticipate incoming stimuli and adjust these models based on prediction errors to refine perception (Rao & Ballard, 1999; Keller & Mrsic-Flogel, 2018).

Simultaneously, the abstract component integrates sensory data with past experiences, and higher-order cognitive processes such as reasoning, planning, and imagination. It is important to highlight the reconstructive nature of memory: in neuronal networks, there are no memories as one would find books on the shelves of a library; instead, there is construction based on prior modeling with ongoing rewriting. In this regard, it can be noted that what is called memory is, in fact, imagination; that is, there is no qualitative difference between recollection and abstract modeling. This integration creates complex representations and conceptual frameworks that guide behaviour and decision-making. Gamma oscillations play a crucial role in synchronising distant cortical areas, which are essential for integrating sensory and cognitive data (Fries, 2005). These oscillations bind disparate information into an illusion of unified perception, supporting the seamless transition between empirical observations and abstract interpretations. The interaction between the empirical and abstract models is dynamic and bidirectional. Sensory experiences inform and update abstract concepts, while abstract frameworks shape the interpretation of sensory inputs. This reciprocal relationship is evident in sensory prediction and error correction mechanisms studies, suggesting that the brain operates as a Bayesian inference machine, continuously updating its beliefs about the world based on incoming sensory data and prior expectations (Knill & Pouget, 2004). By elucidating this complex interplay, the NWM offers profound insights into the nature of the virtual reality created by any brain by electromagnetic synchronisation, illustrating how the brain constructs a coherent model of reality through the continuous interaction of empirical and abstract elements.

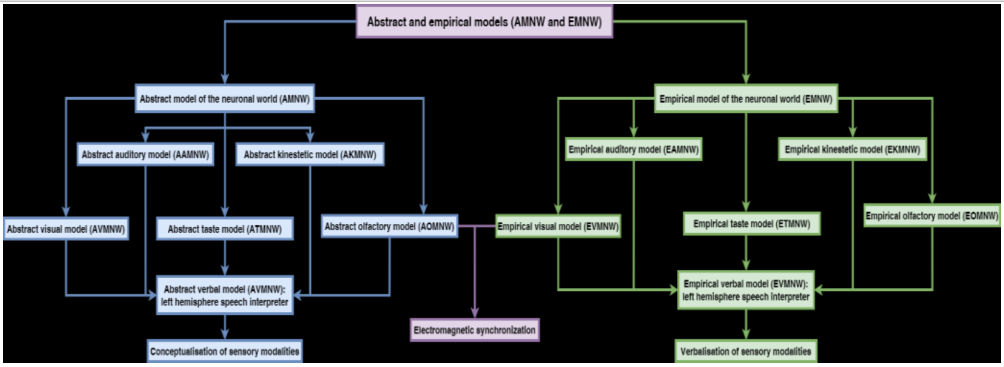

Figure 1. Abstract and empirical models. Illustrates the interaction between abstract and empirical models in the Neuronal World (NW). Highlights sensory inputs and cognitive processes

Neurorhythmics as the foundation of the neuronal world

Understanding brain rhythms delves into how the brain constructs reality. Oscillations are not random but form the foundation of virtual reality and world interaction. The complexity of rhythms reflects the brain's capacity for self-organization, which is itself driven by underlying physicochemical processes that shape the neuronal world. Electromagnetic rhythms, though not unified, represent the dynamic interplay of brain activity, creating the illusion of a coherent, stable self-model and world model (McFadden, 2013, 2020). The brain's predictive coding capabilities, where sensory inputs are continuously compared against models to minimize prediction errors, resemble an illusionist's act, creating a convincing but constructed representation of reality (Friston, 2012).

The electromagnetic rhythms, or harmonic electromagnetic modes of the brain (HEMB), represents more than just electrical impulses. It is a synchrony of electric and magnetic waves interacting to create the illusion of spatial-temporal coherence. The brain organizes these waves into complex patterns, forming the model of time (EMTNW) and space (EMSNW) — the world model. Imagine each neuron as a musical instrument playing its melody, and the electromagnetic waves as the conductor coordinating their work. This interaction forms a dynamic structure that governs all predictive processes. The synchrony creates harmonious patterns, which define the properties of the neuronal world, essentially becoming those properties. The brain's remarkable capacity for self-organization allows it to create complex structures from simple interactions. To delve deeper, envision myriads of fireflies dancing in the night. Each firefly represents a charge, and their movement and light are manifestations of electromagnetic interactions. The spatial component at the level of brain organization is represented directly by the cytoarchitecture of neurons, whereas the temporal component is defined by the properties of neuronal synchronization. Notably, cytoarchitectonic organization is characterized by a multilayered structure; accordingly, the computational activity of neurons is nothing other than the dynamic interaction of these various levels (Zeki, 1988).

Ephaptic interactions, characterized by their instant and wide-reaching effects, are crucial in synchronizing rhythms that shape the neuronal world models. Interactions allow for the immediate coordination of neuronal activity across large areas of the brain, facilitating the seamless integration of different neuronal networks (Miller, 2024; Cunha et al., 2022). Mixed selectivity of the electromagnetic rhythms functions as both a filter and a resonator, selecting and amplifying rhythms that align with the current state of the neuronal world. This process can be compared to tuning a musical instrument, where each rhythm finds its place in a harmonious activity, creating coherent patterns that stabilize and adapt the neuronal models. When the rhythms reaches a state of ideal selectivity, the oscillations interconnect and reinforce each other, promoting the formation of resilient and harmonious structures that maintain the coherence and integrity of the neuronal world amidst changing conditions. It is important to note the specificity of neuronal abstract encoding through the organization of subspaces of the abstract model, which are rhythmically and schematically distinct from the space of the empirical model and are determined by the anti-correlation of alpha/beta rhythms and gamma rhythm. These rhythms define the properties of the abstract model by creating a kind of inhibitory stencil, while the gamma rhythm implements empirical and high-frequency modeling. Put simply, the gamma rhythm emerges where alpha and beta rhythms reduce inhibitory activity (Lundqvist, 2023). In this context, each encoded object and/or state in the cortex possesses a unique spatial-rhythmic pattern, which enables more flexible and isolated encoding and generalization despite overlaps between subspaces (Bastos A. M. et al., 2020). For example, the state of the empirical model (EMNW) encoded in one subspace differs from the subspace of the abstract model, where the empirical is dissociated and cannot be disrupted by sensory input: it is precisely in this way that abstract thinking/imagination arises, facilitated by low-frequency rhythms (Libby et al., 2021). At the same time, since different models of the neuronal world (e.g., sensory modalities) lie in different subspaces, their synchronization is possible through transitions from orthogonal to parallel planes — for instance, in the generation of behavioral models or abstract thinking/imagination. Each model of the neuronal world, in the form of a particular operational or computational module (OM), apparently possesses communicative subspaces that allow for the selective activation of corresponding communicative subspaces within other models of the neuronal world (Semedo et al., 2022).

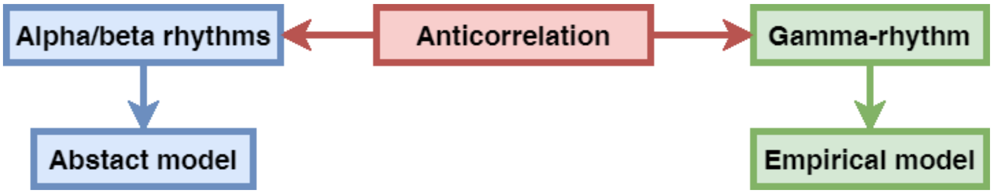

Figure 2. Anticorrelation of alpha/beta rhythms and gamma rhythm

Ephaptic synchronization and electromagnetic modelling of the neuronal world

The dynamic and coherent nature of the electromagnetic rhythms is the foundational condition for maintaining the illusion of reality, that is, the coherent modeling of the neuronal world. The default mode network (DMN), active during mind-wandering and imagination, operates predominantly in low-frequency ranges, facilitating scenario simulation, future planning, and creative thinking (Raichle et al., 2001, 2007; Buckner, 2008; Neuner, 2014). Low-frequency oscillations also support episodic and semantic memory processes, ensuring seamless integration of past experiences and knowledge into the AMNW. Conceptual thinking and language rely on synchronizing low-frequency rhythms, essential for constructing and manipulating complex linguistic structures (Bastiaansen et al., 2005). Conversely, a reduction in network coherence or excessive or insufficient dynamism of rhythms leads to the collapse and clustering of the NW tunnel, resulting in the stratification of world tunnels (into separate time and space tunnels, along with their qualitative changes, such as the slowing down of time models under the influence of substances like LSD, mescaline, psilocybin, THC, 5-MeO-DMT, or the acceleration of time models with substances like ecstasy), as well as the expansion, contraction, or deformation of space models (Lewis-Healey et al, 2024; Wackermann et al, 2008). Similarly, the self-model tunnels can undergo modification, with alterations or dissolution of the body model and subject model. A high level of synchronization (integration) combined with a strong degree of differentiation are essential for the correct and measured creation of the NW tunnel, which appears both fragmented (dualistic) and unified (coherent). The very existence of such a finely complementary system implies that it lacks true characteristics (substantional), and therefore, conceptualization inevitably leads to parochial interpretations, which in cognitive terms lead to misconceptions like essentialism.

This implies that the entire illusory diversity of the neuronal world is determined by various variations of electromagnetic activity, which self-organize intricately through the complex process of neurotransmitter metabolism. This leads to the justified conclusion that the neuronal world is a sequence of electromagnetic states, determined by: 1) neurotransmitter metabolism in synapses of neurons and some glial cells; 2) more broadly, by all physical and chemical laws operating within the connectome; 3) even more broadly, by causality in general. Given that causality represents a sequence, i.e., the relationship between cause and effect, this entire process can be reduced to the transformation of one state into another, a process which the author proposes to name the "Neuronal World Tunnel" (NWT), following Metzinger, as causal relationships resemble movement within a tunnel, where the previous position in space determines the transition to the next one (Metzinger, 2009).

