

Harmony Unveiled:

Exploring the Convergence of Buddhism and Scientific Thought

Morya, Vivek-Kumar*

목차

I. Introduction

II. Navigating the Dialogue: Methodological Framework and Historical Context

1. The Challenge of Comparison: Defining Terms and Avoiding Pitfalls
2. Adopting a Comparative Philosophy Framework: Rationale and Critical Use of Typologies
3. Historical Context: The "Scientific Buddhism" Narrative and Its Critical Reassessment

* Senior Researcher, Hallym University Sacred Heart Hospital

III. Points of Resonance and Dialogue

1. Epistemological Parallels Reconsidered: Inquiry, Experience, and Verification
2. Conceptual Echoes: Interdependence, Emptiness, and Scientific Models Reassessed
3. The Mind Sciences Interface: Collaboration, Contributions, and Critical Caveats

IV. Navigating Divergence: Tensions, Conflicts, and Potential Incommensurability

1. Metaphysical Divides: Consciousness, Materialism, and the Nature of Reality
2. The Doctrine of Rebirth: Scientific Challenges and Philosophical Responses
3. Karma: Beyond Psychological Conditioning and Performative Function?
4. Anattā (No-Self): Philosophical Nuance versus Scientific Constructs of Self
5. Fundamental Differences in Aims and Values

V. Synthesis: Towards a Complex Understanding

1. Probing the Depths: Incommensurability and Untranslatable Concepts
2. Mapping the Terrain: Applying Barbour's Typology
3. Pathways for Mutual Enrichment: Exploring Potential Learning and Critique
4. Reassessing Practical Implications: Education, Healthcare, and Sustainability

VI. Conclusion

References

Abstract

The relationship between Buddhist traditions and modern scientific thought has captured widespread interest, often framed through narratives emphasizing inherent compatibility and harmony. However, such portrayals frequently overlook significant philosophical, methodological, and historical complexities, particularly points of divergence, tension, and conflict. This paper addresses these complexities by undertaking a methodologically grounded comparative analysis. It moves beyond simplistic claims of convergence to critically examine both areas of productive dialogue and fundamental differences between specific Buddhist concepts and relevant scientific frameworks. Adopting a methodology informed by Comparative Philosophy, this analysis explicitly defines its comparative framework and acknowledges the historical influence of "Buddhist Modernism"—a narrative that has often privileged compatibility while marginalizing points of friction. The paper systematically explores areas of apparent resonance, including epistemological parallels and conceptual echoes like interdependence, subjecting them to critical scrutiny. Crucially, it then delves into significant points of divergence and conflict, focusing on metaphysical divides concerning consciousness and materialism, the challenges posed by scientific perspectives to doctrines like rebirth and karma, differing interpretations of 'no-self' (anattā), and fundamental differences in ultimate aims and values. By synthesizing these findings, the paper argues for a more complex, multi-layered understanding of the Buddhism-science relationship, acknowledging both resonance and irreducible difference. The

objective is not to adjudicate between the traditions but to foster a more nuanced, historically sensitive, and methodologically self-aware dialogue that appreciates the intricate and often challenging nature of their interaction.

Key Words: Buddhism, Science, Comparative Philosophy, Methodology, Epistemology

I . Introduction

In recent decades, the intersection of Buddhist traditions and modern scientific inquiry has emerged as a focal point of considerable academic and popular fascination (Lopez Jr., 2009; Wagner, 2024). The perceived potential for mutual enrichment, particularly evident in fields such as cognitive science, psychology, and even theoretical physics, has fueled compelling narratives that emphasize a fundamental harmony and convergence between these two vast domains of human understanding (Wagner, 2024; Youvan, 2024; Wallace, 2007). Buddhism is frequently portrayed as uniquely rational, empirical, and consonant with scientific findings, distinguishing it from other religious traditions often perceived as being in conflict with science (Leong, 2024).

However, beneath the appealing surface of this apparent compatibility lie deep and complex philosophical, methodological, and historical dimensions that demand rigorous critical examination (Johnson & Gray, 2010). Previous explorations of this topic have

sometimes faced criticism for certain limitations. A primary concern pertains to the frequent lack of an explicit and robust methodology for navigating the comparison. This absence can lead to analyses that appear more like compilations of interesting parallels rather than systematic, critical explorations (Freiberger, 2019; Wildman 2010). Consequently, such approaches may tend to selectively highlight areas of agreement or potential dialogue while neglecting, minimizing, or reinterpreting significant points of divergence, tension, and even outright conflict between core tenets of Buddhist thought and prevailing scientific paradigms (Wallace, 2007, 2008; Priest, 2024; Sheng 2017). This selective focus risks presenting an oversimplified, potentially misleading, and ultimately incomplete picture of what is, in reality, a profoundly multifaceted and often challenging interaction.

This paper aims to address these potential shortcomings by undertaking a methodologically grounded comparative analysis of the Buddhism-science relationship. Moving decisively beyond simplistic claims of inherent harmony, it seeks to critically examine both areas of productive dialogue and fundamental differences, tensions, and contradictions between specific Buddhist concepts and relevant scientific frameworks. The objective is not to definitively adjudicate between Buddhism and science, nor is it to force a premature or artificial synthesis. Rather, the goal is to achieve a more nuanced, balanced, and intellectually honest understanding of their complex interactions, acknowledging both points of resonance and areas of significant friction or potential incommensurability. This requires confronting the difficult questions raised by their encounter, rather than

seeking refuge in comfortable but potentially superficial concordances.

To achieve this more rigorous and balanced analysis, the paper adopts a methodological framework explicitly drawn from the discipline of Comparative Philosophy. This approach involves intentionally setting specific concepts, theories, problems, or practices from diverse philosophical and cultural streams—in this case, selected aspects of Buddhist traditions and modern science—into structured dialogue. The focus is on clarifying specific issues, understanding underlying assumptions, revealing hidden biases, and exploring the distinct logics and aims of each tradition, rather than attempting to construct a unified 'world philosophy' or merely cataloging surface-level similarities. While heuristic typologies, such as Ian Barbour's influential fourfold model of Conflict, Independence, Dialogue, and Integration, can provide a useful initial map for structuring the analysis, they will be applied critically throughout this paper. Scholarly critiques regarding their potential for oversimplification, essentialism, and failure to capture the dynamic, context-dependent nature of actual historical interactions are acknowledged. The comparative process demands careful attention to the *tertium comparationis*—the specific ground or aspect upon which the comparison is based—and requires transparency regarding its selection to avoid imposing one tradition's framework onto the other (a pitfall sometimes termed "descriptive chauvinism") or suspending necessary critical judgment ("normative skepticism"). The ultimate goal is a deeper, more critical understanding facilitated by contrast and divergence as much as by comparison and convergence.

II. Navigating the Dialogue: Methodological Framework and Historical Context

Engaging in a comparative study that juxtaposes "Buddhism" and "Science" presents formidable methodological challenges from the very outset. Neither term represents a monolithic, homogenous entity. "Buddhism" encompasses an extraordinarily vast and diverse array of traditions, philosophical schools, ritual practices, ethical systems, and cultural expressions that have evolved across Asia and globally over more than 2,500 years (Gordon, 2015; Gratton-Fabrizi 2010; Gregory 2012). Similarly, "Science" is not a single, unified enterprise but comprises a wide spectrum of distinct disciplines (physics, biology, psychology, etc.), each with its own specific methodologies, theoretical frameworks, historical trajectories, and philosophical underpinnings, all subject to ongoing evolution and debate (Kuhn, 2014; Topham, 2016; Poskett, 2022). Consequently, any meaningful comparison demands careful and explicit specification: *which* particular aspects (doctrines, practices, ethical principles) of *which* specific Buddhist tradition (e.g., Theravāda, Zen, Tibetan Madhyamaka, Yogācāra) are being compared with *which* specific scientific theories (e.g., quantum mechanics, evolutionary biology, neuroscience), methods (e.g., experimentation, observation, mathematical modeling), or underlying philosophical assumptions (e.g., materialism, reductionism, realism)? Failure to specify the comparands with precision inevitably leads to vague generalizations and potentially misleading conclusions (Locke, 2023; Budapesti, 2019; Garfield, 2015; Thompson, 2023).

1. The Challenge of Comparison: Defining Terms and Avoiding Pitfalls

A fundamental element underpinning any comparative study is the *tertium comparationis*, literally the "third of comparison" (Cooper, 2022). This refers to the common ground, shared aspect, specific question, or conceptual category with regard to which the items being compared (the *comparanda*) are juxtaposed and evaluated (Haslanger, 2010; Cooper, 2022). The selection of this tertium is not a neutral act; it is a complex and crucial methodological step, often implicitly or explicitly influenced by the researcher's own background, disciplinary training, specific interests, and the prevailing academic or cultural paradigms within which they operate (Omodan, 2024). The choice of the tertium inherently shapes the comparison's focus and potential outcome. For instance, comparing Buddhist meditation and cognitive neuroscience based on the tertium of "attention regulation" will yield a very different analysis than comparing Buddhist cosmology and Big Bang theory based on the tertium of "origins of the universe" (Barannikova, and Magamdarov, 2019; Malykh, 2014). Furthermore, as Wilhelm Halbfass and others have noted, the very decision that two items *deserve* comparison implies a prior, often unstated, comparative judgment about their significance or potential relationship (King, 2019; Halbfass, 2017).

