The Mind, Experience, Observation, and Reality: A Framework and Technique for Fundamental Experience of *Rūparealm*[1]

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The Mind, Experience, Observation, and Reality: A Framework and Technique for Fundamental Experience of *Rūparealm*[1]

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Abstract. This paper introduces a novel framework for understanding the fundamental experience of *rūparealm*[1] through the *individual mind*[2] governing causation. We present a sensor-based model that captures the inseparable connection between the mind and *rūparealm*. The framework analyses fundamental qualities of *rūparealm* detectable through the sensory organs and mind, such as stiffness, viscosity, compressibility, temperature, colour, smell, taste, reactivity, space, sound, and a few more, totalling 28. Specific eight of these qualities collectively form the *Suddhāṭṭhaka*[3] which represents the common fundamental experience of all forms of *rūparealm*. We emphasise that all experiences are mind-made, and secondary constructs, including mathematics and physics, arise from the analytical processing of these fundamental experiences. Furthermore, we propose Buddhist meditation as a tool to explore and train the mind to be aware of fundamental experiences before undergoing cognitive processes. The paper discusses contemporary research unifying relativity, quantum mechanics, and consciousness, positing that consciousness is the governance process of universal laws. The discussion emphasises the role of the mind in constructing the perceived reality and advocates the importance of incorporating the mind into fundamental physics when modelling causation.

1. Introduction

This paper introduces a philosophical framework rooted in *Theravāda* Buddhist metaphysics, also referred to as *Abhidhamma*, to propose a meditation technique that provides experiential insights into fundamental realities. This approach distinguishes between theoretical and experiential knowledge, asserting that the *individual mind*[2] is the primary foundation of causation and awareness. However, the paper also discusses the existence of a reality beyond causation, a unique and fundamental aspect of Buddhism that transcends the mind.

First, we would like to explain the terminologies used to elucidate *reality* and their meanings. In comparing the *Theravāda* Buddhist philosophy with other philosophical views, there are notable

[1] We use the term *rūparealm* to refer to the genuine physical reality that exists independently of the mind. This term is based on the Buddhist concept of *rūpa* [1], which underpins physicality and form.

[2] Throughout this research, the *mind* we refer to is the individual mind, which serves as the foundation for subjective experiences, distinct from any cosmic or supernatural concept. The mind consists of inseparable consciousness (*citta*) and consciousness concomitants (i.e., mental factors, referred to as *cetasika*) [2].

[3] In Theravāda Buddhism, *Suddhāṭṭhaka* refers to the smallest, indivisible fundamental particle of *rūparealm*, perceived by the mind. Refer to the *pure octad* in Chapter VI, titled *Compendium of Matter* (*Rūpasangahavibhāga*), in [1].

parallels and divergences. According to *Theravāda* Buddhism, the mental realm (*nāma*) and the physical realm (*rūpa*) are distinct, existing realities, each interconnected through dynamic interplay, yet capable of existing independently. The Buddha explained the interplay of mind and *Suddhāṭṭhaka*[4] (i.e., the fundamental particle of *rūpa*) and stated that, with perfect mindfulness—through the wisdom of *Sabbaññuta-ñāṇa* and *Anāvaraṇa-ñāṇa* [3]—the mind can become aware of the creation of *Suddhāṭṭhaka* from the mind, evolving the *rūparealm* [1, 2, 4]. This idea aligns with the Buddhist view of the cyclic evolution of the universe [5]. Contemporary research has also proposed a similar concept of the interplay of consciousness, matter, and energy forming reality [6]. From now on, we will refer to *Nāma* and *Rūpa* realms as *nāmarealm* and *rūparealm*, respectively. This duality is contrasted with the third reality, *Nibbāna*, which is mutually exclusive with both *nāmarealm* and *rūparealm*. As per the *Theravāda* Buddhism both *nāmarealm* and *rūparealm* are *causal*, but *Nibbāna* is *non-causal* (see Figure 1). In *Theravāda* Buddhism, causation is precisely discussed in *paṭiccasamuppāda* as explained in the *Paṭṭhāna* section of the *Abhidhamma* [7, 1, 8, 4, 9].

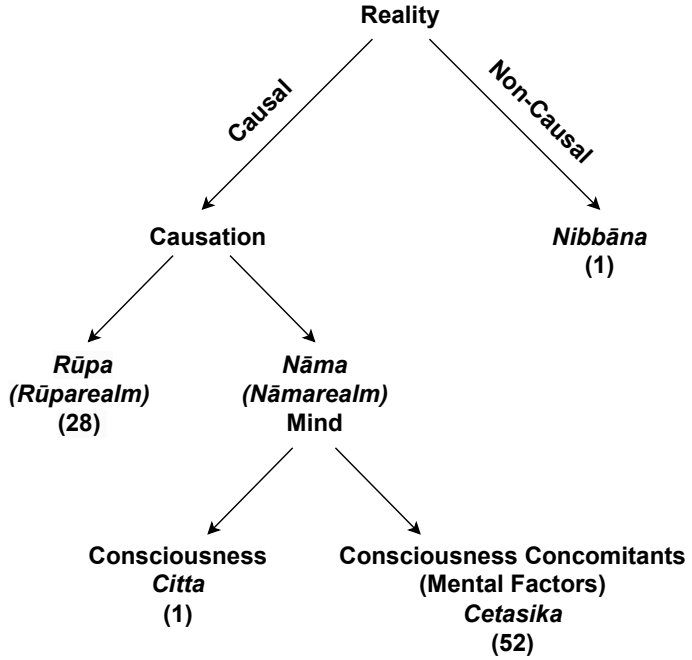

Figure 1: The fourfold ultimate realities are represented by the leaf nodes of the tree diagram. *Nibbāna* exists as a unique, non-causal reality. In contrast, the non-material *nāmarealm* and material *rūparealm* are causal realities governed by the principle of causation (*paṭiccasamuppāda*). The *nāmarealm* consists of a single stream of consciousness (*cittavithi*) and is a sequential process where each consciousness cycle (*citta*) with focus (*ārammaṇa*) inseparably emerges with a harmonious subset from the 52 mental factors or consciousness concomitants (*cetasika*). The term *Mind* is sometimes used as a single word to represent the entirety of the *nāmarealm*. In contrast, the *rūparealm* consists of 28 types of materiality (*rūpa*).

The special occasion where *Theravāda* Buddhism discuss *nāmarealm*, *rūparealm* and *Nibbāna* all three realities together is the process the Buddha advice attaining *nirodha samāpatti*[5]. *Nirodha samāpatti* is a unique Buddhist meditative experience which transcends *nāma* and *rūpa*. It enables experience and confirms the existence of *Nibbāna* during the lifetime, before experiencing *Parinibbāna* at death. Before

[4] Refer to the *pure octad* in Chapter VI, titled *Compendium of Matter* (*Rūpasangahavibhāga*), in [1].
[5] Refer to *The Attainment of Cessation* in Chapter XXIII, Section C, in [2].

attaining *nirodha samāpatti*, it is recommended to resolve fourfold preparatory obligations through firm determination, known as *adhiṭṭhānas*. This helps ensure that the meditator's journey into and out of this state is both safe and responsible [2]. These determinations are:

(i) **Non-damage to others' property:** The meditator resolves that any property belonging to others in their possession (e.g., everyday carry items) remains undamaged, whether by natural or manmade causes, throughout the period of attainment.

(ii) **The community's waiting:** The meditator contemplates the community's expectations, such as communal acts, which cannot be carried out until their return. They resolve to emerge from *nirodha samāpatti* on their own before anyone comes to summon them to enact a resolution.

(iii) **The master's summons:** The meditator contemplates the possibility of the master's call, ensuring that if the master summons them, they will emerge from *nirodha samāpatti* without delay.

(iv) **The limit of the duration:** The meditator contemplates on their life span (*āyussa*), ensuring that their vital formations will persist throughout the duration of their attainment. If their life is due to end, they will emerge from *nirodha samāpatti* a reasonable time before passing, allowing them to fulfil any remaining obligations. Attaining *nirodha samāpatti* does not extend one's life span.