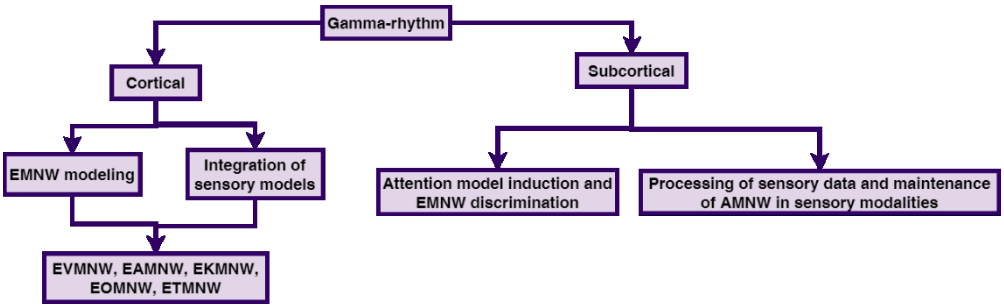

Figure 3. Gamma rhythm. Illustrates gamma rhythm (30-600 Hz) in high-frequency oscillation for sensory integration and cognitive functions

Similarly, the state of the electromagnetic rhythms can be aptly likened to a tunnel, where the previous physicochemical state of the system strictly determines the subsequent one, resulting in the organization of a complementary neuronal world tunnel. The coordination of synchronous and asynchronous processes in the cortex is a fundamental principle for modeling both the empirical model (EMNW) and the abstract model in cognitive abilities (Lisman, 2013). Specifically, cognitive acts, such as memory implantation and attention modulation (AMNW), manifest as areas of synchronization. In other words, electromagnetic connectivity, or ephaptic convergence, is a foundational condition for the synthesis of the neuronal world.

Ephaptic interactions among neurons, which ensure the synchronization of conditional neuronal networks and operational modules (OM), i.e., models of the neuronal world, are rooted in the summation of extracellular potential oscillations by specific ensembles (Fingelkurts, 2020).

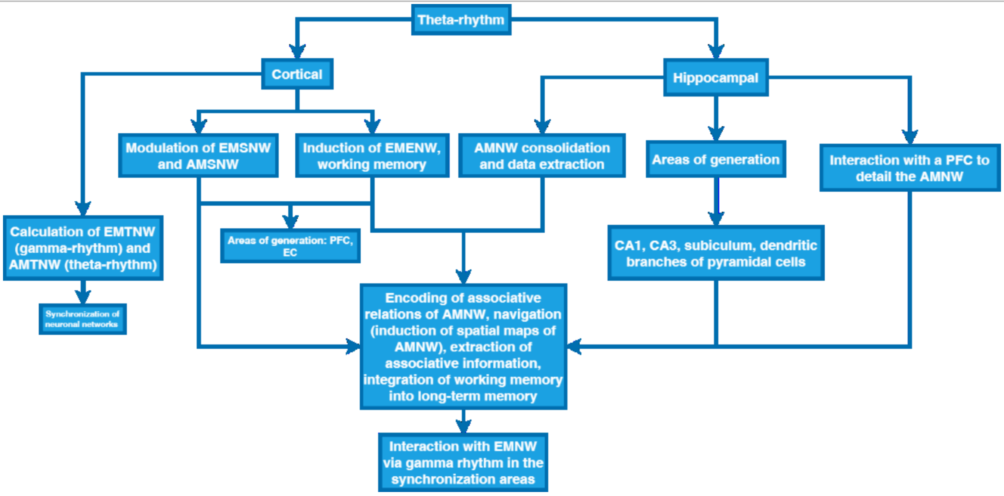

Figure 4. Theta rhythm. It shows the importance of theta rhythm (4-7 Hz) in the hippocampal-neocortical network for memory and spatial navigation. Illustrates resistant and non-resistant theta types

Ephaptic interactions differ from electrical and chemical synapses by their instantaneous spread over large areas of neuronal tissue, making them an ideal mechanism for coordinating the neuronal world (Pinotsis, 2023). The anticorrelation between alpha/beta and gamma rhythms demonstrates an abstract-empirical differentiation: alpha and beta rhythms primarily organize abstract processes (Palva & Palva, 2007; Pfurtscheller, 1992; Hussain et al., 2022; Baumgarten et al., 2016; Merchant & Yarrow, 2016; Fujioka et al., 2009, 2012; Merchant & Bartolo, 2018; Yu et al., 2022; Klimesch, 1999; Leventhal, 2012), while gamma rhythms govern empirical ones, acting as high-frequency rhythms essential for the sensory synthesis of basic models (Tallon-Baudry & Bertrand, 1999; Scarpelli & Bartolacci, 2019; Bastos, 2012; Van Kerkoerle, 2014; Dobel et al., 2011; Jinghua Ou et al., 2018; Kanai et al., 2008; Womelsdorf et al., 2006; Schroeder, 2009; Voss, 2014). Alpha and beta activity, by fostering the proliferation of the abstract model, block ascending gamma bursts in a process termed "neuronal quenching." These abstract rhythms (ARNW) maintain an active state space containing the current predictive goals and cognitive tasks. 10

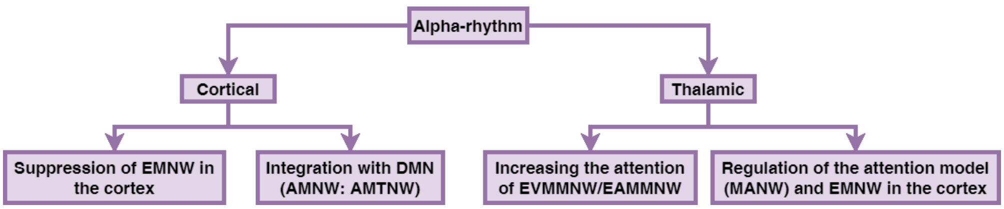

Figure 5. Alpha rhythm. Details alpha rhythm (8-13 Hz) function in sensory processing (EMNW), attention modulation, and abstract model stability

Gamma oscillations also affect attention and global workspace, increasing during focused tasks and perceptual awareness (Jensen et al., 2007, 2010). The binding process is vital for constructing a seamless empirical model responsive to environmental changes. Gamma rhythms also modulate attention and global workspace, increasing during tasks requiring focused attention and enhancing perceptual awareness. This indicates that gamma oscillations integrate sensory data and selectively enhance relevant stimuli, thus fine-tuning the empirical model to prioritise critical environmental features. The binding process is vital for constructing an illusion of a seamless empirical model responsive to environmental changes.

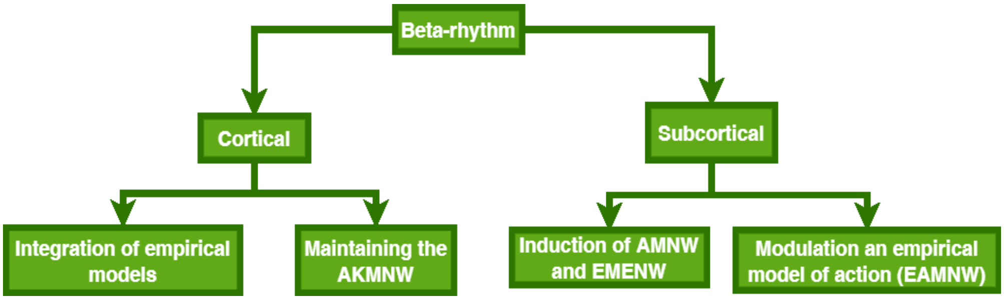

Figure 6. Beta rhythm. Details beta rhythm (13-35 Hz) in sensory-motor integration and cognitive processes. Shows its role in movement coordination and empirical model stability

In other words, alpha and concurrently, beta rhythms contribute to the construction of the abstract model, highlighting the interconnected nature of all neuronal rhythms in supporting and maintaining the various models, which underscores the fundamental truth that each rhythm, in some way, plays a role in sustaining the entirety of the neuronal models. waves form the skeleton of the neuronal world, allowing empirical gamma rhythms to break through in areas where abstract rhythms have reduced in intensity, facilitating the synthesis of the world model (Buffalo, 2011). Each object within the EMNW, such as within the empirical visual model of the neuronal world (EVMNW), possesses a unique electromagnetic signature, activated in part by alpha/beta suppression. The striate-extrastriate synthesis moves to more complex levels of processing as it approaches the prefrontal cortex (PFC). The interaction between abstract and empirical rhythms literally shapes and identifies specific objects within the EMNW. In essence, the spatial properties of alpha and beta rhythms, their organization, delineate the patterns of empirical rhythm expansion within the fine electromagnetic interactions, which constitute the empirical model itself, linked with abstract modulations such as recognition and imagination. The instant modeling of the empirical model is determined precisely by these ephaptic properties of the electromagnetic rhythms.

Every state of the tunnel, akin to the configuration of snowflakes during a blizzard that obscures a fragment of a stereoscopic perspective, is lined with the active state of the electromagnetic rhythms — ASNWT. Consequently, the EPSP and IPSP of each neuron inevitably impact the tunnel: in this scenario, the activation and deactivation of each neuronal cluster coding the abstract model reflect the selectivity of sampling and the semantization of the empirical model. In this context, it is important to note that the model of one AM object, produced by cluster X_1, is qualitatively homogeneous with the AM object X_2, but spatially distinct within the connectome (Yoo, 2020). Similarly, data from the sensory pool of the GNW are transferred into the space of the abstract model for manipulation and differentiation (MacDowell, 2023). At the same time, the flow of components of the abstract model within the framework of comparing states and objects is integrative and synchronous, which is also true for the merging of tunnels of the empirical model with the abstract one. It is natural that the same abstract model is capable of engaging various types of coding and integration, as there is no homogeneous model that unites all types of neurotransmitter and synaptic interactions, culminating in an electromagnetically monistic type of coding. Specified principle is valid across all levels and neuronal models, meaning that understanding relationships between EMNW, AMNW objects, and motor programs — all components require inhibiting abstract model during predictive period.

The tau rhythm, an alpha rhythm variant, blocks auditory stimuli, contributing significantly to the auditory abstract model of the neuronal world (AAMNW). It forms the basis for empirical and abstract auditory models (EAMNW and AAMNW). Desynchronisation within the auditory cortex occurs in the 6–12 Hz range, akin to the visual alpha rhythm's role in modulating empirical and abstract visual models. Mu rhythm is critical in speech recognition and is implicated in tinnitus, highlighting the universal mechanism of alpha activity in modulating various neuronal world models.

The tau rhythm's desynchronisation opens a space for constructing empirical models by modulating excitatory and inhibitory processes (Başar, 2012). Alpha rhythms, including the tau variant, block unnecessary empirical modules to maintain the tunnel's transparency. Low levels of alpha oscillations indicate heightened empirical model activity, suggesting reduced prominence of the abstract model. Conversely, high alpha activity suppresses empirical models, as diminished auditory tau rhythms lead to tinnitus (Eggermont et al., 2004). Dysregulation of alpha rhythms, where they are abnormally generated within certain brain regions and states, leads to various pathologies, including tremors, phantom pain, and tinnitus. Destroying specific thalamic nuclei alleviates negative symptoms and rhythmic pathologies, indicating thalamic projections' critical role in maintaining rhythmic stability.