This highlights the need for methodological transparency. Researchers must strive to make explicit their reasons for choosing specific comparands and the particular tertium comparationis

employed, acknowledging any potential biases or limitations inherent in that choice (Chodosh, 1998; Connor and Moreno, 2005). The tertium itself may need modification during the comparative process as deeper understanding emerges. Without such transparency, hidden agendas or the uncritical imposition of one tradition's framework onto the other can unduly influence the analysis (Lapis, 2021; Weber, 2014).

Comparative endeavors are also susceptible to several well-recognized pitfalls that can undermine their validity and intellectual integrity (Merrick, and Merrick, 2020). "Descriptive chauvinism" occurs when one tradition is reconstructed or interpreted solely through the lens and categories of another, often one's own, thereby overlooking, distorting, or devaluing its unique context, meaning, and internal logic. This can happen, for example, when Buddhist concepts are forced into pre-existing Western philosophical categories without adequate sensitivity to their original function and significance (Silk, 2002; Thompson, 2023; De Silva et al., 2010). Conversely, "normative skepticism" involves merely describing different views or practices from various traditions without engaging in any critical evaluation of their coherence, empirical validity, ethical implications, or philosophical plausibility. This approach avoids judgment but sacrifices the critical dimension essential to philosophical inquiry (Keown, 2020; Silk, 2002). Another potential difficulty, particularly relevant in cross-cultural comparisons, is the challenge of "incommensurability". This is the idea, often associated with philosophers like Thomas Kuhn and Ludwig Wittgenstein, that the fundamental conceptual frameworks, "language games," or underlying assumptions of the traditions being

compared are so radically different that meaningful comparison, translation, or rational adjudication between them is difficult or even impossible (Hanks, 2005; Zhang, 2010; Tan, 2016). While complete incommensurability might be rare, acknowledging the potential for deep conceptual divides is crucial for avoiding facile comparisons. Navigating these complex challenges requires a high degree of methodological self-awareness, intellectual humility, and a sustained commitment to rigorous, critical, and contextually sensitive engagement with the sources from each tradition (Engebretson et al., 2010).

2. Adopting a Comparative Philosophy Framework: Rationale and Critical Use of Typologies

Given the inherent complexities and potential pitfalls outlined above, the field of Comparative Philosophy offers a particularly suitable methodological framework for conducting this inquiry into the relationship between Buddhism and science (Barbour, 2000). As a distinct subfield of philosophy, Comparative Philosophy intentionally and systematically brings sources, concepts, arguments, or practices from diverse cultural, linguistic, and philosophical streams into structured dialogue (Barbour, 2002). Its primary aim is often not to achieve a grand synthesis or a definitive judgment, but rather to illuminate specific problems, clarify conceptual nuances, reveal underlying assumptions, and potentially generate new philosophical insights through the process of cross-cultural juxtaposition and critical analysis (Teeuwen, 2017; Quli

and Mitchell, 2015; Wagner, 2024). This approach differs significantly from area studies philosophy (such as Chinese Philosophy, Indian Philosophy, or African Philosophy), which focuses on understanding the philosophical developments within a specific geographical or cultural region and need not necessarily be comparative in nature (Haase, 2013). It also differs from attempts to construct a singular "world philosophy," which may risk subordinating diverse philosophical voices to a pre-existing, often Western-centric, systematic framework. The focus of Comparative Philosophy on specific issues and critical dialogue aligns well with the need for a systematic, methodologically explicit exploration of the Buddhism-science relationship, moving beyond the mere compilation of information or the uncritical assertion of harmony (Wagner, 2024).

Comparative approaches, when applied with critical rigor, can serve several valuable functions. They can reveal the often-unstated background assumptions and conceptual frameworks that shape the thinking within each tradition, potentially leading to a broadening and deepening of the researcher's and reader's initial perspectives. By bringing different perspectives to bear on a common problem (the *tertium comparationis*), comparative analysis can highlight limitations or blind spots in each approach and stimulate creative thinking (Holmes, 2018; Schriewer, 2006; Frankenberg, 2017). This methodology naturally facilitates a multidisciplinary inquiry, allowing for the integration of insights from various relevant fields, including philosophy of science, history of science, religious studies, anthropology, sociology, and the specific scientific disciplines under

discussion (e.g., neuroscience, physics) (Krauss, 2024; Javed, 2024; Alvargonzález, 2011; Wildman, 2010, 2016; Patil and Wagh, 2023).

Within the field of religion and science studies, typologies have often been used to structure comparative analyses (Krech, 2015; Freiburger, 2016; Barbour, 2002). The most influential of these is Ian Barbour's fourfold model, which categorizes potential relationships as Conflict, Independence, Dialogue, and Integration (Loke, 2023; Damper, 2024). While such typologies can provide a useful heuristic map for navigating the complex terrain of possible interactions, they must be employed critically and cautiously. Scholars like Geoffrey Cantor, Chris Kenny, and others have raised significant concerns about Barbour's typology and similar classification schemes (Chin, 2023; Barbour, 2002; McGrath, 2020). They argue that such typologies can be overly simplistic and static, potentially essentializing complex and internally diverse traditions like "religion" and "science" by attributing fixed defining qualities to them (Lee, 2023). Critics contend that these models often fail to capture the dynamic, fluid, and context-dependent ways in which individuals and communities actually relate scientific ideas and religious beliefs in practice. Historical interactions are rarely confined neatly to one category; individuals and traditions often utilize multiple stances simultaneously or shift between them depending on the specific issue and context. Alternative typologies have been proposed by scholars like John Haught (Conflict, Contrast, Contact, Confirmation), Willem Drees (a nine-fold typology based on different aspects of science influencing different aspects of religion), Ted Peters (an eight-fold typology refining Barbour's), Mikael Stenmark, and

others, each attempting to offer a more nuanced framework (Chin, 2023; Barbour, 2002; Henry, 2005). The specific interactions—both convergent and divergent—between designated Buddhist concepts and scientific ideas are analyzed within their respective contexts and through the lens of the outlined comparative methodology (Kenaphoom et al., 2025; Sharma, 2006; King Jr, 2015). The explicit adoption of a formal comparative method addresses potential issues arising from unexamined assumptions. The absence of a clearly articulated methodology can permit biases—particularly those originating from the historically constructed narrative of Buddhism's inherent compatibility with science—to implicitly influence the analysis (Lopez Jr, 2009; Stoltz, 2021). In contrast, a rigorous comparative framework necessitates making the basis of comparison explicit (the *tertium comparationis*) and actively guarding against common comparative fallacies such as chauvinism or uncritical skepticism. This methodological self-awareness and rigor are crucial for transcending simplistic harmonization or antagonism and achieving a balanced, critical, and systematically explored analysis (Valencia-Contrera, et al., 2025).

3. Historical Context: The "Scientific Buddhism" Narrative and Its Critical Reassessment

A comprehensive understanding of the contemporary discourse between Buddhism and science necessitates an acknowledgment of its specific historical context, particularly the emergence, dissemination, and enduring influence of a compelling narrative that depicts Buddhism

as uniquely rational, empirical, and inherently compatible with the methodologies and findings of modern science (McMahan, 2009; Keown, 2022; Smith 1997). This narrative, frequently referred to by scholars as "Buddhist Modernism" (a term sometimes used interchangeably with Heinz Bechert's earlier "Protestant Buddhism"), primarily arose during the 19th and early 20th centuries. It was shaped by the complex and often contentious interactions between Asian Buddhist intellectuals, communities, and Western colonial powers, Orientalist scholars, Theosophists, and various Western sympathizers (Newell, 2010; Bretfeld, 2012; Lecourt, 2016).

During this period, Buddhist traditions in Asia encountered significant challenges. Colonial administrators and Christian missionaries often criticized Buddhism as superstitious, idolatrous, world-denying, or nihilistic, contrasting it unfavorably with what they presented as the rationality and progressiveness of Western civilization, science, and Christianity (Borup, 2023). Influenced by these critiques and by the dominant Western discourses emphasizing reason, empirical evidence, and scientific progress, reform-minded Buddhist intellectuals and leaders in countries such as Sri Lanka (then Ceylon), China, Japan, and Thailand began to strategically reinterpret and represent their traditions in ways that resonated with modern sensibilities and could effectively counter colonial and missionary criticisms (Foy, 2023; Picard, 2017; Kleine et al., 2025; Gleig, 2011).

This process of modernization involved several key strategies:

Western figures played a crucial role in co-constructing this narrative. Orientalist scholars, often working within colonial administrations,

selectively translated and interpreted Buddhist texts, sometimes projecting their own Enlightenment ideals onto the figure of the Buddha, portraying him as a rationalist philosopher or proto-scientist (King, 2013; Kapila, 2007; Mellor, 2004). Figures like Paul Carus, editor of *The Open Court* journal, actively promoted Buddhism as a potential "Religion of Science," free from the perceived dogma and supernaturalism of Christianity. Theosophists like H.P. Blavatsky and Henry Steel Olcott, while having their own esoteric agendas, also contributed to popularizing a particular version of Buddhism in the West. This modernist reformulation frequently presented itself not as an innovation, but as a return to the "original," "pure," or "essential" Buddhism of the historical Buddha, supposedly stripped bare of later cultural accretions and corruptions (Haas, 2015; Goodrick-Clarke, 2013; Ahmed, 2024; Haller Jr, 2020; Bergunder, 2016).