This means that an advanced meditator can attain *Nibbāna*, a non-causal state, through *nirodha samāpatti* and return to the familiar causal realm of *nāmarealm* and *rūparealm* that they usually experience [2, 4]. The four *adhiṭṭhānas* ensure the meditator's safe, responsible, and sustainable attainment to and emergence from *nirodha samāpatti*. We will discuss the experience of *nirodha samāpatti* later in the paper.

Unlike physicalism, which reduces all phenomena—including the mind—to physical processes, and idealism, which assumes everything is mental perception [10], *Theravāda* Buddhist philosophy asserts that *nāmarealm* and *rūparealm* exist as true realities. Further, *Theravāda* Buddhist philosophy diverges from *Kantian* philosophy [11, 12] by rejecting the *noumenon*, proposing that consciousness can comprehend the whole spectrum of reality through conscious awareness in mind, suggesting a more coherent connection between consciousness and all forms of realities. This is reflected in the wisdom of *Sabbaññuta-ñāṇa* and *Anāvaraṇa-ñāṇa* [3]. This capability of consciousness has also been suggested in contemporary research [13, 14, 15]. At the same time, the Buddhist perspective rejects the concept of self-existence (*attā*), an external creator or supernatural force, proposing that *nāmarealm* and *rūparealm* evolve through causation (i.e., cause and effect) without any overarching governance or control [16, 4]. Similar to this idea, contemporary research suggests that consciousness and *rūparealm* are chaotic—causal, deterministic, yet unpredictable [6, 17, 13]. They propose that causation unfolds in a way that preserves the integrity of conscious experience. Consequently, the reality that emerges from causation appears to follow certain laws, such as the principle of least action and conservation laws. This enables a scientific perspective on the metaphysical relationship between the *nāmarealm* and *rūparealm*. The interplay of consciousness, matter, and energy has been modelled in contemporary research, supporting these claims [13, 14, 15].

Conscious experiences are confined to the realm of the mind, and only the mind can probe its own nature. The paper focuses on the metaphysical structure of *rūparealm* as discussed in Buddhism, experienced through the mind, offering a scientific re-contextualisation of these metaphysical ideas and extending their foundational principles. To access the fundamental qualities of *rūparealm*, the paper proposes a well-established Buddhist meditation technique, suggesting that this experiential approach can lead to a form of empirical metaphysics, providing a method to validate the philosophical claims made herein.

2. Background

Relativity and quantum physics, the fundamental models of *rūparealm*, couldn't be unified in a widely acceptable way without further complication. While relativity accurately modelled gravity, which applies to larger masses, quantum mechanics is required to explain the uncertainty in particle physics. While

the two models are not complements, they are also contradicting. For instance, quantum entanglement introduces non-locality to the universe, which appears to challenge classical intuitions within the framework of relativity, where any form of information transfer is constrained by the speed of light [18]. While faster-than-light *communication* is considered impossible [19, 20], the philosophical implications of instantaneous *influence*—without hidden variables—suggest a non-local reality. Einstein believed in local reality and voiced his concern about this, famously describing it as *spooky action at a distance*. Several theories have emerged to bridge the gap between relativity and quantum mechanics. One such theory is the *ER = EPR conjecture* [21], which posits that quantum entanglement (as described by the EPR paradox) and wormholes (Einstein-Rosen bridges in general relativity) are connected. In this view, entanglement between two particles could correspond to a wormhole-like link between them. Meanwhile, the quantum field theory emerged to unify the fundamental forces of nature, but the *graviton*, which represents gravity, remains elusive [22]. Neither relativity nor quantum physics explain the causation of nature, leaving it to metaphysics [23, 24, 25, 26].

The fundamental frameworks of physics do not accurately model *rūparealm*, particularly where uncertainty arises at the quantum level of observation [27]. These models evolved into probabilistic frameworks, incorporating inherent randomness at the quantum scale [18, 28, 29]. Early interpretations of quantum mechanics, particularly those influenced by Heisenberg's uncertainty principle in 1927, proposed that the observer effect underscored a clear distinction between the observer and the observed, thus challenging the notion of independent *rūparealm* [27]. However, contrary to these early views, modern quantum theory suggests that quantum mechanics does not distinguish between the observer and the observed system, as all quantum systems share the same physical properties [30]. Supporting this, the *quantum no-cloning theorem* demonstrated in 1982 by Wootters and Zurek proves that it is impossible to create an identical copy of an arbitrary unknown quantum state, highlighting the uniqueness of quantum systems [30]. Additionally, the *no-communication theorem* proved in 1989 by Eberhard and Ross shows that faster-than-light communication through quantum entanglement is not possible, reinforcing the limitations imposed by quantum mechanics on independent *rūparealm* [19]. Therefore, modern quantum theory asserts that the observer effect in quantum measurements does not contradict independent *rūparealm*. Nevertheless, the Copenhagen interpretation [31] acknowledges wave-particle duality as a fundamental characteristic of quantum systems, offering a framework to interpret the unusual behaviour observed in quantum experiments. This duality, where particles such as electrons exhibit both wave-like and particle-like properties depending on the measurement, introduces uncertainty in predicting their exact behaviour. Consequently, the inherent randomness that emerged in quantum theory continues to challenge classical concepts of causality [32, 33, 34].

The role of the mind is not a passive experience but an active participant in the quantum world, introducing subjectivity into physical measurements. The observer effect [35], a phenomenon well-established in quantum mechanics, highlights that the act of observation inherently influences the outcome of a quantum system. For example, it has been confirmed that awareness of a quantum state can collapse the wave function of the quantum state and change the observed reality [13]. Wang *et al.* [36] further emphasise that consciousness and contextuality are intricately linked, suggesting that the observer's cognitive framework directly interacts with quantum systems, influencing the nature of observed outcomes. In this context, the mind is not merely a passive phenomenon but an integral process in shaping the fabric of causal reality, including *rūparealm*.

The debate over whether consciousness is purely a physical phenomenon or transcends material explanations highlights the ongoing contradictory understanding of consciousness within the philosophy of mind [37]. This discord is further exacerbated by the limitations of theoretical physics, which, despite significant advancements, has struggled in recent decades to shed light on the fundamental nature of reality [38]. These challenges suggest that both fields may be approaching the limits of their current paradigms, requiring new frameworks or interdisciplinary insights to reconcile consciousness with the fabric of reality.

In 2022 and 2023, a research trilogy was published, unifying consciousness, matter, and energy.

Consciousness was presented as an irreducible fundamental dimension of reality. In the first paper [6], it was shown how consciousness can unify the theory of relativity and quantum mechanics. In that paper, consciousness was introduced, and its wave-particle duality was discussed. Furthermore, it was demonstrated how consciousness creates causal reality by interplaying with matter and energy. In the second paper, [17], beyond the special theory of relativity, it was shown that gravity is also underpinned by consciousness. Space-time was described as being completely perceived by consciousness. When consciousness interplays with matter and energy, consciousness imparts matter and energy to behave in such integrity in awareness, causing relativity. In the third paper [13], it was explained how consciousness underpins quantum entanglement, separable quantum mechanics, and relativity. In that research paper, the local and non-local realities were unified by introducing a consciousness particle to the standard model of particle physics. This particle was named *Primion*, which brings the non-materialistic conscious dimension. The qualities of the *Primion* were adopted to unify local and non-local realities. In this way, the research trilogy [6, 17, 13] unified fundamental physics by establishing consciousness as the fundamental.

Throughout the research trilogy [6, 17, 13], consciousness was discussed as a causal, deterministic, and unpredictable (or chaotic) process which underpins causation. Therefore, the nature of change was also identified as a characteristic of causation. The perceived integrity in the change or behaviour of reality derives from causation, which is underpinned by consciousness. The idea of randomness was rejected, and it was explained that randomness appears due to unaccounted consciousness. If consciousness is considered, perceivable reality becomes chaotic, not random. In this paper, the focus is on experiencing consciousness beyond the theoretical framework, which will shift the mindset to a new paradigm. We first propose that scientific observations are inherently subject to cognitive bias, then explore the mind to transcend this bias and experience unbiased reality.