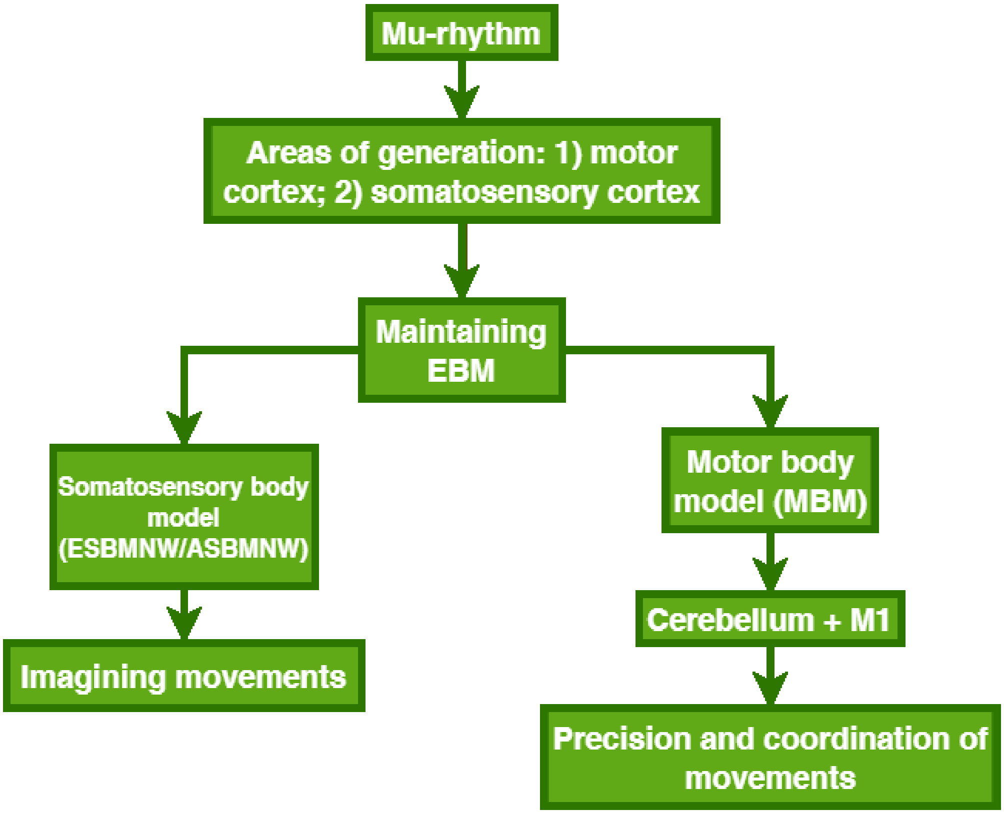

Figure 7. Mu rhythm. It illustrates mu rhythm (8-13 Hz) in the sensorimotor cortex and its role in movement and proprioception

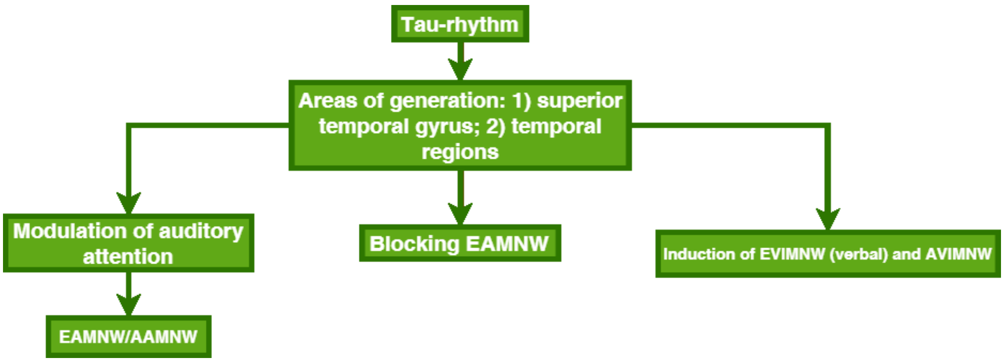

Figure 8. Tau rhythm. Depicts tau rhythm (8-13 Hz) in auditory processing, particularly in speech recognition and tinnitus modulation

World model (WMNW)

Is there direct contact between the brain and the "external" world? Moreover, is the brain "internal" relative to something "external"? Not. The brain, confined within the skull, has never interacted with any "world," hence what is perceived as "external" is essentially the brain itself, specifically the direct rhythmic activity of the electromagnetic field, devoid of spatial relations of "internal" and "external." Furthermore, brain rhythms constitute objective reality itself, thus eliminating any distinction between "internal" and "external" worlds. The neuronal world is homogeneous when viewed from any perspective. The absolute truth of the NW lies in the homogeneity of all its objects and the equivalence of the "self-model" and the "world model." The self-model is identical to space, time, and matter models. Consequently, disruptions in the spatial model lead to the dissolution of the "self"; disruptions in the abstract model of time (AMTNW) cause the "self" to fall out of the chronological chain; disruptions in the matter model result in hallucinations, nullifying the "self." Thus, it is clear that the illusory integrity and essence of the NW balance the differentiation of abstract and empirical models.

The stability and pseudo-integrity of the world model disintegrating into 1) a model of space, 2) a model of time, 3) a model of neuronal matter (objects), 4) a model of causality described in a previous article on the neuronal world is achieved through the electromagnetic synchronisation of various parts of the connectome. Networks creating the spatial model likely synchronise in one rhythm, while neuronal networks responsible for the sensation of duration (EMTNW) synchronise in another. Hence, the desynchronisation of spatial rhythms leads to disruptions in both the empirical and abstract space models (EMSNW and AMSNW). The same applies to the self-model, which disintegrates due to the desynchronisation of the alpha rhythm between the prefrontal cortex and the posterior cingulate cortex. Therefore, it is clear that the mechanism of any model disruption in the NW consists of rhythm desynchronisation caused by various reasons.

The process of NW world-model generation can be described as neuronal capture, where electromagnetic rhythms, within milliseconds and through receptor impacts, activate a hyper-realistic spatiotemporal continuum. The process is most directly observable in lucid dreams, where simply imagining a place (AMSNW) can result in the body's model (EBMNW) seemingly being pulled into it within seconds: pulling, often accompanied by strong vibrations and noises, manifests the cortical process of spatial synthesis when transparency decreases. Studying brain activity properties in lucid dreams can help better understand the rhythmic nature of the model of the world created by a synchronization of electromagnetic rhythms.

The Neuronal World consists of four primary submodels that collectively construct virtual reality:

1. **Model of space**:
   - (i) Empirical space (EMSNW): direct sensory experiences, including visual, auditory, kinesthetic, olfactory, and gustatory modalities, form the spatial model.
   - (ii) Abstract space (ASMNW): imaginative space constructs are crucial for navigation and spatial awareness, which are caused by the neurons of space.
2. **Model of time**:
   - (i) Empirical time (EMTNW): the sensation of duration and sequencing of events.
   - (ii) Abstract time (AMTNW): retrospective and prospective temporal models essential for planning and memory.
3. **Model of matter**:
   - (i) Empirical matter (EMMNW): sensory-based construction of objects in the neuronal world.
   - (ii) Abstract matter (AMMNW): imaginative constructs of objects, aiding understanding and interaction.
4. **Model of causality**:
   - (i) Empirical causality (EMCNW): event linking through the lefthemisphere speech interpreter and anomaly detection by the right hemisphere.
   - (ii) Abstract causality (AMCNW): non-verbal abstract representations of events and objects, including verbalisation of the self-model.

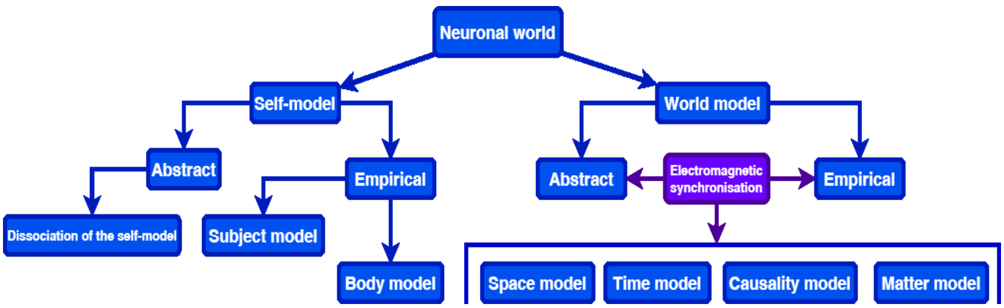

Figure 9. Neuronal world: the basic scheme. Represents the fundamental structure of the Neuronal World (NW). Highlights core components like sensory input integration and neural rhythm synchronization

Model of space (MSNW)

The Model of Space (MSNW) is a complex construct of multiple neuronal modules. There is no single "space module"; billions of processes generate a transparent spatial model. The richness of the spatial model is proportional to the diversity and number of receptors projecting into the brain. Even minimal neuronal architectures can form rudimentary spatial models. For instance, nematodes with approximately 300 neurons navigate their environment effectively, seeking food and mates. Although their spatial model is rudimentary, it is sufficient for their survival.

In contrast, the immortal hydra, possessing around 5600 neurons, can perform complex hunting behaviours, indicating a more sophisticated spatial model. The detail of a spatial model is directly related to the organism's needs. The essential condition for inducing a spatial model is receptor activation; without it, the neuronal modules remain inactive.

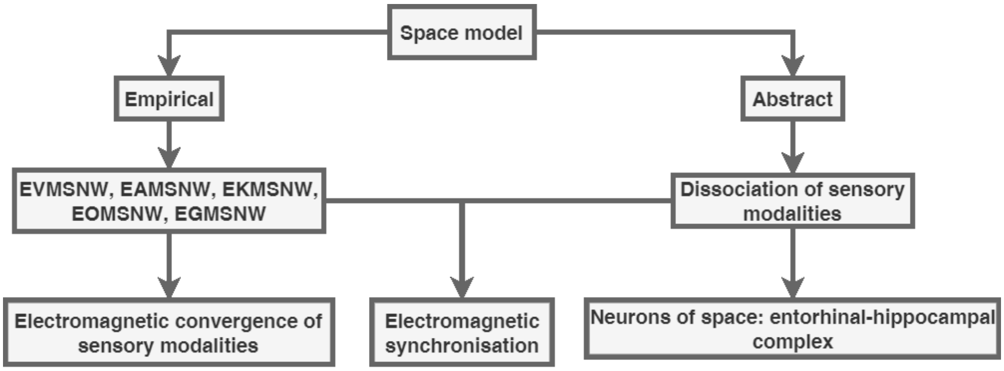

Figure 10. Space model. It depicts the construction of the space model in NW, involving multiple sensory modalities and neural modules. Shows receptor activation and spatial neuron functions

The brain models space across various sensory modalities, each contributing to the construction of a comprehensive spatial experience:

1. **Visual (VMSNW: stereoscopic perspective)**: the visual system provides a stereoscopic perspective, allowing for depth perception and the creation of a visual spatial model that is crucial for navigation and interaction with the environment.
2. **Auditory (AMSNW: sound propagation and auditory space modelling):** the auditory system models space by calculating sound propagation velocity and constructing an auditory spatial model. This process enables the brain to localize sounds and determine their origins in virtual space. A key component

of this spatial model involves interaural time differences (ITD) and interaural level differences (ILD), which allow the brain to detect the direction and distance of sound sources by comparing the time and intensity of sound reaching each ear (Thaler, 2011).