The conceptualization of Buddhism as rational, empirical, and scientific has exerted significant influence, shaping Western perceptions of Buddhism and influencing the evolution of Buddhist traditions globally throughout the 20th century and into the present day (McMahan, 2008; Baumann, 2001; Gregory, 2012). The form of Buddhism encountered and practiced in the West today, including the prevalent secular mindfulness movement initiated by figures such as Jon Kabat-Zinn, owes much to this modernist interpretation (Gethin, 2015; Segall, 2021; Early, 2018).

However, beginning in the latter part of the 20th century and intensifying in recent decades, scholars of Buddhist Studies, religious studies, and history have subjected this "scientific Buddhism" narrative

to rigorous critical scrutiny (Tarabout, 2019). Critics, most notably figures like Donald S. Lopez Jr. and Robert Sharf, argue that the apparent compatibility between Buddhism and science often touted by modernists is achieved through a process of selective interpretation, strategic omission, and what Lopez terms "propositional compromise" (Williams, 2024; Radich, 2007; Lopez Jr, 2002, 2008; Tarabout, 2019). This involves downplaying, reinterpreting, or sacrificing distinctive and potentially challenging aspects of traditional Buddhist doctrine and practice (such as rebirth, karma operating across lifetimes, traditional cosmology, the importance of ritual and community) in order to make Buddhism appear consistent with a modern, often implicitly materialist, scientific worldview.

This process of accommodation, critics argue, can lead to a distorted and impoverished understanding of both Buddhism and science. It risks ignoring the specific historical and cultural contexts in which Buddhist doctrines and practices originally developed, their primary soteriological aims (liberation from suffering), and their reliance on distinct methodologies (like meditative insight). Sharf, for instance, contends that Buddhist modernism involved a "masterful operation of repression," effectively excluding vast swathes of traditional belief, ritual, and communal practice from the definition of "true" or "authentic" Buddhism, often dismissing them as mere "cultural baggage" (Sharf, 1995; Sharf, 2021; Williams, 2024). The emphasis on individual experience and meditation, detached from broader ethical, doctrinal, and communal contexts, is seen as a particularly modern, even Protestant-influenced, development (Jayasinghe and Soobaroyen,

2009; Cort, 2012; Silverman, 2015).

Furthermore, the tendency to present Buddhism as exceptionally rational and uniquely compatible with science, often contrasting it favorably with other religions, has been criticized as a form of "Buddhist exceptionalism" (McMahan, 2008; Mitchell, 2023; Tempon-Wiltshire, 2024). This perspective often overlooks similar historical claims of scientific compatibility made by proponents of other religious traditions (e.g., certain schools of Hinduism or Islamic modernism) and fails to engage critically with the broader, complex field of religion-science interactions (De Cruz, 2017; Bergunder, 2016; Lightman, 2019).

The pervasiveness and often unacknowledged influence of this Buddhist Modernist framing have significant implications for the current analysis. Much of the contemporary Buddhism-science dialogue, especially in popular discourse but also within certain academic and scientific circles (particularly around mindfulness research), continues to operate largely within the parameters established by Buddhist Modernism (Samuel, 2014; Lopez Jr, 2008; Gleig, 2019). This framework inherently tends to foreground areas of potential resonance – rational inquiry, empirical investigation (often conflating first-person introspection with third-person scientific empiricism), concepts like interdependence, and the focus on the mind – while simultaneously backgrounding, dismissing, or reinterpreting areas of potential conflict or fundamental difference (Abdullah, 2014; Lightman, 2019).

Recognizing this historical legacy is therefore crucial for conducting a balanced and critical assessment. It prompts us to question *why* certain

topics (like meditation's effect on the brain) dominate the dialogue while others (like the metaphysical implications of rebirth or the nature of ultimate reality) are often marginalized or avoided. It encourages a more symmetrical and critical engagement that actively seeks out, acknowledges, and analyzes the points of friction, divergence, and potential conflict that the modernist narrative of harmony has frequently obscured or downplayed. Without this critical historical awareness, we risk unconsciously perpetuating the very biases and selective interpretations that a rigorous comparative analysis seeks to overcome.

III. Points of Resonance and Dialogue

While the overarching historical narrative of an inherent and seamless harmony between Buddhism and science requires critical deconstruction, it is undeniable that specific points of contact, conceptual parallels, and areas of productive dialogue exist between the two domains (Wawrytko, 2013; Jackson, 1989; Cabezón, 2003). These points of resonance have fueled much of the interest in the topic and have led to tangible collaborations, particularly in the mind sciences. However, even these areas of apparent agreement warrant careful and critical examination. Superficial comparisons that ignore underlying differences in methodology, context, fundamental assumptions, and ultimate purpose can be misleading and ultimately hinder a deeper understanding of the relationship.

1. Epistemological Parallels Reconsidered: Inquiry, Experience, and Verification

A frequently encountered claim within the Buddhism-science dialogue is that both traditions share a fundamental commitment to empirical investigation, rational inquiry, critical thinking, and a rejection of blind faith or unquestioned authority (Lopez Jr., 2008). Proponents of this view often point to specific passages in Buddhist scriptures as evidence. Perhaps the most famous is the *Kālāma Sutta* (Anguttara Nikāya 3.65), in which the Buddha advises the Kalamas not to accept teachings based solely on tradition, lineage, hearsay, scriptural collections, logical reasoning, inference, reasoned cogitation, the seeming competence of a speaker, or because a teacher is considered one's guru (Evans, 2007). Instead, he encourages them to "know for yourselves" whether certain things are unwholesome or wholesome, blameworthy or praiseworthy, and lead to harm or benefit, and to accept or reject them accordingly. This passage is often interpreted by Buddhist modernists as the Buddha's "charter of free inquiry," advocating a skeptical, empirical approach akin to the scientific method (Choi and Choi, 2019; Baines, 2023; Kwee, et al., 2006).

Furthermore, Buddhist epistemology (*pramāṇa-vāda*), particularly in the sophisticated philosophical traditions developed by logicians like Dignāga (c. 480 - 540 CE) and Dharmakīrti (c. 7th century CE), emphasizes perception (*pratyakṣa*) and inference (*anumāna*) as the two primary valid means of acquiring knowledge (*pramāṇa*). This systematic approach to knowledge, along with the general Buddhist

emphasis on investigation (*dhamma-vicaya*), understanding causality (dependent origination), and verifying teachings through personal experience, appears, at first glance, to align closely with the spirit and methods of scientific inquiry. The Buddha himself is sometimes portrayed as an empirical investigator of the mind and suffering.

However, a more critical and contextually sensitive re-examination reveals significant differences beneath these surface parallels. While Buddhism undoubtedly values experiential verification and critical inquiry, its primary mode of "empirical" investigation is fundamentally different from that of modern science (Pemarathana, 2004; Wallace, 2007; Jopez Jr, 2008). Buddhist empiricism relies heavily on *first-person introspection*, cultivated through rigorous meditative training (*samādhi* and *vipassanā*), aimed at directly observing and understanding the nature of mind, consciousness, and subjective experience (Wallace, 2013; Chadha, 2015; Reddy, et al., 2020). The goal is often a transformative insight into the nature of reality (e.g., impermanence, suffering, no-self) that leads to liberation. This contrasts sharply with the standard scientific method, which predominantly relies on *third-person, objective observation*, measurement, controlled experimentation, and quantitative analysis. Scientific findings aim to be publicly verifiable, repeatable by independent researchers, and ideally expressed in mathematical or formal language.

The "data" of Buddhist contemplative practice are primarily subjective states, qualia, and insights accessible only from the first-person perspective, while the primary data of most sciences consist of objective measurements of phenomena in the external, physical

world (Ciraci, 2019; Wallace, 2013). Conflating these distinct forms of empiricism—introspective versus experimental—can be highly misleading and overlooks the fundamental epistemological challenges involved in relating subjective experience to objective measurement. The project of neurophenomenology, initiated by Francisco Varela, explicitly attempts to bridge this first-person/third-person gap but acknowledges its profound difficulty (Rudrauf, et al., 2003; Zambrano, 2012; Almendro nad Lopez, 2016).

Moreover, the interpretation of the *Kālāma Sutta* as a straightforward endorsement of scientific skepticism has been challenged. Scholars like Bhikkhu Bodhi and others argue that the sutta's context suggests the Kalamas were asking for guidance on choosing a reliable teacher amidst conflicting claims, not seeking a universal method for discovering objective truth. The criteria the Buddha offers for evaluation ("know for yourselves") involve assessing whether teachings, when put into practice, lead to greed, hatred, and delusion (unwholesome) or their absence (wholesome), and whether they are praised or censured by the wise. This suggests the criteria are as much ethical and pragmatic as purely epistemological, focusing on the consequences of adopting certain views and practices for one's well-being and liberation, rather than solely on their correspondence to an external reality. The appeal to "the wise" (*viññū*) also introduces an element of reliance on authoritative judgment, albeit not blind faith.