Throughout this paper, we challenge the bias of the observations. We proposed that so-called observation is not the fundamental experience of *rūparealm* but rather a mental construct subject to post-processing and bias. We argue that, due to this systematic error of the mind, it is impossible to validate any framework of physics with complete accuracy [39]. Moreover, scientists' endeavours to update the model without rectifying or calibrating systematic errors resulted in inaccuracies, particularly in precise measurements at the quantum scale. Further, we propose that the perceptions of randomness, dark matter, dark energy, observer effect, and spooky action at a distance are underpinned by this systematic observation error caused by the mind.

To elaborate on this, let's select a double pendulum, which is a fascinating physical system known for its causal, deterministic and unpredictable nature, which is defined as *chaotic* behaviour [40]. The motion of this system is governed by second-order nonlinear differential equations, making it highly sensitive to initial conditions. While the double pendulum is inherently deterministic, its sensitivity to initial conditions makes long-term predictions unpredictable. By introducing unknown chaotic perturbations to the initial conditions, the system exhibits a heightened sensitivity, resembling randomness in its behaviour. This illustrates how the chaotic mind and *rūparealm* render the causal reality random at the quantum level. We postulate that the mind (i.e. inseparable consciousness and consciousness concomitants (mental factors) (see Figure 1)) and *rūparealm* always change, and they are causal, deterministic and unpredictable, where the illusory randomness arises from the unknown systematic errors within the mind and/or the instrumentation.

While stating the mind and *rūparealm* are inherently chaotic, we also propose that it is possible to experience the initial condition or *moment of truth* by being aware of the fundamental experience of the mind. This can only be achieved by bringing the mind into a steady state and performing the steady state analysis of the mental experience of reality. The mind can be probed by the mind only, and this is where *meditation* can be adopted as a tool to experience the fundamental experience of reality before it is chaotically transformed [41, 42, 43, 44, 45]. The fundamental experience occurs prior to analysis and is impossible to communicate by language or any means.

Regarding systematic communication, mathematics facilitates the logical communication of cause

and effect. However, mathematics also emerges from secondary constructs. The axioms, the fundamental building blocks of mathematics, form a belief system driven by our logical understanding, where observations play a major role. For example, the recent development of quantum entanglement and superposition has necessitated the refinement of mathematical concepts to communicate them more effectively and logically. As a result, new mathematical axioms have been adopted to explain key principles of quantum mechanics, such as superposition, entanglement, and non-locality [46, 47, 48]. In this way, mathematics also has inherent biases arising from our beliefs, underpinned by secondary constructs of the mind. Similarly, all other communication techniques have their own biases and errors rooted in underlying secondary constructs of the mind. Therefore, the fundamental experience of the mind realised through meditation should be experienced by oneself[6] and cannot be explained to another.

Meditation and fundamental experiences have been well-studied in Eastern philosophy for thousands of years. In this research, we refer to and adopt *Theravāda* Buddhism in conjunction with Western philosophy to explore and develop a framework for fundamental experiences in *rūparealm*. However, the true experience can be realised only through meditation, which brings awareness to moments of truth. As per *Theravāda* Buddhism, experiencing this moment of truth is extremely difficult as there are many pitfalls one may fall into with various biases aggregating it into secondary constructs [49].

This paper contributes to the ongoing paradigm shift discernible in recent years in philosophy and physics. It reassesses the metaphysics of consciousness and reality. This shift is characterised by an increasing scepticism of reductive materialism. It considers a greater ontological role for the enigma of consciousness, especially phenomenal consciousness [50, 51, 52, 53, 54, 55, 56, 38, 57, 58]. Further, the paper highlights experiential knowledge already known to the ancients. It reframes and extends this understanding in a modern context to help open up new avenues for understanding the recalcitrant nature of reality and consciousness, which are inaccessible to the dominant mechanistic and reductionist metaphysical intuitions. The contributions of this paper are as follows:

(i) Revisiting the fundamental physics to rectify disparities in modern physics, and introducing an experiential framework for delving into and comprehending reality,

(ii) Recognising the mind as a sensor followed by redefining the observation process in the scientific method, and incorporating *meditation* as a means to experience reality through the mind,

(iii) Defining fundamental experiences and developing a framework for *rūparealm* which complements science terminology,

(iv) Bringing together Eastern and Western philosophies in harmony creates a synergy that enhances our understanding of fundamental physics,

(v) Discussing the limitations of *rūparealm* and analysing the *nāmarealm* and *Nibbāna* as distinct parallel realities,

(vi) Deepening wisdom on causation and establishing the correct view of reality.

3. Methods

3.1. Framework for Fundamental Experience

Physics has evolved by exploring, measuring, defining, modelling and explaining reality analytically. However, in this paper, we develop a framework to experience the fundamentals of *rūparealm*. For that, we define a system that covers the entire causal reality having a boundary separating *rūparealm* and the *mind*. The mind is the internal immaterial conscious process, and *rūparealm* means the external physicality constituting matter and energy subject to our mind. Naturally, this is a sensory system. First, we define the mind as the fundamental signal of that sensory system, which is causal, deterministic and unpredictable. The mind operates as a sequential process which can be interrupted by external inputs and creates fundamental experiences related to *rūparealm*. The sequential process of the mind is

[6] The pronouns and references to self in this paper are used purely as a convention for communication. This paper proposes that reality, including the mind, is governed by causation, and that there is no permanent self or inherent existence.

well discussed in Buddhism as *cittavithi* [8, 9], and it complements the Western view of Heisenberg's uncertainty principle [27], which states that it is possible to be aware of only a certain attribute at a time. The system is illustrated in Figure 2:

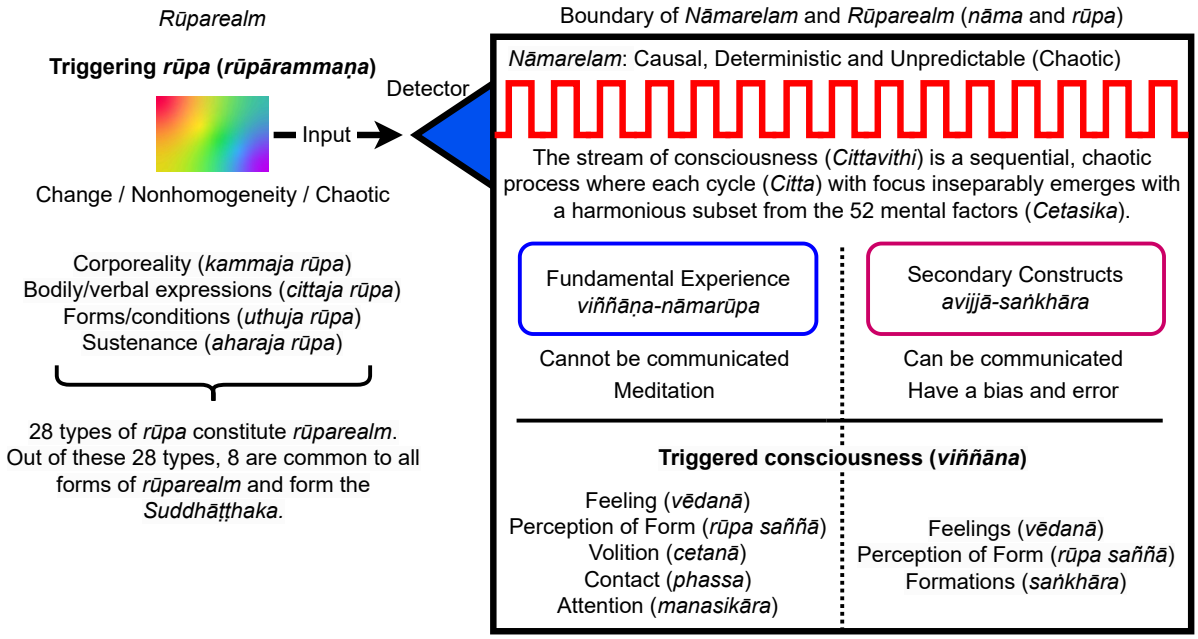

Figure 2: Fundamental signal and system related to a being. Our framework primarily focuses on the fundamental experience of the mind related to *rūpa* component or *rūparealm*. Feeling (*vedanā*), perception (*saññā*), volition (*cetanā*), contact (*phassa*), and attention (*manasikāra*) are common consciousness concomitants (*cetasika*) within consciousness (*citta*), where ignorance (*avijjā*) shifts fundamental experience (*nāmarūpa*) to analytical observation (*vitakka-vicāra*) forming secondary constructs (*saṅkhāra*) [1, 8].