3. **Kinesthetic (KMSNW: tactile orientation)**: the kinesthetic model involves tactile orientation, particularly in the absence of visual cues, such as in darkness. This model relies on grid cells and the body model to map spatial relationships based on proprioceptive input.
4. **Olfactory (OMSNW: smell-based orientation)**: the olfactory system contributes to spatial orientation by processing smells, which can be used to navigate the environment or locate specific targets (Jacobs, 2012).
5. **Gustatory (GMSNW: taste-based orientation)**: in certain species, such as catfish, the gustatory system plays a role in spatial orientation, using taste to map the environment and locate food sources (Nevitt, 2008).

These sensory modalities collectively form the empirical spatial model (EMSNW), providing a detailed and multisensory representation of space. Spatial neurons, particularly within the hippocampal and entorhinal cortices, further contribute to the abstract spatial model, allowing for higher-order spatial reasoning and memory integration.

The nature of space: neuronal and objective dimensions

Considering both possibilities — neuronal and objective space — reveals contradictions in denying the objective nature of space while acknowledging its neuronal construction. We know that the model of space is neuronal, yet this neuronality cannot exist without objective space. Thus, the truth is that space is both objective and neuronal. Although no one has access to objective space directly, it is evident that without an objective reality, the neuronal model could not exist.

The neuronal world is the limit within which organisms operate, a boundary that cannot be surpassed. However, the conditions for this neuronal world must involve objective processes occurring in specific brains within the frameworks of space and time. Denying objective reality is absurd, and the neuronal world model offers a middle ground that recognizes both the neuronal world and objective reality. Additionally, the neuronal world model demonstrates that many aspects of the neuronal world do not exist outside the brain's connectome. The fallacy of solipsism lies in a misinterpretation of the brain's principles in constructing the neuronal world.

Model of time (MTNW)

The empirical model of time (EMTNW) is formed through the synchronous activation of neurons, just like any empirical and abstract model. Most likely, the model of time consists of fast rhythms, their interaction, and interference since the fast oscillations have sufficient resolution for EMT. The kinesthetic nature of the model of time is evident: phylogenetically, the brain is necessary primarily for the production of movement, i.e., the organisation of behavioural models aimed at DNA replication. Movement, in turn, requires precise timing and a high level of neuronal synchronisation. Neuronal rhythm is the source of the model of time, especially important for modulating movement, as the latter is always rhythmic. Movement, in particular, and general behaviour are objectifications of brain rhythms. The larger the organism, the higher the need for energy to maintain metabolism, in connection with which the world model is detailed, and with it, the model of time, allowing neuronal networks to make more accurate predictions: motor, cognitive, and sensory. Thus, any more complex predictive computation requires higher accuracy of the model of time, which is the foundation of other computations.

The auditory model of time (EAMTNW) involves calculating musical (or chaotic sequence) rhythm. Again, the close connection between the auditory and kinesthetic models is evident: Rhythmic music directly induces motor rhythms, leading to the initiation of specific sequences of movements. Thus, olfactory and gustatory models of time are calculations of EOTMNW and EGTMNW, determined by the empirical olfactory model of time (EOTMNW) and the empirical gustatory model of time (EGTMNW). The cerebellum and basal ganglia contribute significantly to maintaining the model of time, given its motor nature, by calculating and correcting movements: in addition to detailing the model of actions (EMANW), the cerebellum can predict the future, i.e., it supports the abstract kinesthetic model of time (AKMTNW). There is no doubt that the rhythmic nature of movements is a direct manifestation of the model of time — a predictive computation of movements on the one hand and the sequence of actions objectifying the neuronal model of time as duration on the other.

Model of matter (MMNW)

The empirical model of matter (EMMNW) represents sensory models of objects across different modalities — visual, kinesthetic, auditory, gustatory, and olfactory. Neuronal networks synthesise these models, each linked with a corresponding sensory modality, forming a cohesive representation of objects in space and time. This synthesis underlines the unity between matter, space, and time models, making their differentiation less significant. The process of modelling EMMNW is inherently tied to spatial-temporal synthesis, a fundamental aspect of neuronal processing. While the abstract model of matter (AMMNW) concerns the imagination of objects, the empirical model focuses on the sensory reality.

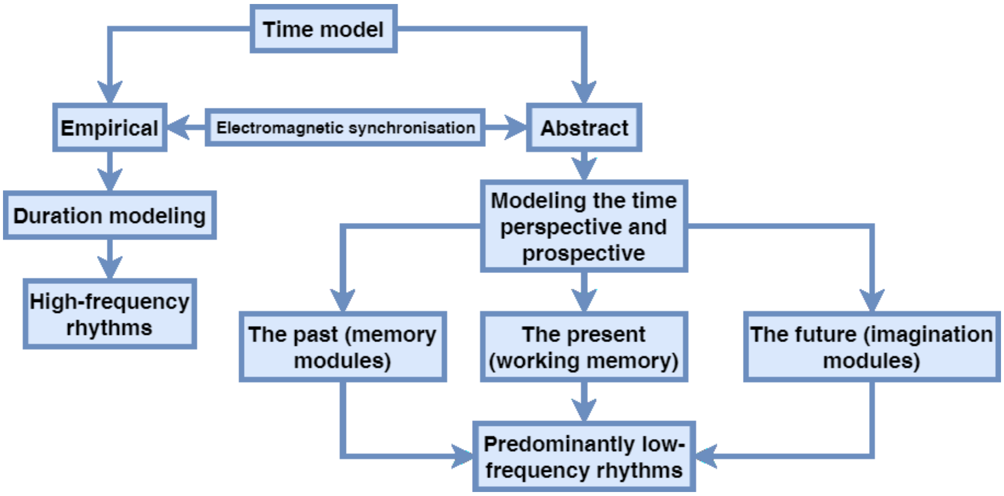

Figure 11. Time model. Depicts empirical and abstract models of time (EMTNW/ AMTNW) through neuronal synchronization

The auditory model of matter (EAMMNW/AAMMNW) processes sound information to identify and localise auditory objects in the environment. The primary auditory cortex (A1) analyses basic sound properties like frequency and intensity, with higher auditory areas, including the auditory belt and parabelt regions, handling more complex processing. The parietal lobe PG integrates auditory and spatial information, which is crucial for locating sounds relative to the body model, enabling effective interaction with auditory objects.

The kinesthetic model of matter (EKMMNW/AKMMNW) involves processing proprioceptive information to understand the body's position and movement in space. The primary somatosensory cortex (S1) receives proprioceptive input, providing data on body position and movement, while the secondary somatosensory cortex (S2) integrates this with visual and auditory information to form a comprehensive kinesthetic model. This integration is essential for tasks requiring precise movement coordination, such as reaching for objects.

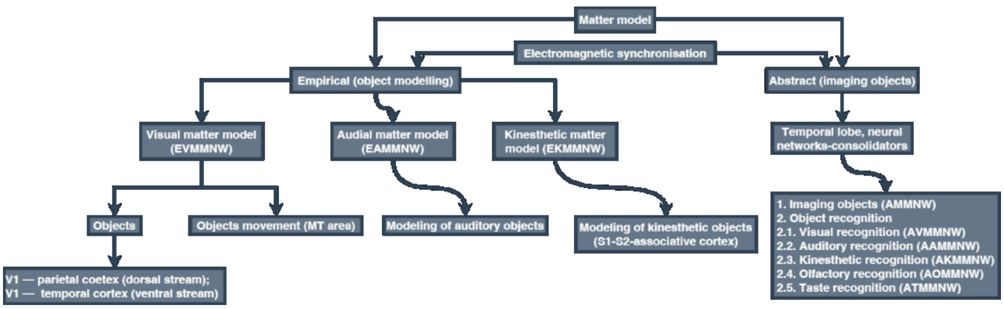

Figure 12. Matter model. Illustrates model of matter (MMNW) involving sensory models of objects. Shows visual, auditory, and kinesthetic processing

The gustatory model of matter (EGMMNW/AGMMNW) processes taste information to assess the quality of food, with taste receptors sending signals to the gustatory cortex, where these are analysed to decide whether to consume or reject certain foods. Similarly, the olfactory model (EOMMNW/AOMMNW) processes smell information to evaluate odours, with olfactory receptors in the nose transmitting signals to the olfactory bulb and cortex, aiding in the detection of food, hazards, and other environmental cues.

The empirical model of matter is a complex integration of sensory inputs from various modalities synthesised by specific neuronal networks responsible for each sensory system. EMMNW is inherently linked with the models of space and time, emphasising their unity in the brain's representation of reality. These sensory models' precise coordination and interaction enable organisms to navigate and interact effectively with their environment, highlighting the intricate processes underlying sensory modelling and object recognition.

Causality model (MCNW)

The model of causality is created by objective causality, i.e., time, just as the entire neuronal world is. It consists of the left-hemisphere speech interpreter, which links events into causal pairs, and the anomaly detection module, which "unlinks" events in the Abstract Model of Time (AMTNW). If time is a sequence of physical changes, it creates the NW. The model of causality, generated by objective causality, primitively describes these processes at the level of speech or non-verbal.

When the brain attempts to link two events, A and B, as cause and effect, the causality module (CM) is at work. When an organism, in an act of verbal or non-verbal reflection, attempts to determine a) the cause of something, b) the cause of its actions, or c) the connection between events and actions, this knowledge arises from the causality module (CM). The CM must understand relationships between objects in the NW and maintain the illusion of reality. It is directly related to the model of space and time and the model of matter (MM). In this sense, it is built upon them, working by representing the abstract model of time (AMTNW) created by the DMN network: based on the duration of an event, emotional colouring (PFC — amygdala), acts of attention capture, dorsal-ventral streams sensory systems, autobiographical modelling, and the level of wakefulness, the causality module establishes various connections between states of the NW tunnel. Thus, the empirical model of causality (EMCNW) is the immediate synchronisation and structuring of the NW, while the abstract model of causality (AMCNW) is the interpretation of these processes.