Furthermore, while Buddhism employs logic and reason (*anumāna* being a valid *pramāṇa*), its ultimate purpose differs fundamentally from that of science. The goal of Buddhist inquiry is not primarily knowledge

for its own sake, technological advancement, or the prediction and control of natural phenomena, but rather the attainment of liberation (*nirvāṇa*) from suffering (*dukkha*). Buddhist "truth" (*sacca*) is often understood within this soteriological context. "Right View" (*sammā diṭṭhi*), the first step of the Noble Eightfold Path, is not just about holding correct propositions but involves an understanding that transforms one's being, leading to ethical conduct and eventual liberation. This understanding may rely on insights derived from meditative states, which are not easily replicable or verifiable by standard scientific means, or on the interpretation of authoritative texts and lineage traditions, even if the *Kālāma Sutta* cautions against blind acceptance. Some critics argue that seemingly scientific concepts within Buddhism, such as the law of "cause and effect" as applied in the doctrine of karma, are fundamentally moral or ethical principles concerning volitional action and its consequences, rather than value-neutral scientific laws describing physical causality.

Therefore, while genuine parallels exist in the spirit of inquiry, the emphasis on avoiding dogma, and the value placed on experiential understanding, claims of direct epistemological equivalence between Buddhism and science often overlook crucial differences in their primary methods (introspection vs. experimentation), objects of study (subjective experience vs. objective phenomena), criteria for verification, and ultimate aims (liberation vs. knowledge/control). Recognizing these distinctions is vital for a nuanced comparison.

2. Conceptual Echoes: Interdependence, Emptiness, and Scientific Models Reassessed

Perhaps the most frequently cited and intellectually captivating area of apparent resonance between Buddhist philosophy and modern science lies in the perceived parallels between core Buddhist doctrines and concepts emerging from various scientific fields, particularly physics and biology (Lopez Jr, 2008; Wallace 2007; Ciraci, 2019). The central Buddhist doctrine of Dependent Origination (*pratītyasamutpāda* in Sanskrit, *paṭiccasamuppāda* in Pali) posits that all phenomena—from the briefest mental event to the vast structures of the cosmos—arise and cease in dependence upon a complex web of interconnected causes and conditions. Nothing exists inherently, independently, or possesses a fixed, unchanging essence (*svabhāva*). This fundamental principle of conditionality and relationality is intimately linked to the Buddhist concept of Emptiness (*śūnyatā*), particularly as elaborated in Mahāyāna traditions like Madhyamaka. Emptiness denotes the lack of intrinsic, independent existence in all phenomena, including the seemingly solid self. Nāgārjuna, the founder of Madhyamaka, famously equated dependent origination with emptiness (Abe and Abe, 1997; Laude, 2016; Shizuteru, et al., 1982; Vy and Huynh, 2015).

Both Buddhist modernists, who seek scientific validation, and scientists interested in Eastern philosophy have identified numerous parallels between profound Buddhist concepts and ideas from various scientific fields.:

While these parallels can be intellectually stimulating and serve as

useful heuristic devices or points for dialogue, critical analysis urges significant caution. The apparent resonance might often be superficial, based on metaphorical similarities rather than deep structural or conceptual identity, and risks overlooking fundamental differences in the underlying metaphysical assumptions, methodologies, and contexts in which these concepts operate. Scientific concepts like ecological interdependence, emergence in complex systems, or quantum entanglement are primarily *descriptive and predictive models* developed within specific theoretical frameworks to explain and mathematically model phenomena observed within the natural world. Their purpose is largely explanatory and potentially technological. Buddhist concepts like Dependent Origination and Emptiness, while certainly containing descriptive elements about the nature of reality as understood within Buddhism, are primarily embedded within a *soteriological framework*. Their main purpose is ethical and transformative: to undermine attachment, clinging, and the false view of a permanent self, thereby facilitating liberation (*nirvāṇa*) from the cycle of suffering (*saṃsāra*).

Does the interconnectedness described by systems ecology carry the same profound ethical implications regarding compassion and non-harming as *pratītyasamutpāda*? Does the probabilistic and observer-influenced nature of quantum reality, described through mathematical formalisms and experimental results, truly equate to the Buddhist understanding of emptiness (*śūnyatā*), which is ultimately realized through direct meditative insight and leads to the cessation of suffering?. The persistent tendency to seek and emphasize these

conceptual echoes may be significantly influenced by a confirmation bias, particularly within the historical context of the Buddhist Modernist project, which actively sought scientific validation for Buddhism. This desire for external validation can lead to selective readings, oversimplifications, or even misinterpretations of both complex Buddhist philosophical doctrines and sophisticated scientific theories. For example, popular interpretations of quantum physics often misrepresent concepts like the "observer effect" in ways that lend themselves more easily to parallels with consciousness, ignoring the technical debates within physics itself. Similarly, reducing *pratītyasamutpāda* merely to "everything is connected" ignores its specific formulations (like the twelve links) and its primary role in explaining the arising and cessation of suffering. Critics also point out that claiming Buddhism uniquely resonates with ecology ignores the fact that premodern Buddhists, while sometimes developing sophisticated environmental management techniques, did not face the same global environmental crises and thus did not formulate an "environmental ethic" in the modern sense; applying concepts like interdependence retrospectively can be anachronistic.

To conduct a more rigorous comparative analysis and dialogue, it is essential to move beyond the superficial allure of apparent similarities. This necessitates a meticulous examination of the distinct meanings, underlying assumptions, methodological foundations, and ultimate objectives of concepts within their respective traditional contexts. It is imperative to recognize the fundamental differences in goals – such as liberation from suffering versus description, prediction,

and control—and methods, including first-person meditative insight versus third-person experimentation and mathematical modeling, before asserting conceptual equivalence. While dialogue on these themes can be productive, it must proceed with a critical awareness of the potential for misinterpretation and the profound differences that often underlie apparent parallels.

3. The Mind Sciences Interface: Collaboration, Contributions, and Critical Caveats

The most concrete, sustained, and arguably most productive area of interaction between Buddhist traditions and modern science has undoubtedly occurred at the interface with the mind sciences—primarily neuroscience, cognitive science, and psychology (Wallace, 2002, 2007; Samuel, 2014). This engagement, significantly catalyzed and facilitated by figures like the 14th Dalai Lama and organizations such as the Mind & Life Institute (co-founded by the Dalai Lama, scientist Francisco Varela, and entrepreneur Adam Engle in the late 1980s), has fostered a vibrant dialogue and spurred a growing body of collaborative research over the past few decades (Tideman, 2017). This collaboration primarily focuses on the scientific investigation of consciousness, attention, emotion regulation, empathy, compassion, and the effects of contemplative practices, particularly various forms of meditation derived from Buddhist traditions (Tirch, 2010; Dorjee, 2016; Wang, 2005).

Buddhist traditions, developed over millennia, offer a rich repository

of sophisticated first-person experiential knowledge about the mind and a wide array of techniques for training mental capacities like attention (*samādhi*) and insight (*vipassanā*) (Gethin, 2015). Scientists have engaged with experienced Buddhist practitioners, often long-term monks and nuns, utilizing advanced neuroimaging technologies (like fMRI and EEG) and behavioral measures to study the neural correlates of specific meditative states (e.g., focused attention, open monitoring, compassion meditation) and the potential long-term effects of sustained practice on brain structure and function (Mehrmann, and Karmacharya, 2013; Manno, 2019; Kushner, 2017; Seeman, et al., 2003).

The emerging discipline of contemplative neuroscience has produced compelling findings. Research indicates that meditation practice can lead to neuroplastic changes in the brain, including modifications in cortical thickness and grey matter volume in regions associated with attention control (e.g., prefrontal cortex), interoception and emotional awareness (e.g., insula), and emotion regulation (e.g., anterior cingulate cortex, amygdala reactivity) (Hölzel, et al., 2011; Calderone et al., 2024). Studies have also demonstrated improvements in attentional performance, enhanced emotional regulation capacities, reduced stress responses, and even potential effects on immune function linked to meditation practice (Calderone et al., 2024). These findings have provided empirical support for, and contributed to the development and widespread adoption of, secularized mindfulness-based interventions (MBIs) such as Mindfulness-Based Stress Reduction (MBSR), pioneered by Jon Kabat-Zinn, and Mindfulness-Based Cognitive Therapy (MBCT), developed for depression relapse

prevention (Kraemer, et al., 2022; Wells, et al., 2020;). These interventions aim to make the potential benefits of mindfulness accessible in clinical, educational, and other mainstream settings, often explicitly dissociating the techniques from their original Buddhist religious and ethical framework.

The Buddhism-science dialogue in this area also involves significant attempts to bridge the fundamental methodological gap between Buddhism's reliance on first-person, introspective methods and science's emphasis on third-person, objective measurements (Hasenkamp, 2019). Francisco Varela's ambitious project of "neurophenomenology," for example, proposed a methodological framework for rigorously integrating disciplined first-person phenomenological investigation of subjective experience (using trained subjects, often meditators) with simultaneous neuroscientific measurements (Varela, 1999). The goal was to create "mutual constraints" between the two domains, allowing subjective reports to guide neuroscientific analysis and vice versa, thereby potentially enriching the understanding of consciousness beyond what either approach could achieve alone. This highlights the potential for Buddhist contemplative expertise not only to provide subjects for scientific study but also to refine scientific methodologies for investigating subjective states and challenge conventional assumptions about the limits of mental training and self-awareness.