The *rūparealm* is sensed through *five sensory organs*: eyes, ears, nose, tongue, and body. The fundamental experiences of *rūparealm* in the mind are further processed and transformed into secondary constructs through the mind. Therefore, all experiences and constructs are mind-made[7], and the mind is the primary [59]. Even though five sensory organs were stated as the origin, they too can be identified as secondary constructs in mind upon deep analysis of experiences. The secondary constructs are composite, analytical, logical, or derivatives. These secondary constructs incorporate axioms, postulates, assumptions, and standards, which are unintentional biases. In short, everything we express or communicate is a secondary construct. The fundamental experiences cannot be communicated.

Figure 2 distinguishes fundamental experience and secondary constructs. We postulate that fundamental experience is devoid of analysis or aggregation of attention underpinning the formation of insight. According to Buddhism, feeling (*vedanā*), perception (*saññā*), volition (*cetanā*), contact (*phassa*), and attention (*manasikāra*) are common consciousness concomitants (*cetasika*) present in consciousness (*citta*). However, with ignorance (*avijjā*), the fundamental experience (*nāmarūpa*) will undergo analysis (*vitakka-vicāra*) and aggregation (*saṅkhāra*), leading to a biased and illusionary secondary construct (*skandha*).

Reality is as complex as our emotional intelligence, imagination, creativity, and knowledge. From a particle to the universe, and from detection to formation, many complex models explain reality. However, they are all secondary constructs that manipulate our fundamental experiences. We assume

[7] This doesn't mean that *rūparealm* does not genuinely exist.

that *rūparealm* can be fully comprehended through fundamental experiences. Our framework doesn't cover the fundamental experiences of the mind beyond *rūparealm*. In Buddhism, *rūparealm* is termed as *rūpa*, contrasting with *nāma* and *Nibbāna*, associated with physicality and form [8, 1]. In this paper, we focus on fundamental experiences common to all forms of *rūparealm*, serving as the foundation for secondary constructs such as imagination and knowledge related to physics.

To experience the fundamental experience of *rūparealm*, we need to be aware of the original characteristics of the mind that emerged from five sensory organs. For that, we need to focus on the mind associated with the sensory organ rather than the processed signals driving secondary constructs.

The sensory organ consists of a detector which can change the cause of the mind on change that the detector is sensitive to (*ārammaṇa*). If the environment is homogeneous, the detector will not react, the mind will not be interrupted, and nothing can be sensed through the sensory organ. Therefore, to detect from the sensor, there should be a change. The detector, change and the mind are the constituents of the fundamental experience of *rūparealm*[8].

The detector and mind are attributed to *rūparealm* and *nāmarealm*, respectively. The organisms with only detectors that make only physically reactive interactions with the environment are not considered beings (e.g., plants). Despite the literature and intuition suggesting that plants may be conscious [60, 61, 62, 63, 64], we propose that consciousness is inherently linked to the mind. Chemistry and biology are secondary constructs that emerge from the fundamental qualities of *rūparealm*, incapable of establishing consciousness by themselves. However, they may enable the necessary conditions to sustain consciousness. On the other hand, even without neurons, a single-cell organism like an *Amoeba* can be considered a living being with a detector and a mind. This mind, composed of inseparable consciousness and consciousness concomitants [1, 2], constructs a subjective and chaotic reality that the organism experiences individually.

In further refining our framework towards understanding the fundamental experience, it is apparent that the detector and the *rūparealm* that we discussed are also secondary constructs perceived through the mind. The triggered consciousness, feelings, perceptions, and formations related to the eye (*cakkhu*) and the sight, the ear (*sota*) and the hearing, the nose (*ghāna*) and the smell, the tongue (*jivhā*) and the taste, and the body (*kāya*) and the touch are all secondary constructs. Moreover, space and change are also experienced through the mind. Therefore, the mind is both necessary and sufficient for developing our framework to understand fundamental experiences of *rūparealm*.

In Figure 2, the mind, or *nāmarealm*, is described as a single stream of consciousness (*cittavithi*) and is a sequential process where each consciousness cycle (*citta*) with focus (*ārammaṇa*) inseparably emerges with a harmonious subset from the 52 mental factors or consciousness concomitants (*cetasika*). While consciousness and consciousness concomitants are fundamental features of the mind, the fundamental experience emerges from their interplay with the *rūparealm*. This is reflected in the Buddhist causation highlighting *viññāṇa paccayā nāmarūpa*. It means *viññāṇa* and *nāmarūpa* have a causal relationship, which is extensively discussed in *Paṭṭhāna* [7, 1, 8, 4, 9]. The fundamental experience we discussed can be understood as *nāmarūpa* in the Buddhist context, and *viññāṇa*, the triggered consciousness underpinning that experience, consists of both consciousness and a harmonious subset from the 52 consciousness concomitants. *Viññāṇa* has focus (*ārammaṇa*) on either *rūparealm* or *nāmarealm*. This research is limited to fundamental experiences related to *rūparealm*.

Buddha stated[9] that the interdependently co-arising triggered consciousness (*viññāṇa*) and *nāmarūpa* is the origin of everything the mind can perceive. This origin can either be conditioned by ignorance, leading to secondary constructs, or it can lead to the wisdom that transcends both triggered consciousness

[8] In the context of the eye, the Buddhist causal process expressed as *cakkhuñca paṭicca rūpe ca uppajjati cakkhuviññaṇaṃ; tiṇṇaṃ saṅgati phasso* conveys a similar meaning. This principle applies to all five sensory organs regarding the *rūparealm*.

[9] *Tasmātihānanda, eseva hetu etaṁ nidānaṁ esa samudayo esa paccayo viññāṇassa yadidaṁ nāmarūpaṁ. Ettāvatā kho, ānanda, jāyetha vā jīyetha vā mīyetha vā cavetha vā upapajjetha vā. Ettāvatā adhivacanapatho, ettāvatā niruttipatho, ettāvatā paññattipatho, ettāvatā paññāvacaraṁ, ettāvatā vaṭṭaṁ vattati itthattaṁ paññāpanāya yadidaṁ nāmarūpaṁ saha viññāṇena aññamaññapaccayatā pavattati.* — The Buddha to Venerable Ānanda [16]

and *nāmarūpa* (i.e., *anidassana viññāṇa* [65, 66]).

Using the signal and system framework and its underlying dynamics in relation to fundamental experiences, we can derive a framework for the fundamental experience of the *rūparealm*. To achieve this, we incorporate terminology from thermodynamics, fluid mechanics, and chemistry, along with fundamental subjective experiences sensed through the five sensory organs. It is important for the reader to understand that these fundamental experiences occur prior to any analysis or definition. We use the terminologies for the sake of explanation since there is no other way. We ensure that the dimensions of this framework form a *basis*, uniquely representing the diverse fundamental experiences of the *rūparealm* in the mind. As discussed in this paper, the ancients and many before us have attempted to explain this fundamental experience, which is a core feeling of all living beings.

Based on the sensory mind signal, fundamental characteristics of *rūparealm* emerge that underpin our perception of observation. We also adopted the terminologies referred to in Eastern literature [8, 1] to define these fundamentals. These fundamental qualities undergo an analytical process through the mind and bring secondary constructs which underpin *rūparealm* (see Table 1). Remember that these terms are applied for explanation; otherwise, they are fundamental experiences that emerged in the mind prior to the development of language and analysis.

Quality	**Description**
Pathavi	The fundamental quality underpins the experience of **stiffness**.
Āpo	The fundamental quality underpins the experience of **viscosity**.
Vāyo	The fundamental quality underpins the experience of **compressibility**.
Tejo	The fundamental quality underpins the experience of **temperature**.
Vaṇṇa	The fundamental quality underpins the experience of **colour**.
Gandha	The fundamental quality underpins the experience of **smell**.
Rasa	The fundamental quality underpins the experience of **taste**.
Oja	The fundamental quality underpins the experience of **reactivity**.
Ākāsa	The fundamental quality underpins the experience of **space**.
Sadda	The fundamental quality underpins the experience of **sound**.