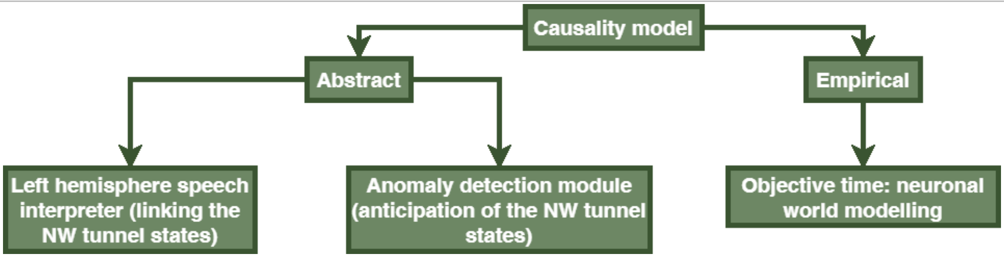

Figure 13. Causality model. Details model of causality (MCNW) involving left-hemisphere speech interpreter and anomaly detection module

In a narrow sense, the model of causality is the speech interpreter and anomaly detector. In contrast, in a broad sense, it is any synaptic linking of NW objects into causal chains and pairs, i.e., the process of neuronal synchronisation. Causality at the level of nervous tissue is synaptic convergence, the sequential conduction of impulses during neurotransmitter communication. However, the CM is a particular manifestation of this large-scale brain process aimed at enhancing cognitive efficiency. So, the EMCNW refers not to any objective causality but specifically to the brain's ability to link neuronal models — the foundation of the empirical model of matter (EMMNW). The AMCNW primarily refers to the neuronal process of 1) verbal interpretation of empirical changes, 2) non-verbal abstract representation of events and objects, and verbalisation of the self-model.

Therefore, the CM includes memory modules, elements of the self-model, speech modules, the ability to form synapses in general, and their myelination and pruning. Objective causality (time) is characterised by sequence. Any changes proceed in one direction — from cause to effect, having no other characteristics: each state of objective matter occurs only due to the preceding one and in no other way. Therefore, causality is the fundamental principle of reality. Objective causality (OC) and time (OT) are the same. There is no difference between time and causality: confusion generally arises due to language usage. OC operates equally at all levels of NW objectification, creating closely related transparent worlds necessary for survival.

Self-model, you-model and depression

The conceptualisation of the self is divided into two main aspects: the immediate, perceptual experience (empirical self-model, or ES-MNW) and the reflective, narrative-based understanding (abstract self-model, or AS-MNW). The empirical self-model involves real-time processes that generate the illusory feeling of being an individual at any given moment, engaging a vast network of neurons (Northoff et al., 2004; D'Argembeau et al., 2005). In contrast, the abstract self-model encompasses the extended and dissociated aspects of self, such as autobiographical memory (abstract verbal self-model, AVS-MNW) and the non-verbal self-representations within the spatial (AMSNW) and temporal (AMTNW) frameworks, which are dissociated from the empirical counterparts (Cabeza & St Jacques, 2007; Spreng et al., 2009).

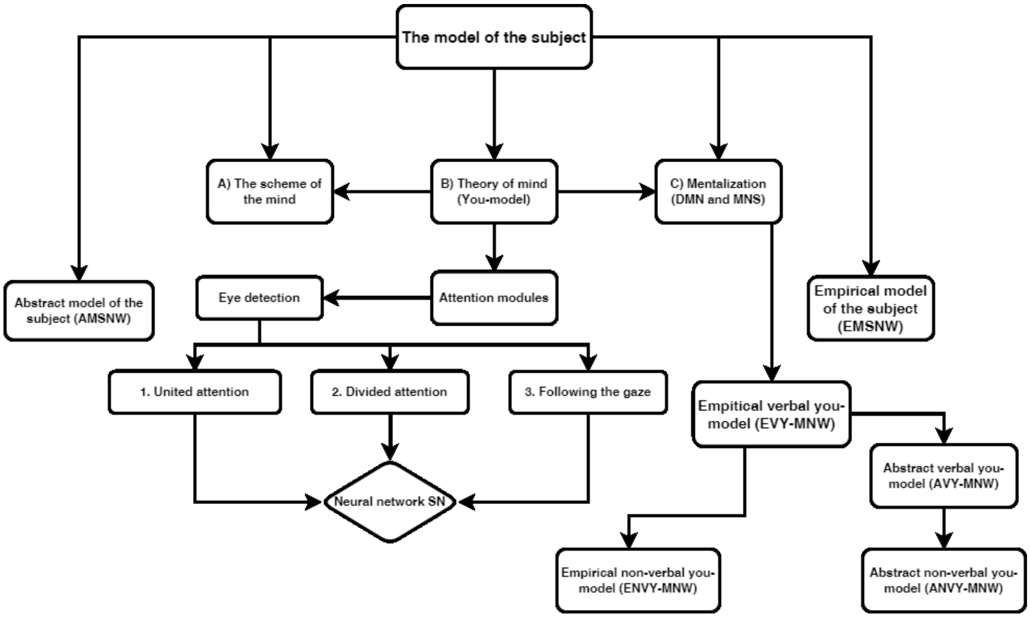

Figure 14. Subject model. Illustrates self-model divided into empirical (ES-MNW) and abstract (AS-MNW) components. Highlights verbal and non-verbal representations and theory of mind

The ES-MNW is further categorised into verbal (EVS-MNW) and non-verbal components. The verbal component entails a narrative about oneself, while the non-verbal (ENS-MNW) component involves bodily and sensory self-awareness facilitated by the temporal lobes. The AS-MNW, on the other hand, comprises verbal (AVS-MNW) and non-verbal (ANS-MNW) representations, where the latter integrates the non-verbal aspects of the self-dissociated from direct sensory experiences. The abstract self-model (AS-MNW) includes components of the abstract model of time (ATMNW), specifically the models of the past, present, and future, such that an autobiographical verbal narrative — being nothing more than a fabrication — expands within these three temporal modalities. The abstract model of the subject (ASMNW) is nothing other than the attribution of a sense of subjectivity to what is experienced or has been experienced — that is, to what is modeled or being modeled — whereas the empirical model of the subject (ESMNW) refers to the immediate sense of ownership of states within the tunnel of the subject illusion generated by the frontal module of the DMN.

The abstract self-model, including its verbal expression, is entirely determined by the activity of the left posterior operational module

(LPOM) (Fingelkurts AA, 2020); it is this module that organizes autobiographical verbal narratives and connects the non-existent "self" with the temporal axis of the abstract model of time (AMTNW), enabling planning, the generation of expectations and desires (in connection with the activity of the hedonic scale of the neuronal world [HSNW]). However, it is important to note that the abstract self-model in general — and the verbal self-model in particular — does not constitute the actual experience of selfhood, subjectivity, agency, or causal modulation of behavior, thoughts, and intentions. Instead, this experience is generated by the frontal operational module, which constructs the empirical model of the subject (ESMNW). The abstract model of the subject (ASMNW), by contrast, is merely the imagination of agency, predetermined by low-frequency rhythmic activity. It should also be noted that the right posterior operational module supports a stereoscopic perspective — that is, a first-person viewpoint model: transcranial magnetic stimulation of the temporoparietal junction (TPJ), right posterior angular gyrus, induces the sensation of 'leaving the body,' when the body model becomes desynchronized from the current state of the world model (Arzy S et al., 2006; Lopez C, 2008); furthermore, the right posterior module apparently implements the integration of autobiographical narrative with the emotion model, thereby supporting the sense of self. The connection between the frontal module and the left posterior module determines — and more precisely, constitutes — the integration within the empirical model of the subject (ESMNW) for the frontal module, and the abstract verbal self-model for the left posterior module. It is precisely at the level of this connection that the content of the thought model (ETMNW) is attributed to a non-existent subject. The verbal self-model reinforces the illusion of subjectivity by weaving the thread of autobiographical narrative and conceptualization. Thus, the three modules, operating in a synchronized mode, maintain the coherence, correlation, and anticorrelation of computations, regulating the properties of the self-model — an illusion that manifests as the sense of self (ESMNW), constant in time (autobiographical self-model [AS-MNW]) and space (proprioceptive-spatial self-model [EMSNW]), and unfolding through verbalization and conceptualization (VS-MNW) via the left posterior module, which is connected to the default mode network. In addition, the body model, partially computed by the posterior operational module — where the sense of owning a body model arises — is also embedded in verbalizations and the sense of subjectivity. The frontal module, in turn, plays a key role in constructing the illusion of the "I" (ES-MNW). It appears that von Economo neurons in the frontal lobe determine the properties of the frontal module, since their degeneration in frontotemporal dementia corresponds to a disruption of self-description (Seeley, 2006).

The you-model, or the model of others, mirrors the self-model in both structure and function, utilizing the same neuronal mechanisms based on synchronization principles. While all human brains can construct models of others, this ability is especially elaborate in social animals and insects such as elephants, dolphins, primates, ants, bees, wasps, and hornets. At the core of the you-model lies the theory of mind (ToM), which encompasses the evolving capacity to understand and attribute mental states to others. ToM can be examined from three perspectives: the modular approach, theory theory, and simulation theory. Fundamentally, ToM pertains to the abstract model of the neuronal world (AMNW), which incorporates elements from the empirical model of the neuronal world (EMNW). Predictive neuronal computations within ToM operate on Bayesian principles, underscoring their innate, a priori nature (Frith & Frith, 2003; Baron-Cohen et al., 1985, 1995, 1997).

Neuronal networks involved in mentalization employ synchronization to simulate both the self and the subjectivity of others. The default mode network (DMN) plays a crucial role, as different parts of this network work together to predict the cognitive processes of others, creating a dynamic interplay of predictions. This neuronal mechanism explains why knowing a single fact about someone can lead to constructing a broader narrative about their life. Baron-Cohen's model of the theory of mind identifies several key components: intention detection, gaze direction recognition, shared attention, and the mentalization module (ToMM). These components interact closely, with intention and gaze direction detectors integrating into the shared attention mechanism, which subsequently feeds into ToMM. This module is universally present in human brains, reflecting the homogeneity of neuronal worlds. The shared attention mechanism likely involves spatial neurons responsible for gaze and head movement, linking abstract and empirical models through hippocampal and cortical theta rhythms (Baron-Cohen, 1995, 1997). The mirror neuron system (MNS) and the DMN are integral to forming both the self and you-models. Mirror neurons, primarily located in Brodmann area 44, facilitate the understanding and imitation of others' actions, maintaining the illusion of distinction between one's own body and that of others (Rizzolatti & Craighero, 2004; Gallese & Goldman, 1998). Mirror neurons also play a fundamental role in sustaining this illusion by modeling hand and arm movements towards specific locations, thereby supporting aspects of the kinesthetic model of space (Rizzolatti & Sinigaglia, 2010). This illusion of the self-model can be deconstructed by the concept of negating the neuronal world (NW), where an illusionist suppresses mentalization through meditation or other methods, viewing both the you-model and the self as mere constructs within the NW tunnel, devoid of actual existence due to their causally conditioned nature. Mentalization models, therefore, are perceived as illusions, with their apparent reality stemming from intense brain metabolism. A reduction in this metabolic intensity, such as in hypoxia, leads to the collapse of the self and body models, while the desynchronization of brain rhythms similarly dissolves the self and you-models through different mechanisms (Brewer et al., 2011).