Despite the evident enthusiasm and fruitful outcomes of this engagement, several significant caveats and critical concerns remain, demanding careful consideration:

A critically informed perspective necessitates the acknowledgment

of the complexities, potential power imbalances, and ethical considerations inherent in the ostensibly harmonious collaboration between Buddhism and the mind sciences. While this dialogue has undoubtedly stimulated valuable research and yielded potential benefits, such as mindfulness-based interventions (MBIs), it is imperative to remain vigilant regarding the risks of reductionism, distortion, and the potential loss of depth and meaning when ancient contemplative traditions are translated into the language and framework of modern science.

IV. Navigating Divergence: Tensions, Conflicts, and Potential Incommensurability

While the preceding section examined areas of dialogue and potential resonance, albeit with critical caveats, a comprehensive and methodologically rigorous analysis must also directly address and systematically investigate the significant areas of divergence, tension, and potential conflict between Buddhist thought and scientific perspectives. Neglecting or minimizing these points of friction, often characteristic of overly enthusiastic harmonization efforts or the Buddhist Modernist narrative, results in an incomplete, unbalanced, and ultimately less intellectually robust portrayal of the relationship. These divergences frequently pertain to fundamental metaphysical assumptions about the nature of reality, core doctrinal tenets unique

to Buddhism, differing methodological approaches to knowledge, and contrasting ultimate aims and guiding values. Engaging with these differences is crucial not merely for identifying disagreements, but for understanding the distinct integrity of each tradition and the genuine challenges involved in their interaction.

1. Metaphysical Divides: Consciousness, Materialism, and the Nature of Reality

A primary and perhaps the most fundamental locus of tension lies in the contrasting metaphysical views held, often implicitly, within Buddhist traditions and dominant streams of contemporary science regarding the nature of consciousness and its relationship to the physical world, particularly matter and the brain (Ashbrook, 1996; Antonaccio, 2001; Wallace, 2014).

Within contemporary science, particularly in fields like neuroscience and much of analytical philosophy of mind, a prevalent, though certainly not universally accepted, worldview is scientific materialism or physicalism. This broad view generally posits that physical matter and energy, as described by physics, constitute the fundamental reality of the universe. From this perspective, consciousness and mental phenomena are typically understood as arising from, being dependent upon, reducible to, or perhaps even identical with, complex physical processes occurring within the brain. Consciousness might be seen as an emergent property of sufficiently complex neural organization, a specific function of the brain, or, in more eliminative views, perhaps

even an illusion generated by physical processes. In nearly all physicalist accounts, mental events are considered to be entirely dependent on underlying neural events, ceasing to exist when the brain ceases to function.

Buddhist traditions, despite their internal diversity, generally present a significantly different picture of the mind-matter relationship. While classical Buddhist thought, particularly in the early Pāli canon, acknowledges a causal dependence of mental experience on the physical body and sense organs (*nāma-rūpa*)—a view sometimes characterized by modern scholars as a form of "Buddhist materialism"—this dependence is typically understood phenomenologically rather than ontologically in the manner of scientific materialism. It describes the arising of specific mental experiences (like visual consciousness) in dependence on the conjunction of a sense faculty (eye), an object (visible form), and sensory consciousness, but it does not reduce mind to matter or assert that matter is the ultimate, fundamental substance. Indeed, the concept of "form" or "matter" (*rūpa*) itself, often analyzed into the four great elements (earth, water, fire, wind), is frequently interpreted not as referring to fundamental physical substances but as representing qualities of experience (solidity, cohesion, temperature, motion) accessible through the senses.

More fundamentally, many influential Buddhist philosophical schools, such as Yogācāra (Mind-Only) and even certain interpretations of Madhyamaka, consider consciousness (*viññāna*) or mind (*citta*) to be primary, foundational, or at least irreducible to physical processes (Cossellu, 2014). Consciousness is seen not merely as an emergent

property of matter but as a fundamental aspect of reality, potentially existing as a continuum that is not absolutely dependent on a physical substrate. This perspective finds resonance with the persistent philosophical challenge known as the "hard problem of consciousness," famously articulated by David Chalmers (Steinmo, 2017; Thakchoe, and Wiltshire, 2019; Chalmers, 1996). The hard problem asks why and how physical processes in the brain give rise to subjective, qualitative experience—the "what it's like" aspect of consciousness (qualia). Why should neural firings feel like anything at all? This remains a profound challenge for standard physicalist explanations, a point often highlighted by Buddhist thinkers and philosophers engaging in the dialogue.

This fundamental metaphysical divergence regarding the nature of consciousness and its relation to matter leads directly to potential conflict on several core issues central to traditional Buddhist thought. If scientific materialism is correct in its assertion that consciousness is entirely generated by and ceases with the physical brain, then foundational Buddhist claims regarding:

From this perspective, Buddhism fundamentally challenges the materialist assumption that reality is confined to what can be objectively measured and described by the physical sciences. It posits that refined mental perception, cultivated through practices such as meditation, can potentially access valid forms of knowledge and dimensions of reality that extend beyond the purely physical realm. Divergent conceptions of the nature of reality itself also significantly contribute to this divide. Science, particularly in its classical

formulation, often operates under the assumption of an objective, observer-independent reality that exists externally and is governed by universal laws, although interpretations of quantum mechanics complicate this picture considerably. In contrast, many Buddhist philosophical schools, especially within Mahāyāna, emphasize the interdependent nature of subject and object, the crucial role of consciousness in constructing our perceived reality (as in Yogācāra), or make a fundamental distinction between conventional reality (*saṃvṛti-satya*—the world as it appears to ordinary perception and conceptual thought) and ultimate reality (*paramārtha-satya*—reality as it truly is, often characterized as emptiness or the absence of inherent existence in Madhyamaka). These differing ontological and epistemological starting points—concerning what is fundamentally real and how we can know it—create significant challenges for any straightforward integration or harmonization between the Buddhist worldview and standard scientific materialism.

2. The Doctrine of Rebirth: Scientific Challenges and Philosophical Responses

The doctrine of rebirth (*punarbhava* in Pali, *punarjanman* in Sanskrit), understood as the cyclical process whereby sentient beings, driven by the force of their past karma, undergo death and are subsequently re-born into new existences within various realms of *samsāra*, is a cornerstone of traditional Buddhist cosmology and soteriology across most schools. This beginningless cycle of birth,

death, and re-becoming is characterized as inherently unsatisfactory (*dukkha*). Consequently, the ultimate goal of the Buddhist path, *nirvāna*, is conceived precisely as the cessation of this cycle, liberation from *samsāra*. The Buddha himself is depicted in the earliest Buddhist texts (Pāli Canon) as having attained direct knowledge (*vidyā*) of his own and others' past lives on the night of his enlightenment. Belief in rebirth provides the essential framework within which the concepts of karma, the urgency of practice, and the very meaning of liberation are traditionally understood.

From the perspective of modern science, particularly when operating within the dominant framework of physicalism or scientific materialism, the traditional doctrine of rebirth faces profound challenges. Currently, there is no widely accepted scientific evidence or established biological mechanism that supports the continuity of consciousness, personal identity, or any form of "mental stream" (*santāna*) after the complete cessation of biological functions, specifically brain death. The prevailing understanding in neuroscience inextricably links consciousness, memory, personality, and all cognitive functions to the physical structures and electrochemical processes of the brain. This strongly implies that consciousness ceases entirely upon irreversible brain death. The idea of a non-physical consciousness or mental continuum transmigrating from one body to another appears incompatible with fundamental principles of modern biology and physics as currently understood. Consequently, many individuals influenced by a scientific worldview, including scientifically-minded Buddhists and even some Buddhist scholars and scientists participating

in the dialogue, find the traditional, literal notion of rebirth difficult or impossible to accept.

While traditional Buddhist philosophy did offer arguments attempting to establish the necessity of rebirth—most notably the sophisticated arguments developed by the logician Dharmakīrti (c. 7th century CE). Dharmakīrti argued, based on the principle of homogeneous causality, that consciousness, being fundamentally different in nature from matter (non-physical), cannot arise from a purely material cause (like the physical elements of the body at conception) (Coseru, 2020). Therefore, any moment of consciousness must have a preceding moment of consciousness as its substantial cause, implying a beginningless continuity of the mental stream that transcends individual physical lifetimes. However, contemporary philosophers, including Buddhist scholars engaging critically with science, often find Dharmakīrti's arguments, particularly his premise regarding the impossibility of consciousness arising from matter, unpersuasive in refuting modern forms of reductive or emergent physicalism, which propose mechanisms (however incomplete) by which consciousness *could* arise from complex physical systems (Lo, 2018; Masi, 2022). In response to this significant tension between traditional doctrine and the modern scientific outlook, various approaches and interpretations regarding rebirth have emerged within contemporary Buddhism:

The ongoing debate and diverse range of views surrounding rebirth highlight it as a major point of friction in the Buddhism-science dialogue. Furthermore, the doctrine of rebirth intersects complexly with

the core Buddhist teaching of *anattā* (no-self). Reconciling the idea of a continuity of karmic consequences and consciousness across lifetimes with the fundamental denial of a permanent, unchanging self or soul (*ātman*) that transmigrates has been a significant philosophical challenge *within* Buddhism itself since its inception. Different schools have proposed various solutions (e.g., the *pudgalavāda* notion of a "person," the Yogācāra concept of the *ālaya-vijñāna* or storehouse consciousness, the Theravāda emphasis on causal continuity without a transmigrating entity), adding another layer of complexity when attempting to relate the concept to scientific understandings of identity and consciousness.