Table 1: Selected fundamental qualities from the 28 fundamental qualities of the *rūparealm* in the mind (see Appendix A). The first eight qualities are inseparable and collectively form the *Suddhāṭṭhaka*, present in all forms in *rūparealm*. The framework was derived by integrating the terminologies of thermodynamics, fluid mechanics, and chemistry and basic subjective experiences that can be sensed through the five sensory organs.

These fundamental qualities are inseparable, and collectively, they create fundamental experiences of *rūparealm*. The inseparable main eight of those fundamental qualities (i.e., *pathavi, āpo, vāyo, tejo, vaṇṇa, gandha, rasa, oja*) form the *Suddhāṭṭhaka* referred to in Buddhism [8, 1]. *Suddhāṭṭhaka* means the most fundamental unit of experience in the mind on all forms of *rūparealm* constituted by the eight qualities. The *ākāsa* quality brings the experience of void space through the occupied space of a *Suddhāṭṭhaka*. Further, the constant change of a *Suddhāṭṭhaka* introduces the notion of time. *Sadda* is not an inherent attribute of *Suddhāṭṭhaka*, but rather arises from the interaction of multiple *Suddhāṭṭhaka*, and it cannot be perceived in all forms of *rūparealm*. *Sadda* is mentioned here because it is sensed through the ear, one of the five sensory organs. Buddhism discusses an additional 20 unique qualities of *rūparealm*, beyond the 8 fundamental qualities of *Suddhāṭṭhaka*, bringing the total to 28 (see Appendix A). However, *Suddhāṭṭhaka* is the only set of qualities found in all forms of *rūparealm*. Figure 3 illustrates two *Suddhāṭṭhakas* having a different blend of the eight inseparable fundamental qualities. Those two *Suddhāṭṭhakas* underpin different fundamental experiences of *rūparealm*.

The diversity of fundamental experiences underpins the diversity of secondary constructs and reality. This entire mental process is causal and lays the foundation for causation. The notion of space-time and

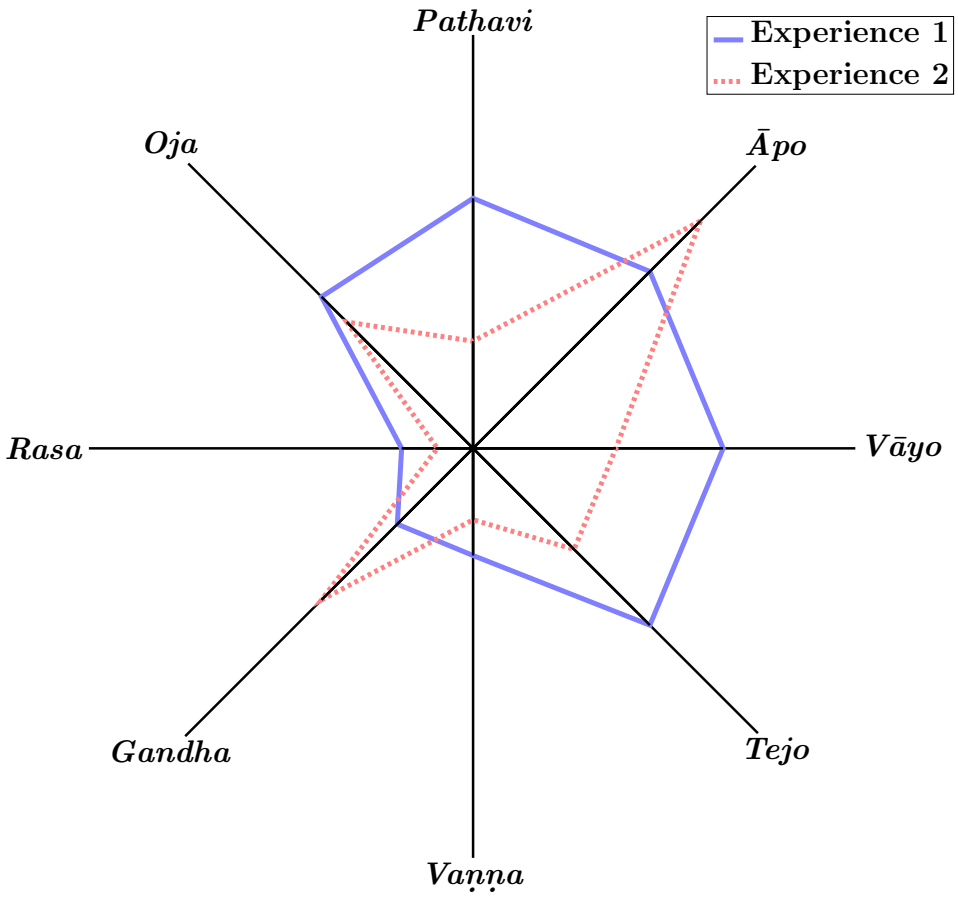

Figure 3: *Suddhāṭṭhaka*: The common fundamental experience of *rūparealm* which can be experienced through the mind. It is composed of the eight inseparable fundamental qualities *pathavi, āpo, vāyo, tejo, vaṇṇa, gandha, rasa, oja*. Further, *Suddhāṭṭhaka* introduces the concept of void space, referred to as *ākāsa* through its occupied space, while also bringing forth the notion of time through its constant change, which are essential aspects of reality. Experience 1 and 2 emerged from two *Suddhāṭṭhakas* having a different blend of the eight inseparable fundamental qualities.

uncertainty also emerges from this process as a secondary construct, which later evolved as relativity and quantum mechanics, respectively, as the foundations of physics.

3.2. Meditation for Experience the Fundamental Experience

The only tool to probe the mind is the mind itself [45, 41]. Any measurement through physical instruments cannot help to understand the fundamental experience. Employing the mind to delve into its own experiences, we embrace established Buddhist meditation practices [2]. Our endeavour aims to unravel the fundamental experiences of the mind that serve as the foundation for secondary constructs.

Within the array of meditation techniques, *Ānāpānasati* [45, 67, 68, 41] is a well-known meditation as a means to investigate the mental experience. *Ānāpānasati* meditation involves directing attention to the natural breath, helping individuals cultivate mindfulness and concentration. By being aware of the sensations of breathing, this meditation technique aims to reduce distractions from external sensory inputs. The five senses (sight, hearing, taste, touch, and smell) often lead to mental restlessness and diminish the fundamental experiences of the mind. *Ānāpānasati* serves as a tool to anchor the mind to the present moment, minimising the influence of sensory interruptions.

To practice *Ānāpānasati*, find a quiet place, sit comfortably, and close your eyes (see Figure 4). Pay attention to your natural breath—feel it going in and out without trying to control it. Be aware of the feeling of the breath at the nostrils. If your mind wanders, gently bring it back to the breath without judgment. Practise non-judgmental awareness, stay present in the moment, and persistently return to the breath. Start with shorter sessions and gradually increase the duration. When you finish, open your eyes slowly and reflect on your experience. This simple mindfulness meditation can bring concentration (*samādhi*) to your mind with regular practice.

Figure 4: The Lotus posture or *Padmasana* for *Ānāpānasati* meditation [45, 41]. Through persistent attention to the breath and non-judgmental awareness, *Ānāpānasati* establishes a mental steady state and provides a valuable lens for exploring the fundamental experiences of the mind.

Ānāpānasati, as described, aligns with principles analogous to *steady-state analysis* in signal processing and systems theory. It provides a framework for exploring the mind. In signal processing, steady-state analysis involves examining the long-term behaviour of a system once transient effects have dissipated. Similarly, *Ānāpānasati* encourages meditators to aware on the continuous and natural breath. This awareness brings concentration overcoming the transient distractions of the mind. The mindfulness cultivated through this practice can be seen as a filtering mechanism akin to signal processing.