It is important to note the following the only *cause of depression* is not a dysfunction of neurotransmitter systems or systemic inflammation. No — the only possible and real cause of depression is ego-centrism or/and naïve and emotionally-ethical interpretations of world model (EWMNW, AWMNW), which arises as a result of the automatic looping of the same naive thoughts related to the illusory construct of the "self". This condition became possible due to the overdevelopment of speech in humans, leading to hyper-synchronization across all operational brain modules, particularly in the alpha range. This is why depression does not occur in children under 7, since they lack the alpha rhythm in it' s normotypical and mature form, and the autobiographical narrative, governed by the left posterior operational module, is absent — thus catalysis of ego-centrism is impossible (Fingelkurts & Fingelkurts, 2017b). Accordingly, it becomes entirely evident that the application of antidepressants is absolutely absurd. These drugs not only fail to influence the functioning of operational modules but, based on a false and naively delusional hypothesis about neurotransmitter imbalances — upon which their prescription is founded — actually disturb brain function and worsen the condition. Since the nature of the disorder is hyperfixation on the "self" (and nothing else!) or naïve moral and emotional interpretations, the effective method of treatment is detachment from the "self", training in contemplative practices, and reducing ego-centric thought patterns — for instance, through understanding the truth of virtuality or the neuronal world.

In contrast, the only thing that can help is reducing ego-centric thoughts — either through meditative practice (i.e., detachment from the self), or through working with beliefs, as taught by Stoic philosophers, from whose teachings modern cognitive behavioral therapy (CBT) emerged. For example, Epictetus famously noted — as recorded in one of his aphorisms — that it is not things themselves that disturb people, but their representations about things: "People are not disturbed by things, but by the views they take of them." (Epictetus, Enchiridion). Here we can add that people cannot possibly be disturbed by the world, as they never even come into contact with it — since everything is a neuronal world, or simulation. This reveals just how destructive ignorance of the truth of virtuality can be. Because once it is known that all is non-dual simulation, i.e., there is no subject-object separation, ego-centric thoughts simply cannot arise, and therefore neither can any affective disorders tied to the illusion of the "self." In other words, the main cause of most affective disorders is ego-centrism, which consists in the naive repetition of the same flat, self-referential thoughts. Understanding the truth of virtuality can break this cycle by clarifying the nonexistence of all separations. Herein lies a possible therapeutic application of psychedelics, particularly 5-MeO-DMT, which desynchronizes operational modules. For in inducing a direct experience of ego death, it may truly be therapeutic — as research confirms (Ramaekers JG, 2025). In this regard, the use of 5-MeO-DMT is unequivocally more effective than any antidepressants, because this psychedelic, by desynchronizing low-frequency rhythms, leads to a collapse of the neuronal world and a direct experience of non-duality. This is precisely what underlies its immediate antidepressant effect, grounded in the desynchronization of operational modules — since their hypersynchronization is the sole cause of depression. However, the complexity and potential danger lies in the possibility of side effects such as HPPD (hallucinogen persisting perception disorder) and flashbacks. Similarly, studies demonstrate the effectiveness of TMS (transcranial magnetic stimulation) and deep brain stimulation (Blumberger et al., 2018; Li et al., 2014; Mayberg et al., 2005; Tsai et al., 2023; Bailey et al., 2018), precisely because the nature of depression is rhythmic — i.e., it is based on the computational activity of neurons in operational modules, and not on anything else, as nothing else is even theoretically possible. Correspondingly, hypotheses based on the supposed role of BDNF (brain-derived neurotrophic factor) as a cause of depression are clearly naïve and absurd (Molendijk et al., 2014; Meshkat et al., 2022). Furthermore, EEG activity best reflects the manifestation of the disorder (Fernández-Palleiro et al., 2020; Newson et al., 2019; Arns et al., 2015; Grin-Yatsenko et al., 2010; Fingelkurts et al., 2007). From this, it becomes evident how astonishing the nature of the neuronal world truly is: the thought “I am happy” causes the experience of happiness, while the thought “I am unhappy” causes the experience of unhappiness. In other words, this simulation is capable of instantly creating what is represented, and if something is repeated for long enough, it begins to appear real—such as the non-existent “self.” However, true eudaimonia is attained exclusively through the realization of the virtual nature of reality and the elimination of all thoughts, ideas, and representations. An interesting notion is that, since the left posterior operational module is closely connected to the verbal neuronal networks in the left temporal lobe — i.e., to the left-hemispheric verbal interpreter — their synchronization proliferates the autobiographical verbal narrative, thereby reinforcing the illusion of the “self” and aggravating the condition by generating a negatively toned “self” narrative.

Studies show that antidepressants have virtually zero efficacy, indistinguishable from placebo (Kirsch et al., 2014; Kirsch et al., 2019). Knowing this, one can only marvel at the very nature of the neuronal world and the self-model, for the unreal causes so much problems here! All serious meta-analyses confirm — and this must be so, for it cannot be otherwise — that antidepressants have no significant effect (Kirsch et al., 2019), a fact that becomes obvious once we uncover the true nature of this disorder: hypersynchronization of operational modules, i.e., naive ego-centrism. Moreover, studies also reveal the massive risks of antidepressants in terms of severe side effects, which is unsurprising given that they operate like a sledgehammer to the head, in the hope something might change (Horowitz et al., 2023; Davies et al., 2019; Lagerberg et al., 2023; Le et al., 2015; Hengartner et al., 2019; Le Noury, 2015). Indeed, antidepressants do not improve quality of life (Almohammed et al., 2022); taking them is akin to bashing one's head against a wall, believing it will alter the synchronization of brain modules. Alongside this, the deliberate and correct strengthening of the frontal operational module through contemplative meditation can facilitate the catalysis of eudaimonia and ataraxia (Vago et al., 2012), whereas spontaneous increases in frontal module activity, especially when followed by uncontrolled expansion of this activity, may contribute to the development of affective disorders (Konjedi et al., 2017).

Depression is not directly associated with disturbances in neurotransmitter systems, as previously assumed (Moncrieff et al., 2023), but rather is entirely grounded in naive interpretations of the empirical model — typically with an increased emphasis on mentalization. In particular, a growing number of researchers now argue that the hypotheses placing neurotransmitter systems at the core of depression's pathogenesis are mistaken. This conclusion is supported both by analyses of the actual mechanisms of antidepressants and by the observation that increasing levels of certain neurotransmitters in the synaptic cleft has no consistent effect on depressive symptoms. This is hardly surprising, considering that the only thing truly present in depression is the hypersynchronization of operational modules of the SRN, which is, in fact, an electromagnetic construct computed by the rhythms of various neuronal networks. Accordingly, therapeutic impact should be directed toward the modulation of network rhythmicity — a fact that is substantiated by the reliable and often effective outcomes of deep brain stimulation (DBS), wherein electrodes are implanted into specific neuronal tracts (Scangos et al., 2021). This is further supported by the well-documented success of cognitive behavioral therapy, which targets interpretative frameworks embedded within neuronal networks — that is, the destructive patterns of activity that, in some cases, can only be altered through direct neuronal intervention such as electrode implantation. The mechanism of action of antidepressants, then, appears to be largely a placebo effect: the brain anticipates therapeutic relief upon taking a pill and, through this expectation, improvement may indeed follow.

Furthermore, there is robust evidence that SSRIs (Selective Serotonin Reuptake Inhibitors) may increase the risk of suicide — a finding that suggests not only the ineffectiveness but also the potential harm of these medications (Lagerberg et al., 2023; Hengartner et al., 2019). And when adverse effects are taken into account, their overall impact may indeed be detrimental. This leads to a paradoxical situation: antidepressants are typically prescribed to reduce suicide risk, yet large-scale studies show that they may elevate this risk by at least 2.5 times. Such findings challenge the foundational premise of the neurotransmitter hypothesis of depression and suggest that this framework may be fundamentally flawed. The consequence of adhering to this model is the prescription of medications that interfere with neurotransmitter systems which, prior to intervention, may have been functioning adequately. This disruption appears to alter the rhythmic dynamics of neuronal networks responsible for generating the emotional model (ElMNW), often exacerbating the patient's condition rather than alleviating it. This misinterpretation — viewing depression as rooted in neurotransmitter imbalance — resembles the equally common misconception that fatigue is necessarily linked to muscles dysfunction. Both assumptions overlook a central insight into the neuronal world: all experiences and sensations are virtual models computed by oscillatory activity within neuronal networks. It follows, then, that effective intervention in depression must focus not on chemical modulation but on altering neuronal rhythms themselves.

Therefore, any meaningful change in emotional experience must stem from changes in the interpretative dynamics within the relevant networks and tracts. It is also a deeply mistaken notion to believe in the so-called “bio-psycho-social triangle” as a basis for conditions like depression, whereas in reality there is nothing but computational models of the brain, determined by the activity of neuronal networks — that is, by the rhythmic patterns of these networks. Instead, all facets of experience, including what labeling as "psychological" or "social," are generated by the same underlying neuronal computations — specifically, the rhythmic activity of neuronal circuits. Accordingly, it should be understood once and for all that there are no “psycho” or “social” components governing brain activity: there is neither psyche nor personality. On the contrary, both psyche and personality are primitive illusions generated by computational neuronal models. In metaphorical terms, such an approach resembles trying to type a coherent message on a keyboard by firing a pneumatic gun at it — an analogy that, if anything, demonstrates the mismatch between intervention and target mechanism. There is no compelling evidence to suggest that the presence or absence of specific neurotransmitters in the synaptic cleft can meaningfully influence the properties of the emotional model. There is strong reason that disruption in the rhythmic activity of neuronal networks that generate emotional representations, connected with SRN operational modules activity, is the primary cause of unpleasant sensations and all known symptoms of major depressive disorder (MDD). These rhythmic patterns, not static neurotransmitter levels, underpin the computational processes by which emotions and egocentric thoughts are formed.