3. Karma: Beyond Psychological Conditioning and Performative Function?

The concept of karma (Sanskrit: karman; Pali: kamma), which is closely associated with the doctrine of rebirth, presents similar challenges in its dialogue with science. Literally translated as "action" or "deed," karma, in its traditional Buddhist formulation, specifically refers to volitional actions—those driven by intention (*cetanā*)—whether executed through body, speech, or mind. These intentional actions are imbued with moral significance and function analogously to seeds that inevitably yield corresponding results or "fruits" (*vipāka* or *phala*) (Khan, and Aigerim, 2020; Amstutz, 2024; Evans, 2012). These outcomes influence an individual's experiences, character, and circumstances within their current lifetime and, importantly, play a

decisive role in determining the quality and conditions of their future rebirths within the cycle of saṃsāra. According to this doctrine, wholesome or skillful actions (kusala kamma), typically motivated by non-greed, non-hatred, and non-delusion (wisdom), result in pleasant outcomes, happiness, and favorable rebirths (e.g., as a human or a deity) (Thera, 2008). Conversely, unwholesome or unskillful actions (akusala kamma), motivated by greed, hatred, and delusion, lead to suffering, unpleasant outcomes, and unfavorable rebirths (e.g., in animal, hungry ghost, or hell realms). This principle posits an inherent moral order within the universe, a natural law of ethical cause and effect that ensures actions have appropriate consequences, even if those consequences are delayed across lifetimes (Wallis, 2018; Thera, 2008; Lubina, 2019). The effects of karma may manifest as external circumstances or, perhaps more significantly, as internal predispositions or mental imprints (saṃskāra) that shape one's character and future volitions.

Like the doctrine of rebirth it underpins, the traditional understanding of karma operating across lifetimes faces significant challenges from a modern scientific standpoint. There is currently no known physical or biological mechanism recognized by science that could explain how individual volitional actions, particularly the mental intention behind them, could imprint upon the universe or some subtle medium and unerringly bring about specific, morally appropriate consequences for the individual agent, potentially many lifetimes later. The concept seems to operate outside the established laws of physics, biology, and genetics as currently understood. Empirical attempts to measure or verify specific karmic effects in controlled settings have proven

exceptionally difficult, if not impossible, and have generally yielded negative or inconclusive results. From a standard scientific perspective, the idea of a cosmic moral accounting system ensuring retributive justice across lifetimes appears highly speculative and lacking empirical support. In response to this tension, various modern interpretations and re-evaluations of the karma doctrine have emerged, attempting to bridge the gap with a scientific worldview or offer alternative understandings of its significance:

However, these naturalized, psychologized, or performative interpretations of karma face critiques from both traditional Buddhists and scholars who argue that they significantly dilute or even fundamentally alter the traditional doctrine. Critics contend that reducing karma solely to intra-psychic processes, social dynamics, or interpretive frameworks within a single lifetime strips it of its full scope, particularly its crucial connection to rebirth, its explanation for inequalities and suffering that seem inexplicable within one life, and its powerful role as a principle of cosmic moral justice. While psychological conditioning is certainly part of the Buddhist understanding, the traditional doctrine encompasses a much broader, trans-lifetime causal framework that these modern interpretations often omit or downplay. This omission, critics argue, may weaken the ethical force of the teaching and fundamentally change its meaning within the overall Buddhist path to liberation from *samsāra*. The tension between preserving traditional meanings and achieving compatibility with a modern scientific outlook remains particularly acute regarding the doctrine of karma.

4. Anattā (No-Self): Philosophical Nuance versus Scientific Constructs of Self

The doctrine of *anattā* (Pali) or *anātman* (Sanskrit), typically translated as "no-self," "not-self," or sometimes "non-self," stands as one of the most distinctive, profound, and often challenging teachings in Buddhism (Collins, 1982; Tempone-Wiltshire and Dowie, 2024; Hoang, 2019). It is considered one of the three "marks of existence" (*ti-lakkhana*), alongside impermanence (*anicca*) and suffering (*dukkha*), characterizing all conditioned phenomena. The core assertion of the *anattā* doctrine is that there exists no permanent, independent, unchanging essence, soul (*ātman* in the Hindu sense), or substantial self underlying our experiences or constituting our core identity (Malalasekera, 1966; Hoang, 2019). Instead, what we conventionally label as the "self" or "I" is understood in Buddhist analysis, particularly in Abhidharma traditions, as a dynamic, dependently arisen, and constantly changing process or aggregation of five interconnected groups of phenomena, known as the five aggregates or *skandhas* (Pali: *khandha*): (1) form or materiality (*rūpa* - the body and physical senses), (2) feeling or sensation (*vedanā* - pleasant, unpleasant, neutral), (3) perception or recognition (*saññā* / *saṃjñā*), (4) mental formations or volitional activities (*saṅkhāra* / *saṃskāra* - thoughts, intentions, habits, etc.), and (5) consciousness (*viññāṇa* / *vijñāna*). Buddhism argues that upon careful examination, none of these aggregates, either individually or collectively, can be identified as a permanent, autonomous self (MacKenzie, 2010; Engler, 2003; Giles, 1993).

The belief in, and attachment to, a fixed, substantial self (often termed *sakkāya-ditṭhi* or personality-belief) is identified in Buddhist thought as a primary cognitive and affective error, a fundamental form of ignorance (*avidyā*) that leads to craving (*taṇhā*), clinging (*upādāna*), ego-centricity, conflict, and ultimately, suffering (*dukkha*). Therefore, realizing the truth of *anattā* through wisdom (*prajñā*), often cultivated via meditation and ethical conduct, is considered essential for dismantling this illusion, eradicating attachment, and achieving liberation (*nirvāṇa*).

It is crucial to note, however, that the *anattā* doctrine, particularly in mainstream interpretations, generally denies an *ultimate, inherent, or permanent* self (*ātman*), but it does not typically deny the *conventional* reality or functional existence of a "person" (*puḍgala* in Sanskrit, *puggala* in Pali) as a convenient designation for the causally interconnected stream of psycho-physical processes. This conventional person is considered the locus of experience, moral responsibility, and karmic continuity (even across lifetimes, albeit without a transmigrating soul) within the framework of conventional truth (*saṃvṛti-satya*). The denial pertains to the ultimate reality (*paramārtha-satya*) of a self independent of these processes.

In recent decades, particularly with the rise of contemplative neuroscience and the broader Buddhism-science dialogue, proponents of compatibility have frequently claimed that modern neuroscience and cognitive science provide empirical support for, or converge with, the Buddhist doctrine of *anattā*. They point to various findings, such as:

These scientific perspectives, which challenge the notion of a simple,

unified, and substantial self, are often presented as validating the ancient Buddhist insight of *anattā*.

However, critics of this claimed convergence, including scholars of Buddhism and philosophers of mind, argue that this apparent harmony often rests on a significant conflation of distinct concepts and overlooks crucial differences in context, purpose, and meaning. The Buddhist doctrine of *anattā* is fundamentally a *soteriological* and *ethical* teaching, embedded within a specific philosophical framework aimed at diagnosing the root cause of suffering and providing a path to liberation. Its primary purpose is to undermine the psychological grasping, attachment, and suffering that arise from identifying with a false notion of a permanent, independent self. The realization of *anattā* is intended to lead to detachment, compassion, and freedom.

Cognitive science and neuroscience, on the other hand, typically offer a *descriptive* or *functional* account of the self (or self-related processes) as a neuro-cognitive construct. While these scientific accounts may indeed deny a simplistic "homunculus" or a non-physical soul-like entity controlling the brain, they often view the constructed self (or various aspects of selfhood, such as bodily self, narrative self, social self) as functionally necessary and adaptive. This constructed self plays crucial roles in perception, memory integration, agency, decision-making, social interaction, and maintaining a coherent experience of the world over time. The "illusory self" described by some scientists and philosophers may not be identical in meaning or implication to the "illusory self" targeted by Buddhist practice as the root of suffering. Science describes *how* the sense of self is constructed; Buddhism

critiques the *attachment* to this construct and its ultimate reality status.

Furthermore, simplistic comparisons often ignore the significant diversity of views on the nature of self, no-self, and consciousness *within* the vast landscape of Buddhist traditions themselves. Theravāda Abhidhamma, Madhyamaka, Yogācāra, and Tathāgatagarbha schools, for example, offer different analyses of the aggregates, consciousness, and the ultimate nature of reality, leading to varied interpretations of *anattā*. There is no single, monolithic Buddhist position on "no-self" that modern science could straightforwardly confirm or deny.