Ānāpānasati, where meditation is centred on the breath, gradually leads to a deep concentration known as the *fourth jhana*. In this state, the breath ceases as the mind experiences profound tranquillity and equanimity. According to Buddhism, in this state, one should be conscious that they are in the *fourth jhana* by rejecting the possibility that they are dead or unconscious. From the *fourth jhana* onwards, the continuation of *Ānāpānasati* is impossible without breathing. Buddhism suggests transitioning from breathing meditation to *Vipassanā*—experiential wisdom meditation. *Vipassanā* meditation cultivates wisdom (*paññā*) through the experience of causation followed by contemplating impermanence, unsatisfactoriness and the non-self nature of causal reality. This can be practised in conjunction with *Śamatha* meditation techniques, such as *Ānāpānasati*.

4. Discussion

In artificial intelligence (AI), machine intelligence can be precisely identified through machine learning algorithms. However, when delving into intelligent life, a subjective dimension arises, introducing the perplexing *hard problem of consciousness* [69, 70]. This enigma revolves around the elusive connection between objective measurements in the brain and subjective experiences, such as shape,

colour, and taste. Despite advances in neuroscience, the precise neural origins of these experiences remain elusive. Moreover, the brain's intricate neural circuitry doesn't explain conscious awareness. The *cerebellum*, which consists of a significantly large percentage of neurons of the brain, doesn't contribute to consciousness [71, 72]. This suggests that the mind does not arise from the computational processes of the brain [73, 74].

If we were born wearing a Virtual Reality (VR) gaming suit and constantly immersed in a VR platform [75] without ever taking it off, our perception would accept the digital immersive experience as our true reality. Consequently, our lived reality would be entirely virtual. From a mental standpoint, our sensory organs serve as the functional interface similar to a VR platform, allowing us to engage with the associated mental reality. Various beings that inherit diverse sensory organs perceive distinct realities. This variation in perception exists even among humans, yet social norms and standards allow effective communication without confusion. However, when considering diversity on a deeper level, the diversity of experiences should also be valued.

Transcending physical confines, the mind aggregates fundamental sensations into secondary cognitive formations, concealing the essence of fundamental experiences. A similar concept was cinematically portrayed in the 1999 sci-fi action film *The Matrix* [76]. It depicted a computer-generated dreamworld, known as the Matrix, designed to control humans from birth to death, ensuring they have no awareness of what is real (see Figure 5). This illusion complements *simulation hypothesis* [77], which suggests that we are living in a computer-generated simulation. Similarly, the *interface theory of perception* [78, 52, 79] proposes we have an evolutionary adaptive perceptual system driven by behaviours based on fitness rather than truth. Our research proposes that without being aware of the fundamental experience, everyone is ultimately ensnared in the fundamental illusion crafted by the mind that they believe is reality, which can only be discerned through the mind itself. In Eastern literature, this illusion is named *saṃsāra*.

Figure 5: In the 1999 sci-fi action film *The Matrix* [76], Morpheus explains to Neo that the world he perceives as real is an illusion, and he has been living in a neural-active simulation, known as the Matrix. However, our research suggests even the Matrix and all other complex constructs ultimately reside within the illusion meticulously crafted by the mind.

The concept of the *Boltzmann brain*, proposed in the context of cosmology, suggests that conscious beings, such as human brains, could spontaneously form from random fluctuations in a vast universe [80]. This theoretical brain would have memories and perceptions, making it indistinguishable from a real, embodied consciousness. Similarly, the *brain in a vat* thought experiment [81] argues that a disembodied brain connected to a computer simulating reality would also be unable to distinguish its simulated experiences from real ones. Both concepts challenge the reliability of perceptions, reinforcing the notion that consciousness and reality are inseparably intertwined.

Artificial neural networks underpinning artificial intelligence (AI) provide a compelling illustration

of the cognitive bias that goes beyond fundamental experience. Recent advancements in AI, such as convolution, transformers, and recursive neural networks, have significantly improved computer vision and natural language processing tasks. These artificial neural networks underpin both vision and language interpretations, operating as mathematical models of our understanding of reality [82, 83, 84, 85, 86, 87]. Therefore, our perception of what we see, hear, smell, taste, and feel emerges as transformed fundamental experience through the brain's neural network. In the context of this research, the brain is also a secondary construct. The development of AI and neuroscience illustrates how the whole brain functions as a layer of bias, transforming our fundamental experience and establishing an underlying mathematical framework [14]. Even with the aid of measurement instruments and quantitative analysis, this bias cannot be avoided, and it remains inherent in our thought processes. From the electron microscope to the *James Webb* Space Telescope [88], we couldn't eliminate that bias, and we always pursue a transformed reality beyond fundamental reality. Further, the mathematical nature of the brain-transformed reality helps us to mathematically interpret the perceived reality [89, 90, 91, 92].

The observation-based explanation of reality is the standard process of the scientific method, demonstrating how science evolves. From Rutherford's gold paper experiment [93] aimed at unravelling the atom's structure to the utilisation of the *Large Hadron Collider* for predicting the existence of the *Higgs boson* [94], scientists engage in the process of conducting experiments, gathering observations, modelling outcomes, and ultimately drawing conclusions regarding the underlying principles of reality. However, physics has failed to understand the fundamental biases in imagination and observation and has not been aware of the unbiased fundamental mental experiences associated with reality. At the quantum level, these biases manifest physically as what is known as the observer effect.

Observers introduce systematic biases into scientific observations. Typically, when employing an instrument for measurements, calibration is essential to mitigate systemic errors or biases. However, the field of science has traditionally overlooked the mind as an instrument or sensor, neglecting to address the inherent errors in perception that the mind may introduce. The space-time and randomness in fundamental physics emerged by failing to realise the true essence of the moment of truth derived from the fundamental experiences of the mind. These secondary constructs-based frameworks and models inevitably conflict with the fundamental experiences that become apparent at the quantum scale as we approach the moment of truth. The inability to experience the moment of truth through scientific observation is well communicated by Heisenberg's uncertainty principle [27]. Further, the issues of how science defines space can be understood through the emerging theories of the non-local universe related to quantum entanglement. Therefore, the scientific frameworks and models ultimately deviate from the moment of truth, fundamental experiences, causation and reality.

Even though the fundamental experience of the mind is impossible to see through imagination, *wisdom* is how we train the mind to be aware and attentive to the fundamental experiences before it is transformed within the mind. We developed a framework for exploring the fundamental experience and proposed a *meditation* technique to train the mind to be aware of the fundamental experience before undergoing the cognitive process. When Einstein stated that imagination is more important than knowledge [95], it might have been more accurate to state that meditation is more important than both imagination and knowledge since only meditation can experience the unbiased causation of reality which is underpinned by the mind. Neither imagination nor knowledge is free from biases and hides the truth by secondary constructs.

When attempting to describe an experience one has never encountered, one must rely on existing experiences as a framework for explanation. Unfortunately, describing the moment of truth faces the same difficulty and that requires existing related knowledge and terminologies. Therefore, we adopted the terminologies of thermodynamics, fluid mechanics, and chemistry—fundamental disciplines in established science that explain *rūparealm*. Further, we noticed that historically Eastern philosophy also faced such challenges and adopted established terminologies describing fundamentals in that era. *Suddhāṭṭhaka* is such an interesting ancient concept complementing the fundamental experience of *rūparealm* in mind. Moreover, those who used that term brought physical and mental experiences when

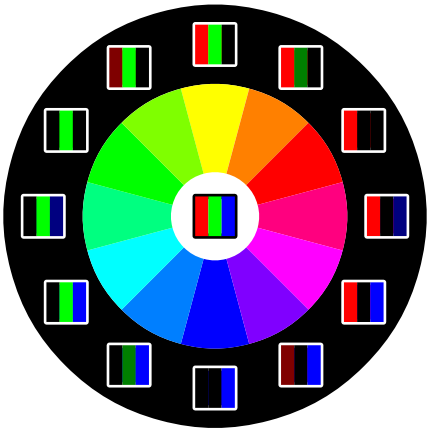

Figure 6: Exemplify the concept of *Suddhāṭṭhaka*. Let's imagine *Suddhāṭṭhaka* is like an RGB pixel, and the red, green, and blue colours are like the eight fundamental qualities. The area of the pixel is similar to *ākāsa*. The diverse blend of the red, green, and blue colours in the vast numbers of pixels results in intricate and vibrant images on screens. Similarly, a myriad of *Suddhāṭṭhakas* with a different blend of the eight inseparable fundamental qualities collectively create diversity in perceived *rūparealm*.

describing reality. Therefore, *Suddhāṭṭhaka* establishes a good framework for us to communicate the moment of truth, fundamental experience, causation and reality. By the way, remember that these terms are applied for explanation; otherwise, they are fundamental experiences that emerged in the mind prior to the development of language and analysis.