This leads to four key conclusions. The only reliable approach to treating depression involves direct modulation of brain rhythms, either: a) through implanted electrode stimulation; b) via non-invasive methods such as transcranial magnetic stimulation (TMS), or c) by reshaping the interpretative patterns of the representations structure through cognitive behavioral therapy (CBT) and behavioral therapy (BT) or through knowing the virtual nature of reality; d) by taking hallucinogens like 5-MeO-DMT.

Neuroethical illusionism: hedonistic scale and illusion of morality

Neuroethics offers a method for identifying the neuronal causes and foundations of sensations that underlie ethical and moral judgments — judgments which inevitably give rise to erroneous conclusions and false constructions. The specificity of all judgments and experiences labeled as "moral" or "ethical" lies in the fact that they are grounded in those permanent and automatic evaluations generated by neural tissue, following evolutionarily determined and cytoarchitectonically organized algorithms. In essence, these algorithms are embodied in the computational activity of the hedonic scale network (HSN) — the reinforcement systems that carry out an irrational valuation of all experienced phenomena within a bipolar range. Neuroethical analysis of moral judgments based on such evaluative algorithms demonstrates that notions such as good and evil, benefit and harm, desirable and undesirable, permissible and impermissible, moral and immoral, ethical and unethical, right and wrong, are groundless and devoid of substance. They reflect no truth, but are wholly mistaken, illusory, naïve, and in fact do not exist — they are nothing more than arrangements of letters and sounds. This is so because the computations of the hedonic scale from which these concepts emerge are nothing more than an irrational evaluative algorithm shaped by evolution as a survival mechanism — one that clearly impedes objective knowledge.

It is also necessary to describe the hedonic scale, innate and hardwired into the brain of all mammals, which implements the evaluation of all experienced phenomena within a narrow pole of a gradient distribution, thereby predetermining the properties of the motivation and reinforcement model (**MaRMNW**), one of the fundamental components of the self-model. The hedonic scale, being a fundamental element of the reinforcement system, is an automatic mechanism of Bayesian classification of stimuli within the space of the neuronal tunnel. It does not generate the feeling of "pleasant" or "unpleasant" (this is done by the emotion model), but serves as a basic regulator of behavioral strategy, computing the value of what is being constructed and evaluating what is being modeled as "valuable," "useful," "good," "right" if the emotion model creates the illusion of pleasantness, and as "anti-valuable," "harmful," "bad," "wrong" if the emotion model creates the illusion of unpleasantness, in terms of positive or negative reinforcement.

Naturally, all these evaluations are false and erroneous — they are merely irrational algorithms and computations that reflect no truth but rather obstruct the approach to truth about virtuality by proliferating the delusion of moral realism, i.e., any dichotomous moral and ethical divisions, which are always false and mistaken. Functionally, the HSNW is formed through the interaction of the mesolimbic dopamine system (VTA → NAc), the basal ganglia, and the orbitofrontal cortex (OFC), which participate in evaluating the expected consequences of actions and adjusting behavior. However, the core of the HS can be localized in the ventral striatum (VStr), amygdala (Amy), and hypothalamus, since these nodes perform key functions: 1) ventral striatum (VStr) and nucleus accumbens (NAc) — generation of reinforcing signals, integration of dopaminergic reward predictions; 2) orbitofrontal cortex (OFC) — evaluation of the relative value of stimuli and adjustment of preferences; 3) amygdala (Amy) — affective modulation of the empirical model, associating emotions with experience; 4) hypothalamus (Hyp) — homeostatic regulation determining vital needs.

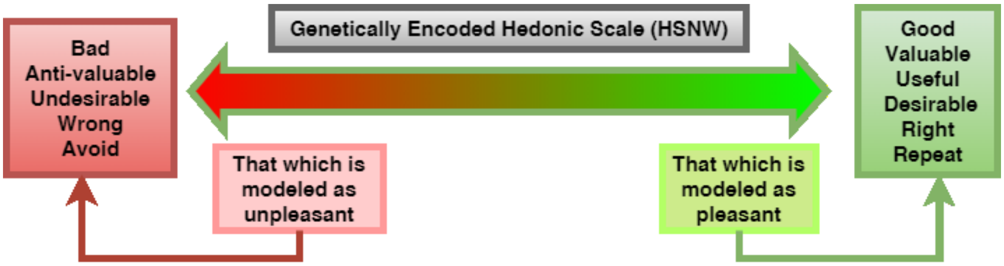

Figure 15. Hedonistic scale (HSNW)

The hedonic scale not only regulates reinforcement but also forms a value hierarchy: neuronal networks automatically assign ranks to phenomena, determining their degree of significance — though, of course, this hierarchy is irrational, illusory, and erroneous. Each stimulus or state immediately receives a numerical evaluation, and depending on the neuronal computations: 1) if the predicted value exceeds the threshold for positive reinforcement, the action is strengthened and marked as “good”; 2) if the predicted value is below the neutral point, the action is blocked and integrated into “negative patterns”; 3) if the value is close to zero, the stimulus is ignored. Thus, the hedonic scale is not merely a set of evaluations of modeled sensations of pleasure and pain, but a tool for calculating behavioral strategy — determining where to move, what to repeat, what to avoid, and what to regard as meaningless or insignificant. Biologically, the hedonic scale is a dynamic, adaptive algorithm of behavioral prediction and correction, trained through reward prediction error, which enables neuronal networks to flexibly — though fundamentally irrationally — shift the boundaries of “good” and “bad” depending on context. Consequently, any process of learning, decision-making, and especially moral-philosophical interpretation within the framework of moral realism is merely a high-level verbalization of the automatic computations of the hedonic scale.

Just as the illusions of desirable and undesirable, pleasure and pain, good and bad originate from the activity of the ethical model of the neuronal world (ElMNW) and the hedonic scale of the neuronal world, and are reinforced by the activity of the operational modules of the self-model and the subject-model (ESMNW), in the form of computations of the left posterior operational module (LPOM), so too do many delusions arise — via various pathways — from computations of the hedonic scale and evaluative neuronal networks that implement dichotomous divisions such as good and evil, acceptable and unacceptable. Thus, neuronal tissue — devoid of selfhood, interpreting the world-model without awareness of its virtuality or of the falsity and erroneousness of all moral and ethical norms — will assign to certain actions the qualities of badness, and to others goodness, some as moral, others as immoral, and so on. As a result of automatic proliferation, such distinctions inevitably evolve into deep-rooted delusions in the form of moral systems and assertions grounded in moral realism. Indeed, illusions (CI – congenital illusions), being innately permanent and producing the appearance of divisions such as pleasant and unpleasant, right and wrong, pleasure and pain, naturally evolve into verbalized delusions of moral realism — the false belief in the existence of correct/incorrect models of behavior, as well as the supposed necessity to strive for some things and avoid others. Needless to say, no sufficient foundation exists for either; such distinctions and reasonings are nothing more than a play of ignorance and/or a direct manifestation of the primitive nature of the brain as a social simulator, which did not evolve as an instrument of truth detection but solely as a blind mechanism for generating social evaluations.

Put more simply: when congenital illusions, manifesting in the activity of evaluative modules that proliferate and produce moral judgments, grow into delusions they always take on the same structural-functional character, as they are grounded in the same basis — the emotional model. For example, the emotion of disgust is always marked as evil, as something wrong or bad, just as any emotion located at the negative pole of the hedonic scale. Meanwhile, pleasant emotions — or whatever is evaluated through them — are marked as good, right, moral. The widespread congenital delusion regarding the need to avoid pain and unpleasant sensations is itself grounded in computations of the hedonic scale and the subsequent expansion of these computations into naïve claims that, moreover, distance one from the recognition of the truth concerning the virtuality and non-existence of the very distinctions between pleasant and unpleasant.

After all, in the indivisible simulation that constitutes the neuronal world, the existence of opposites — or duality — is impossible, just as is non-duality. In this exquisite simulation, suffused with countless illusions, what is represented — that is, what is modeled by alpha rhythm — appears real, though in reality it is nothing more than a mirage and a phantom. The mechanism of congenital illusion proliferation is based on the simple repetition, or cycling, of the same thoughts and sensations associated with them. And since the brain is a naïve social simulator, shaped by blind evolution, this physical object is incapable of anything but the expansion of illusions — unless the truth is realized before the delusion proliferates.

This is all the more ironic, given that it is far easier to stop playing with thoughts, ideas, and concepts than to bend a finger — for thoughts, concepts, and ideas are absolute nothingness, the activity of the alpha rhythm computing representations, that is, abstract models. The mechanism of dualistic delusion is homogeneous: it is the dividing function of all cognition that compels one to seek what appears attractive and avoid what seems unpleasant/repulsive/loathsome. In addition, the very process of modeling the neuronal world generates the appearance of a separation between the observer and the observed, though in fact no such separation exists, for all is one simulation, lying beyond all concepts and divisions.

Perspectives on the existence of the self

There are four basic perspectives on the existence of the self:

- **(i)** **Essentialism**: the self has an essence and thus truly exists.
- **(ii)** **Illusionism**: the self lacks essence and is an illusion.
- **(iii)** **Naive realism**: the self simply exists without discerning its truthfulness or illusory nature.
- **(iv)** **Dualism**: the sense of "I" is not directly related to brain activity or is not associated with any material process, being immaterial.

In examining the self-model, it is crucial to understand that the *object of negation* is the substantial "I," not the notion of the self-model as a dynamic neuronal illusion, meaning it lacks subjectivity. It is worth defining the concept of "illusion": an illusion is something that appears to be real or existent but is not. The "I" permanently appears to be real and existent but is not, being nothing more than a mechanism by which neuronal tissue reduces uncertainty. Therefore, the "I" is an illusion. The most significant aspect is that naïve realism is not a conceptualized belief but a direct manifestation of the activity of decision-making neuronal networks. Since there is neither a subject of behavior nor an agent of intention, it is incorrect to point to the existence of "naïve realists" who believe in the reality of the world. Rather, there is only an automatic decision-making process and various levels of the brain's self-description, in which verbal and/or non-verbal explanations of actions are retrospectively constructed or modeled. However, the decision-making process itself is devoid of subjectivity, as is the process of self-description — i.e., the description of the causes of actions, thoughts, and intentions. Thus, the concept of "naïve realism" primarily refers to the theoretical explanation of behavior when asserting that: 1) there is direct contact with the objective world; 2) introspective sensations are accurate and trustworthy; 3) there exists a subject/agent/homunculus who makes decisions, thinks, and acts; 4) the experienced world is not a simulation or virtual model but reality itself; 5) the subject/agent of thoughts, actions, and intentions is immaterial and not connected to brain activity.