Moreover, misinterpreting or superficially applying the *anattā* doctrine, particularly in therapeutic contexts such as secular mindfulness-based interventions, can be potentially problematic or even harmful. If "no-self" is misunderstood as meaning that the conventional sense of self is simply unreal and should be dismissed or ignored, it can lead to a phenomenon sometimes termed "spiritual bypassing" or "mindful bypassing". This involves using spiritual concepts or practices, like the idea of no-self or detached observation, to avoid confronting difficult psychological issues, unresolved emotional pain, developmental deficits, or the impact of trauma, which manifest at the level of the conventional person (*pudgala*). Trauma, for instance, profoundly disrupts various structures of selfhood (e.g., sense of bodily integrity, temporal continuity, agency, safety in relationships); simply overlaying a conceptual understanding of "no-self" without addressing these deeply embodied disruptions can be ineffective, lead to dissociation, or even risk re-traumatization. A nuanced and therapeutically responsible approach requires acknowledging the conventional reality and functional

importance of the person and their lived experience, even while simultaneously investigating, from a Buddhist perspective, the ultimate lack of an inherent, permanent, independent self.

5. Fundamental Differences in Aims and Values

The fundamental differences between Buddhism and science are not merely confined to doctrinal or metaphysical disputes but arise from deeper divergences in their overarching aims and guiding values. At its core, Buddhism is soteriological—that is, its central concern is the alleviation of suffering (*dukkha*) and the attainment of liberation (*nirvana*). All of its doctrines, practices, and philosophical explorations serve this ultimate goal. The Buddhist framework begins with an acknowledgment of *dukkha*, the inherent unsatisfactoriness, impermanence, and unease that permeate all conditioned existence. This recognition, enshrined in the First Noble Truth, identifies craving (*taṇhā*) and attachment as root causes of suffering. The Third Noble Truth then affirms that liberation is possible, culminating in the realization of *nirvana*—understood as the extinguishing of the "three fires" of greed, aversion, and ignorance. This liberation is pursued through the Noble Eightfold Path, which integrates ethical conduct (*Śīla*), mental discipline (*Samādhi*), and wisdom (*Prajñā*) into a cohesive practice aimed at transformative insight.

Within this path, core philosophical principles such as Dependent Origination (*Pratīyasamutpāda*) and Emptiness (*Śūnyatā*) are not merely abstract ideas but insights to be experientially realized,

catalyzing inner transformation. These teachings reveal the contingent and interdependent nature of phenomena and the absence of inherent selfhood, which in turn dissolve attachment and reduce suffering. The cultivation of compassion (*karuṇā*) and non-harming (*ahiṃsā*) is not ancillary but integral, arising naturally from a deepened understanding of interbeing and the impermanence of all life. Buddhism thus orients itself toward the transformation of consciousness and ethical being, aiming to free individuals from the cycle of suffering (*saṃsāra*) through direct experiential insight.

In contrast, the scientific enterprise is fundamentally epistemological and instrumental in nature. Its central objectives are to describe, explain, predict, and control phenomena within the observable universe. Rooted in the empirical tradition, science values observation, experimentation, and replicability as means of generating reliable knowledge. Objectivity—often framed as the minimization of bias and subjectivity—is a hallmark of the scientific method. Moreover, science has historically been influenced by the Baconian ideal that "knowledge is power," often linking scientific advancement to technological innovation and mastery over nature. While debate continues over whether science is inherently value-neutral or value-laden, it undeniably impacts and is impacted by societal values, economic interests, and ethical deliberations.

These differing orientations lead to points of friction when attempts are made to reconcile Buddhism and science without acknowledging their foundational dissimilarities. For instance, the scientific goal of exerting control over natural processes can conflict with Buddhism's ethical commitment to non-harming and harmony with all forms of

life. Practices such as animal experimentation, environmental manipulation, or genetic engineering may raise significant ethical concerns from a Buddhist perspective. Additionally, the reductionist tendencies of science—seeking to explain complex phenomena by breaking them down into simpler components—often run counter to the Buddhist emphasis on holistic understanding and the primacy or irreducibility of consciousness. Where science may seek to accumulate knowledge to wield influence over the material world, Buddhism encourages detachment from the very desires that fuel such pursuits, viewing craving for control as a source of suffering.

At the most fundamental level, the questions each tradition seeks to address diverge significantly. Buddhism inquires: How can one transcend suffering? What leads to the cessation of dukkha? In contrast, science poses questions such as: How does the mind or the universe operate mechanistically? What empirical laws govern observable phenomena? These distinct orientations highlight that Buddhism is not merely another worldview to be evaluated or validated by scientific standards; rather, it is a transformative path focused on existential liberation. Conversely, science is not intended to provide soteriological solutions but to enhance knowledge and utility. While interdisciplinary dialogue between Buddhism and science can be enlightening, any attempt to harmonize them must proceed with a clear recognition of their fundamental differences. Buddhism's ultimate aim is spiritual and liberatory, concerned with inner transformation and the cessation of suffering. In contrast, science is primarily concerned with empirical understanding and control of the external world. A simplistic merging

of the two risks distorting the distinctive contributions each can make to human understanding and flourishing.

V. Synthesis: Towards a Complex Understanding

The relationship between Buddhism and science is far more intricate than simplistic narratives of harmony or conflict would suggest. A genuinely nuanced understanding requires recognizing not only areas of productive dialogue but also significant divergences, methodological limitations, and the influence of historical and cultural conditioning. Rather than forcing one tradition into the mold of the other, a deeper engagement necessitates appreciating both their distinct and overlapping features.

1. Probing the Depths: Incommensurability and Untranslatable Concepts

At the core of the relationship lie fundamental differences that may render aspects of Buddhism and science not merely different but incommensurable—lacking a shared framework that allows for direct comparison or translation. The philosophical concept of incommensurability, introduced by thinkers like Thomas Kuhn and Paul Feyerabend, illustrates how differing paradigms possess their own

internal standards, terminologies, and assumptions, making mutual evaluation inherently limited (Ryan, 2002).

Certain Buddhist concepts exemplify this challenge. For instance, *nirvana*, understood as the cessation of existential suffering and liberation from the cycle of rebirth, is a deeply subjective and transformative state that cannot be adequately captured through scientific metrics like stress reduction or psychological well-being (Amathabhani, and Dissanayake, 2024). Likewise, the doctrine of *karma* spanning multiple lifetimes presents a moral and metaphysical system that resists empirical validation and operates outside the causal models used in science (Barbour, 2019). Additionally, insights gained through meditative practice (*pratyakṣa*), though experientially profound, pose methodological challenges for integration into third-person scientific studies without losing their essential qualitative nature.

Attempting to translate these concepts into scientific language risks distorting their ethical and soteriological significance. This is not a failure of either tradition but a recognition of the different categories of inquiry they represent. Respecting such incommensurability avoids reductionism and preserves the integrity of both domains, fostering a dialogue that values difference rather than seeking forced assimilation.

2. Mapping the Terrain: Applying Barbour's Typology

Ian Barbour's typology offers a useful lens to understand the multifaceted relationship between Buddhism and science. The *conflict*

model becomes evident in areas where scientific materialism directly contradicts Buddhist tenets, such as the existence of consciousness beyond the brain, the concept of rebirth, or traditional cosmological views. In the *independence* model, the differing aims (liberation versus description and control), methodologies (first-person introspection versus third-person observation), and domains of interest (subjectivity and ethics versus objectivity and natural law) position the two as fundamentally separate yet non-competing spheres.

The *dialogue* model finds expression in collaborative efforts, particularly in the mind sciences, where Buddhist contemplative practices offer valuable data for psychological and neurological inquiry. Additionally, mutual exploration of concepts like interdependence and parallels drawn between Buddhist thought and quantum mechanics exemplify this dialogical engagement. However, the *integration* model remains the most elusive and controversial. Core metaphysical doctrines of Buddhism, such as karma and rebirth, resist integration into scientific frameworks without significant reinterpretation. Efforts like Buddhist Modernism represent attempts at reconciliation but may risk distorting traditional understandings. Ultimately, elements of all four models coexist, defying any single, static categorization.

3. Pathways for Mutual Enrichment: Exploring Potential Learning and Critique

Despite these challenges, the engagement between Buddhism and science offers rich opportunities for mutual enrichment. From science's

perspective, Buddhism's rigorous introspective methodologies provide tools for understanding consciousness and subjectivity that complement third-person empirical approaches. Furthermore, Buddhist philosophical critiques of naive realism and materialism challenge science to reflect more deeply on its ontological assumptions and the limits of reductionism.

Conversely, Buddhism can benefit from scientific critique and discovery. Modern scientific advances allow for a critical re-examination of traditional doctrines, helping to distinguish core principles from historically contingent cultural elements. Scientific insights into evolution, cosmology, and cognitive neuroscience can deepen Buddhism's understanding of the human condition and the natural world. However, such exchange must be grounded in humility and mutual respect, avoiding triumphalism and acknowledging the value of disciplinary boundaries.