Suddhāṭṭhaka is the most fundamental aspect of *rūparealm* that can be experienced through the mind. It is impossible to experience *rūparealm* in a more granular manner than *Suddhāṭṭhaka*. Since *Suddhāṭṭhaka* constructs *rūparealm*, its qualities underpin experiences of the five senses. Although *Suddhāṭṭhaka* belongs to *rūparealm*, the fundamental experience (*nāmarūpa*) is mental. We discussed the eight inseparable fundamental qualities related to *Suddhāṭṭhaka* that underpin *rūparealm*. These eight diverse and inseparable fundamental qualities of *Suddhāṭṭhaka* evoke various fundamental experiences of *rūparealm* in the mind, subsequently leading to the creation of different secondary constructs of *rūparealm* (see Table 1). Stiffness influences the appearance or form and determines the structural integrity of solids. Viscosity makes resistance to deformation and plays a pivotal role in determining the fluid's behaviour. Compressibility allows volume change with pressure and is a key factor in gas dynamics. Temperature governs the transformation of the states between solid, liquid and gas. Reactivity determines the tendency to interact with other substances to form new substances. Meanwhile, colour, smell, and taste bring insights through the eyes, nose, and tongue, respectively. Together, these eight qualities of fundamental experience create the perception of *rūparealm*. Conversely, any experience in *rūparealm* is underpinned by the fundamental experiences constituting those eight qualities.

To exemplify how the fundamental experience of *Suddhāṭṭhakas* orchestrate reality, let's consider a *RGB* display commonly found in various devices such as computer monitors, television screens, digital cameras, and other electronic displays [96, 97, 98]. RGB stands for Red, Green, and Blue, the primary colours of light used in the display. In digital images displayed on RGB screens, pixels serve as fundamental building blocks—each functioning as a small dot that contributes to the formation of images. These dots encompass red, green, and blue colours. The nuanced modulation of intensity within the red, green, and blue colours in an RGB display leads to generating a myriad of distinct colour tones at the pixel level (see Figure 6). When many pixels work together, they produce detailed and colourful images on the screen. This process demonstrates how individual colour elements come together to form complex visuals. Similarly, a myriad of *Suddhāṭṭhakas* with a different blend of the eight inseparable fundamental qualities collectively create diversity in perceived *rūparealm*.

Scientists have explored the domain of perceived *rūparealm*, ranging from particles to the universe, and have developed fundamental physical models, such as relativity and quantum mechanics, to explain reality. However, they have disregarded fundamental experiences, relying instead on analytical observations—secondary constructs prone to bias. The incompatibilities between relativity and quantum theory, arising from their inherent biases, undermine the integrity of science and lead to misconceptions within the scientific mindset. One such issue is the argument that all of reality can be reduced to mere material. Moreover, science fails to explain causation as it neglects to reflect the fundamental experiences of the mind. For instance, the observer effect and the collapse of the wave function in quantum mechanics introduce a subjective element to physical measurements. Furthermore, Quantum entanglement's non-local reality challenges relativity with *spooky action at a distance*. These phenomena highlight a disjunction between the fundamental physical models and the necessity of revisiting fundamental experiences beyond conventional observations, which are prone to transformation and bias.

In contrast, three research papers [6, 17, 13] were published discussing how consciousness underpins integrity in change and the behaviour of the perceived *rūparealm*. A deep dive into fundamental physics was undertaken, explaining the special theory of relativity, gravity, and quantum mechanics from the perspective of consciousness. According to this model, the dynamics of the perceived *rūparealm* are causal, deterministic, and unpredictable, often referred to as chaotic. Relativity and quantum mechanics were unified by postulating consciousness as the fundamental basis of reality. In this process of integrating consciousness into fundamental physics, consciousness was modelled [6] with the following characteristics:

(i) Consciousness is a sequential process that relates to a single state of reality at a given instant and underpins awareness when the process continues,

(ii) Consciousness cycle is the shortest duration to be aware of the change of reality,

(iii) Consciousness constructs space-time based on awareness,

(iv) Consciousness interplays with energy and matter such that consciousness photons energy transforms into consciousness particles conserving energy and momentum,

(v) Consciousness correlates with relativity, such that both time and consciousness dilate when the observer is in motion,

(vi) Consciousness correlates with quantum mechanics, behaving according to the principles of wave-particle duality.

This enabled the unification of the special theory of relativity and quantum mechanics through consciousness. Subsequently, the consciousness model was extended to explain the causation of gravity in relation to general relativity [17] with the following propositions:

(vii) Only consciousness and change are the fundamentals of reality which underpin awareness,

(viii) Reality behaves in a way the awareness is preserved, which causes the integrity of the experience,

(ix) Gravity is a perception in awareness caused by consciousness and changes.

In the interplay of consciousness, matter, and energy, consciousness imparts energy, matter, and space-time with the integrity necessary to preserve awareness, thus resulting in relativity. Further work was extended to comprehend quantum mechanics from the consciousness perspective [13]. It was proposed that the inherent uncertainty in quantum-level observations does not represent an intrinsic aspect of reality. While observation inevitably carries uncertainty, reality is governed by preserving awareness and maintaining integrity with underlying consciousness. To address quantum entanglement and separable quantum mechanics, the consciousness model was further extended with the following proposition:

(x) Quantum mechanics preserves awareness and maintains integrity with underlying consciousness.

This model proposed that consciousness underpins reality, maintaining the integrity of conscious experience. Moreover, everything is subjected to change while maintaining integrity with underlying

consciousness. The integrity of the behaviour of reality perceived through awareness is attributed to consciousness, which is causal, deterministic, and unpredictable due to complexity.

Nevertheless, the modelling of consciousness does not mean experiencing it. The consciousness model becomes yet another secondary construct in our mind unless it is experienced as the causation which constructs the integrity of change and the behaviour of reality. To explore the integrity in reality with the underlying consciousness, we need to be aware of the fundamental experience in the mind. The proposed meditation technique aligns with principles analogous to *steady-state analysis* in signal processing and systems theory, providing a framework for exploring the human mind. Once the meditative mind remains concentrated (*samādhi*) on a specific subject for a sufficient duration, it enhances the clarity of fundamental experiences of the mind, devoid of cognitive transformation or biases.

Eugene Wigner suggested that consciousness interacts with causation at the quantum level. He proposed that consciousness causes the collapse of the wave function to experience the quantum reality—the observation or measurement at the quantum level [99]. Henry Stapp [100] expanded on this idea by proposing that conscious experiences can influence the course of physical events through the collapse process, emphasising the participatory role of the mind in shaping reality. Meditation might facilitate the experience of the fundamental reality without collapsing the wave function. This experience yields wisdom (*paññā*) that arises within the mind and aids in understanding the integrity of reality devoid of manifestation (i.e., *anidassana viññāṇa* [65, 66]). Such wisdom constitutes a mental experience that cannot be precisely conveyed through language or secondary constructs.