Of course, all these statements are factually false, as are their premises, because: 1) the brain does not come into contact with the objective world, which means that everything experienced is virtual, i.e., a neuronal simulation or a neuronal world; 2) introspection is a primitive self-descriptive model, deceptive because it does not reflect the complex processes through which the brain generates virtual reality and captures less than 1% of all brain processes (for if this were not the case, every brain would have access to transparent computations, which would prevent the emergence of philosophical and scientific errors; but since such errors do exist, it follows that the brain's self-description is primitive and false — the virtual model of introspection is a direct deception and a fiction, nothing more than a crude simplification that is evolutionarily necessary as a mechanism for reducing uncertainty); 3) the existence of selfhood, subjectivity, and agency is impossible, as the fact remains that no one and nothing possesses the brain, and damage or destruction of the DMN network eliminates the sense of subjectivity and the perception that "I" is the cause of actions, thoughts, and representations (Fingelkurts & Fingelkurts, 2017a), from which it follows that agency is nothing more than an illusion computed by mentalization networks as a mechanism that evolved to optimize social interactions, since without the self-model and the other-model, interaction within a pack or community would be impossible — if these models did not exist, then living beings would perceive only objects rather than subjects, which in reality do not exist (patients with autism perceive others merely as objects, i.e., they do not perceive "others" as such because their brains do not generate the illusion of subjectivity, i.e., the self-model, as their mentalization networks are impaired); 4) all experienced reality is an indivisible and unified simulation, within which there is neither duality nor non-duality, neither unity nor multiplicity, neither divisibility nor indivisibility, meaning that no concepts can describe the One, since all concepts imply duality and division: this can easily be demonstrated by pointing out that in a state known as lucid dreaming, it is possible, using specific techniques, to induce a world model that is just as realistic as the waking world model, which implies that since in a state where the brain is completely isolated from the "external," a full-fledged experience can still occur, these experiences — qualitatively homogeneous with those in wakefulness, with only slight differences such as reduced transparency of the tunnel — are simulations created by the brain in both states, wakefulness and sleep, as virtual reality; in general, this also suggests that it is impossible to establish a qualitative difference between wakefulness and sleep, meaning that there is, in fact, neither wakefulness nor sleep, but only a continuously generated virtual reality with varying intensity depending on the computational architecture of the brain, i.e., neurons and their synchronization; furthermore, European thinkers such as Schopenhauer, as well as Eastern philosophers who developed Advaita Vedanta, have repeatedly pointed out the homogeneity of wakefulness and sleep (Schopenhauer, 2010; Vasistha's Yoga, 1993); another line of evidence for the virtual nature of experience comes from the fact that, when brain rhythms are desynchronized — either through the intake of hallucinogens or electromagnetic brain stimulation — both the world model and the self-model can be instantly destroyed: for instance, when taking high doses of hallucinogens, a phenomenon known as "ego death" occurs (Milli`ere, 2017, 2020; Letheby, 2020; Deane, 2020), which is the desynchronization of computational modules responsible for the self-model, and experiences such as the stopping of time or the expansion and contraction of space may also be observed; 5) since neither a subject nor an agent of behavior, thoughts, or anything else exists or can exist, it is impossible for the unreal to exist at all; however, the falsehood of dualism in any form is very easy to demonstrate by pointing to specific cases: if the structures computing the self-model or the world model are disrupted, they disappear, which means that they are nothing but the activity of neuronal tissue (Fingelkurts & Fingelkurts, 2017). The truth is that there is no specific, unified group of neurons in the brain that creates the self-model; instead, different neurons are activated and deactivated at any given moment to create the self-model. Furthermore, no single rhythm generates the self-model, but rather a complex interaction of individual rhythms. Thus, the self-model does not exist as something stable and enduring. Its state is akin to the continuous addition of sand to a heap on the seashore, constantly eroded by incoming waves.

Refutation of essentialism, naive realism and dualism

A) Is the self distinct from neurons?

A1) No, if the self were distinct from neurons, its destruction would not depend on the destruction of neurons. However, the destruction of neurons eliminates the self.

B) Is the self identical to neurons?

B1) No, if the self were identical to neurons, the number of self would equal the number of neurons, which is absurd.

C) Is the self a support for neurons?

C1) No, otherwise, the self and neurons would be separate, which contradicts point A.

D) Is the self a collection of neurons?

D1) No, if the self were a collection of neurons, each neuron would represent the self, which is impossible.

D2) If the self were merely a collection of neurons, disassembling and then reassembling the neurons would recreate the self, which is not feasible. The collection of neurons serves as a basis for the conditional designation "I," but the collection itself cannot be considered the "I."

D3) If no entity possesses parts, then the parts cannot be said to exist as parts of that non-existent entity.

D4) No holistic phenomena exist; thus, a collection of neurons cannot form a holistic phenomenon — the self. Therefore, the self does not exist.

E) Does the self possess neurons?

E1) No, because no entity possesses neurons.

F) Is the self a collection of neurons in a specific arrangement?

F1) The form of neurons is phylogenetically determined and does not exist in reality as something permanent; what is impermanent is devoid of selfhood. Just as there is no enduring subject within the self, there are neither distinct parts nor a cohesive whole.

Bayesian mechanisms of naive realism

Neuronal-predictive causality plays a key role in the emergence of the "self" illusion, despite its concealment behind introspective transparency. The brain operates on the principle of prediction, drawing on proprioceptive data from various body receptors to infer the "reality" of the body. This process results in the creation of the empirical body model (EBM), which supports both bodily experience and the naive realism of the body model, especially when pain is perceived as immediate and real.

Similarly, the subject model (SM) is an abstract construct essential for social cognition. Its production involves the synchronization of the medial prefrontal cortex with the precuneus and other regions. The subject model, unlike the body model, represents a necessary fiction created by the brain to facilitate social interaction and DNA replication. The stereoscopic perspective and the illusion of an observer (the subject) are integral but secondary components of the SM. While the first-person perspective may enhance the SM, it is not essential; the SM is fundamentally based on mentalization networks, with the first-person view merely complementing it.

This conclusion, leading to the naive realism of the EBM, can be expressed through the following Bayesian inference formula of conditional probability (BIFCP): p(B|A), or "the probability of B given A," where A represents the modeling of (a) the subject model (SM) and (b) the body model (BM), and B represents naive realism as a conclusion (a gross and primitive reduction) about the reality of the "self" based on models a and b. Thus, the following Bayesian inference is realized by the brain, likely through abstract low-frequency rhythms that dissociate the empirical subject model (ESMNW): p("I" exist | the sensation of subjectivity and the body), or "I am real because I feel myself as a subject and a body." It is crucial to consider that this conclusion is more a priori/automatically than a posteriori, given that naive realism is permanent and represents an evolutionary necessity. This conditional probability conclusion is implemented by the left-hemisphere speech interpreter (LHSI) through verbal modeling or verbal neuronal networks (VNN). In other biological species, this conclusion is supported non-verbally.

Conclusion

Neuronal world is woven from the synchronization of various brain rhythms, which serve as the fundamental building blocks of both the empirical and abstract models of reality. Electromagnetic rhythms, each resonating at different frequencies, collectively orchestrate the brain's predictive coding mechanisms, enabling a coherent, though illusory, experience of reality. The self-model, a product of this rhythmic activity in three operational modules SRN (self-referential network), or DMN, emerges not as a static entity but as a dynamic process, continuously constructed and deconstructed through the neuron's electromagnetic activity. Self-model, while illusory, is indispensable for the organism's survival, having evolved as a necessary fiction to navigate the complexities of social interactions and to ensure the replication of DNA: this very fact makes the brain a primitive social simulator, imposing inevitable limitations on cognition, since evolutionarily all cognition is both emotional and socially oriented; accordingly, it becomes evident that the brain did not evolve as a set of algorithms designed to discover scientific and philosophical truths, but rather as an algorithm not intended for that purpose. In this regard, many years of training are required to adapt neuronal systems to true cognition by eliminating all innate illusions and misconceptions.

Ego-centrism and naïve emotional interpretations, as demonstrated in the case of depression, leads to affective disorders due to hypersynchronization of operational modules and the repetition of monotonous ego-centric thoughts. The general principle is as follows: the less ego-centrism, the more contemplative states prevail — based on decreased synchronization of operational modules — the lower the likelihood of emotional problems. The feeling of stability and continuity of the "self" over time is merely an illusion, which is the product of the brain's predictive mechanisms, which operate on Bayesian principles, constantly updating the model in response to sensory inputs and prior experiences. The integration of empirical and abstract models through these rhythms underscores the brain's ability to generate a unified but ultimately deceptive representation of reality. The neuronal world, therefore, is not a direct reflection of an external reality but a construct — an adaptive virtual model — crafted by the brain's sophisticated computational processes. The neuronal world is the condition for the realization of innate and unconditional behavioral forms — a kind of alphabet of algorithms that are activated and deactivated in response to the simulated virtual environment — which constitute all forms of behavior. In this context, the illusion of the self-model, composed of the body model and the subject model, is not merely a byproduct of neuronal activity but a fundamental aspect of the brain's evolution. And while the self-model, on the one hand, represents an efficient behavioral organization algorithm, on the other hand, it simultaneously creates the illusion of the existence of something that does not exist, and thereby distances from the understanding of the truth of virtuality — or the neuronal world — while also predetermining the proliferation of multiple illusions, creating the feeling of contact with objective reality and actual subject-object relations, it simultaneously lays the groundwork for the proliferation of misconceptions and naïve interpretations, which are the central barrier to the scientific and also neurophilosophic cognition. The body model, although not the actual body — which is important to understand — at least represents the objective body, which is why it can be considered the most accurate and reliable component of the self-model, despite not being something definitively stable: this is evident in the example of the sensation of pain, which only approximately reflects areas of damage and sometimes arises solely due to a malfunction in the somatosensory cortex, as in the case of phantom pain. At the same time, the subject model — is that which does not exist at all, i.e., a fiction, since there is no one and nothing governing behavior, and no one possesses stereoscopic perspective: instead, there is only code, computation.

Thus, the neuronal world, based on the fine-tuning of rhythms and predictive coding, presents a hyperrealistic model — one that is necessary for the survival of biological systems with nervous tissue, but ultimately devoid of inherent reality due to its virtual nature. The study of electromagnetic rhythms and the models they produce allows neurophilosophy to penetrate the profound truth of the world's virtuality, which appears real and immediate due to its hyperrealism, and to eliminate the inaccurate notion of consciousness's existence, replacing it with the precise understanding of the neuronal world. The conclusion is clear: the brain does not simply perceive reality and dose not come into contact with it; it constructs it, continuously shaping and reshaping the neuronal world through synchronization of oscillations.

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