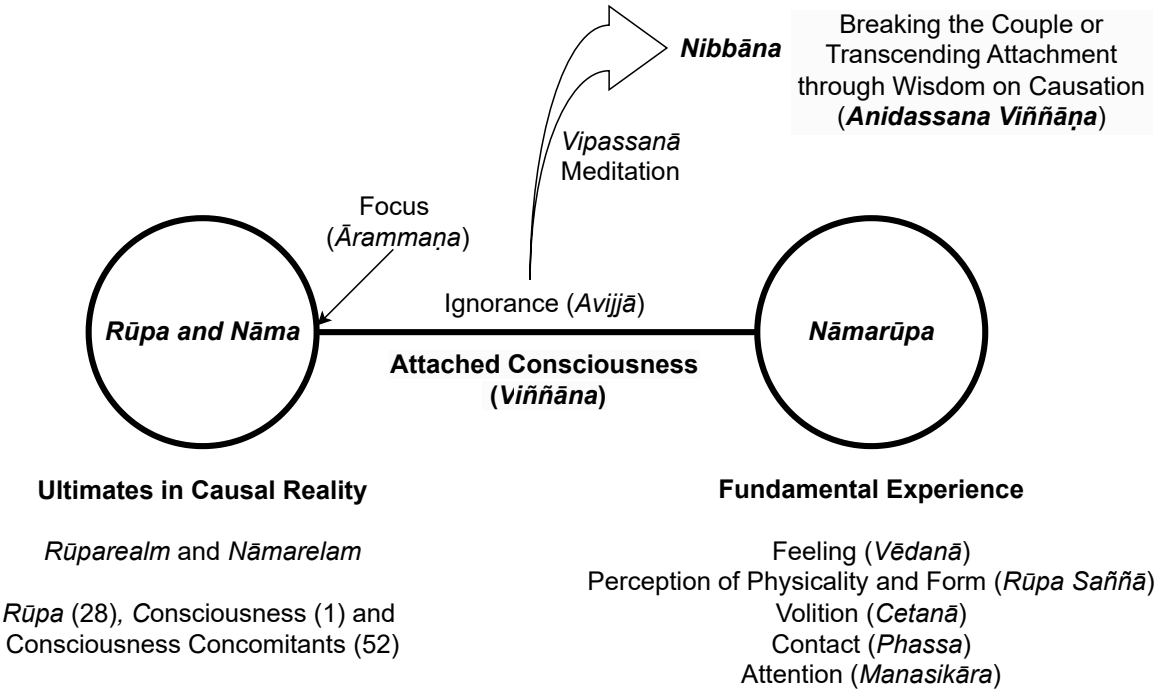

Figure 7: The Buddha stated that a wise person who has known both ends and is undefiled in the middle is a great person, one who has gone beyond the seamstress [101, 102]. Buddhist *Vipassanā* meditation brings the wisdom (*paññā*) to distinguish between causation (*paṭiccasamuppāda*) and fundamental experience (*nāmarūpa*), transcending ignorance (*avijjā*) and realising *Nibbāna* [16, 4].

The Buddha stated that a wise person who has known both ends and is undefiled in the middle is a great person, one who has gone beyond the seamstress [101, 102] (see Figure 7). Buddhist *Vipassanā* meditation brings the wisdom to distinguish between causation (*paṭiccasamuppāda*) and

illusion (*nāmarūpa*), transcending analysis or bias and realising *Nibbāna* [16, 4]. In *Paṭṭhāna* [4], the causation is analysed based on 24 types of conditional relations, referred to as *paccaya*. On the other hand, the only state which Buddhism explains as non-causal is *Nibbāna* that is neither physical (*rūpa*) nor mental (*arūpa*) which is usually explained as *null* or emptiness (*suññatā*) [103]. Therefore, *Nibbāna* means the ultimate cessation of physical and mental manifestations and biases. However, understanding *Nibbāna* is even more challenging than understanding fundamental physical experience since it transcends *rūparealm* and *nāmarealm*. Nonetheless, with the right meditation practice and the causes, one may experience that state through *nirodha samāpatti*[10] [2, 4, 104], referred to as *sopādhiśeṣa-nibbāna*. At the meditation, it is possible to experience attaining and emerging from the *nirodha samāpatti* and, in between, no experience at all. The distinction between a deceased body and an individual attaining *nirodha samāpatti* is that body heat persists with *nirodha samāpatti* [105, 2]. The individual who achieves the state of an *arahant* will reach *Nibbāna* following their passing, referred to as *anupādiśeṣa-nibbāna*. *Vipassanā* is the only meditation which enables attain *nirodha samāpatti* or *Nibbāna* [4]. These meditative experiences on the nature of reality should be realised one by oneself, which is described as *paccattaṁ veditabbo* [106]. The spectrum of mind and causation is wide and complex in Buddhism, and *rūparealm* is just a subset of broader experience which can be realised and transcended through meditation.

5. Conclusions

There exist three fundamental forms of reality: *nāmarealm*, *rūparealm* and *Nibbāna*. All forms of reality can be confirmed and comprehended through the fundamental experiences of the mind, free from bias or secondary constructs. This notion is different from physicalism, idealism, and Kantian philosophies and is in line with *Theravāda* Buddhist philosophy. The *nāmarealm* and *rūparealm* are causal realities, subject to the law of causation, whereas *Nibbāna* is non-causal and mutually exclusive from the *nāmarealm* and *rūparealm*. The causal reality that we analyse and describe is a perception that has been subjected to transformation and bias and is a mental illusion constructed by the mind. It appears so real and follows the integrity of consciousness. The axioms, fundamental laws of nature and complex constructs all emerged from the underlying mental causation and integrity of consciousness. Meditation brings awareness to the fundamental experience before it is transformed through the analytical process of the mind. That concentration underpins the wisdom on governance of reality, which cannot be explained and can only be experienced through the meditative mind. The proposed meditative framework helps in understanding the fundamental experiences of the *rūparealm*, which aids in comprehending the causation of reality based on consciousness beyond mere correlations and transcending the systematic biases inherent in scientific observations due to the mind.

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Appendix A. *Rūparealm* in Buddhist Literature

In Buddhism, Abhidharma discusses the fundamental dimensions of reality based on one mind (*citta*), 28 material qualities (*rūpa*) (see Table A1), 52 mental factors (*cetasika*), and *Nibbāna* [8]. This research is related to the mind (*citta*) and 8 out of the 28 material qualities, which constitute *Suddhāṭṭhaka*. While the 28 material qualities (*rūpa*) comprehensively describe *rūparealm*, the 8 material qualities of *Suddhāṭṭhaka* are common to all forms of *rūparealm*.

According to Abhidharma [1], *rūparealm* can be categorised into two main groups: the four primary qualities and the material phenomena derived from them. The four primary qualities (*mahābhūta*), namely earth, water, fire, and air, constitute the foundational components of *rūparealm*, being inseparable and present in varying combinations across all material substances, from the smallest particles to the largest structures like galaxies. Derived material phenomena (*upādāya rūpa*), on the other hand, are contingent upon these primary qualities, numbering 24.

These 28 types of material qualities are further classified into eleven general categories. Seven of these are termed concretely produced *rūparealm* (*nipphannarūpa*), possessing inherent qualities conducive to

contemplation and understanding through insight. The remaining four categories, being more abstract, are referred to as non-concretely produced *rūparealm* (*anipphannarūpa*).

Table A1: The 28 material qualities in Buddhism [1]. The highlighted eight material qualities form *Suddhāṭṭhaka*, which we discussed broadly in this research.

Concretely Produced *Rūparealm* (18)	**Non-Concrete *Rūparealm* (10)**
I. **Great Essentials** 1. Earth element (*Pathavi*) 2. Water element (*Āpo*) 3. Fire element (*Tejo*) 4. Air element (*Vāyo*)	VIII. Limiting Phenomenon 19. Space element (*Ākāsa*)
II. Sensitive Phenomena 5. Eye-sensitivity 6. Ear-sensitivity 7. Nose-sensitivity 8. Tongue-sensitivity 9. Body-sensitivity	IX. Communicating Phenomena 20. Bodily intimation 21. Vocal intimation
III. **Objective Phenomena** 10. Visible form (*Vaṇṇa*) 11. Sound (*Sadda*) 12. Smell (*Gandha*) 13. Taste (*Rasa*) *. Tangibility (= 3 qualities: earth, fire, air)	X. Mutable Phenomena 22. Lightness 23. Malleability 24. Wieldiness (plus two intimations)
IV. Sexual Phenomena 14. Femininity 15. Masculinity	XI. Characteristics of Matter 25. Production 26. Continuity 27. Decay 28. Impermanence
V. Heart Phenomenon 16. Heart-base	
VI. Life Phenomenon 17. Life faculty	
VII. **Nutritional Phenomenon** 18. Nutriment (*Oja*)	