4. Reassessing Practical Implications: Education, Healthcare, and Sustainability

A more sophisticated view of the Buddhism-science relationship invites reevaluation of its implications in practical domains. In *education*, this means fostering critical thinking about diverse epistemologies, incorporating historical awareness of Buddhist Modernism, and using dialogue-based methods to promote epistemological pluralism rather than enforcing conceptual uniformity.

In the domain of *healthcare*, while mindfulness-based interventions

(MBIs) derived from Buddhism have shown clinical benefits, ethical concerns must be addressed. These include critiques of "McMindfulness," which involves the decontextualization of mindfulness from its ethical roots, and the risk of spiritual bypassing, especially in trauma contexts. Acknowledging the foundations of Buddhist bioethics can guide more integrative and responsible applications.

In the domain of sustainability, Buddhist principles such as interdependence and compassion present compelling ethical imperatives for addressing ecological crises. When integrated with scientific data and environmental models, these principles can inform more comprehensive and sustainable strategies for action. However, such integration must also navigate political realities and cultural constraints, ensuring that ethical ideals are translated into practical and context-sensitive policies. The interface between Buddhism and science is not characterized by simple compatibility or irreconcilable opposition (Table 1.). Rather, it represents a dynamic interplay marked by shared curiosity, profound differences, and rich opportunities for reciprocal learning. Recognizing and respecting their respective domains facilitates a more authentic and fruitful dialogue—one that neither dilutes the transformative aims of Buddhism nor undermines the empirical rigor of science.

VI. Conclusion

The engagement between Buddhist thought and modern science presents a profoundly intricate and evolving intellectual relationship

(Table 1) Key areas of comparison, highlighting convergences and divergences

Area of comparison	Convergence	Divergence
Epistemology	Emphasis on investigation, evidence, causality	1st vs 3rd person methods; validity of introspection; differing goals (liberation vs. description)
Interdependence	Dependent origination & systems theory, ecology, quantum physics	Different metaphysical assumptions; soteriological vs. descriptive aims; superficial analogy risk
Consciousness	Shared interest; collaboration potential (neuroscience)	Materialism vs. non-reductionism/primacy of mind; 1st/3rd person gap; 'Hard Problem'
Rebirth	(Minimal convergence)	Incompatibility with physicalism; lack of evidence; philosophical critiques
Karma	(Limited: psychological conditioning?)	Lack of evidence (trans-life-time); scientific vs. moral causality; performative function
Self (Anattā)	Apparent resonance with 'constructed self' in neuroscience	Conflation (soteriological vs. descriptive); functional role of self; therapeutic risks
Aims/values	Shared interest in well-being (surface)	Liberation/ethics vs. description/control; science & power vs. non-harming/detachment

that resists reduction to simplistic models of either inherent conflict or seamless harmony. Rather, this intersection is characterized by a dynamic interplay of areas of conceptual resonance—such as in contemplative neuroscience and systems theory—alongside substantial methodological divergences, metaphysical tensions, and the enduring influence of historical and cultural conditioning. This analysis, framed

within the discipline of comparative philosophy, has endeavored to move beyond superficial comparisons by carefully defining the terms of engagement and situating the dialogue within its historical context—particularly acknowledging the role of Buddhist Modernism in reshaping traditional doctrines to align with the rationalist and empirical expectations of modern science. While this adaptation has facilitated dialogue, it has often come at the cost of diluting or reinterpreting Buddhism’s deeply soteriological aims, such as liberation from samsara, the realization of nirvana, and the ethical implications of karma and rebirth, which remain fundamentally at odds with the epistemological and ontological commitments of contemporary scientific paradigms. Nevertheless, these divergences should not be seen as impassable; rather, they open space for mutual critique, conceptual clarification, and philosophical reflection. Science, in encountering Buddhism, is challenged to reconsider the limits of reductionism, objectivity, and its treatment of consciousness, while Buddhism is prompted to reflect on the historical contingencies of its doctrines, the value of empirical inquiry, and the ways scientific knowledge can illuminate aspects of human and cosmic life without displacing spiritual insight. The future of this dialogue, therefore, does not lie in attempts to prove one tradition superior or to integrate them uncritically into a unified framework, but in fostering a respectful, critically aware, and interdisciplinary exchange that preserves the epistemic integrity of both. This requires methodological humility, a willingness to grapple with complexity, and an acceptance that neither tradition holds exhaustive answers to the human condition. When

approached with such sensitivity, the Buddhism - science encounter holds the potential not only to advance mutual understanding but also to deepen our collective inquiry into the nature of mind, reality, ethics, and human flourishing. In navigating this challenging yet promising terrain, both traditions can contribute to a richer, pluralistic vision of knowledge—one that honors difference while seeking shared insight into the profound questions of existence.

References

- Ahmed, A. 2024. "Tradition and Innovation a Study of DT Suzuki's Innovations in Zen Buddhism." *Al-Milal: Journal of Religion and Thought* 6(2): pp.54–89.
- Almendro, M. & López, E. 2016. "Beyond Frontiers: Meditative Practice, Clinical Practice and Scientific Research." *J Psychol Psychother* 6(5): 2161–2487.
- Amathabhani, B. & Dissanayake, N. 2024. "Existential Buddhism: Embracing Life's Uncertainties and Finding Meaning Within." *South Florida Journal of Development* 5(10): e4540.
- Amstutz, G. 2024. "Karma, Punishment, and Doing Shin Buddhist Studies." *Journal of Religion in Japan* 13(2–3): 165–185.
- Antonaccio, M. 2001. "The Virtues of Metaphysics: A Review of Iris Murdoch's Philosophical Writings." *Journal of Religious Ethics* 29(2): 309–335.
- Ashbrook, J. B. 1996. "Interfacing Religion and the Neurosciences: A Review of Twenty-Five Years of Exploration and Reflection." *Zygon®* 31(4): 545–572.

- Baines, C. 2023. "In Search of Middle Paths: Buddhism, Fiction, and the Secular in Twentieth-Century South Asia." Ph. D Dissertation, University of Massachusetts Amherst.
- Barannikova, T. & R. Magamdarov. 2019. "Tertium Comparationis of Comparative Combinations: Cognitive Analysis." In *European Proceedings of Social and Behavioural Sciences*.
- Barborich, A. L. 2019. "A Three-Dimensional View of Karma in Early Buddhism." *Sri Lanka International Journal of Buddhist Studies* 5: 42-70.
- Barbour, I. 2002. "On Typologies for Relating Science and Religion." *Zygon: Journal of Religion and Science* 37(2): 345-360.
- Bergunder, M. 2016. "'Religion' and 'Science' within a Global Religious History." *Aries* 16(1): 86-141.
- Borup, J. 2023. *Decolonising the Study of Religion: Who Owns Buddhism?* London and New York: Routledge Taylor & Francis.
- Bretfeld, S. 2012. "Resonant Paradigms in the Study of Religions and the Emergence of Theravāda Buddhism." *Religion* 42(2): 273-297.
- Budapesti, I. 2019. "Past, Present, and Future of Digital Buddhology." In D. Veidlinger, ed., *Digital Humanities and Buddhism*: 25-40. Berlin/Boston: De Gruyter.
- Cabezón, J. I. 2003. "Buddhism and Science: On the Nature of the Dialogue." In *Buddhism and Science: Breaking New Ground*: 35-70. Columbia University Press, USA.
- Calderone, A., D. Latella, F. Impellizzeri, P. de Pasquale, F. Famà, A. Quartarone & R. S. Calabrò. 2024. "Neurobiological Changes Induced by Mindfulness and Meditation: A Systematic Review." *Biomedicine* 12(11): 2613.
- Chadha, M. 2015. "A Buddhist Epistemological Framework for Mindfulness Meditation." *Asian Philosophy* 25(1): 65-80.
- Chin, A. J. 2023. "The Aims of Typologies and a Typology of Methods." *Zygon: Journal of Religion and Science* 58(3): 656-677.

- Chodosh, H. E. 1998. "Comparing Comparisons: In Search of Methodology." *Iowa Law Review* 84: 1025.
- Choi, J. J. & B. H. Choo. 2019. "The Buddha's Empirically Testable 'Ten Criteria' Challenges the Authenticity of Truth Claims: A Critical Review and Its Potential Applicability to Debunking the Various Post-Truths." *Religions* 10(12): 645.
- Ciraci, S. 2019. "Art as a Generator of New Mental Patterns: From an Epistemological Perspective of Modern Physics, Neuroscience and the Buddhist System of Thought." Thesis. Ph. D. Dissertation, University of Plymouth.
- Connor, U. & Moreno A. I. 2005. "Tertium Comparationis: A Vital Component in Contrastive Research Methodology." In *Directions in Applied Linguistics: Essays in Honor of Robert B. Kaplan*, 153-164. Clevedon England: Multilingual Matters.
- Cooper, M. L. 2022. "Signal in the Noise: 'Ungrieved Futility' in a Comparative Analytic Study of the Depression Literature." Ph. D. Dissertation., California Institute of Integral Studies.
- Cort, J. E. 2012. "Situating Darśan: Seeing the Digambar Jina Icon in Eighteenth- and Nineteenth-Century North India." *International Journal of Hindu Studies* 16(1): 1-56.
- Coseru, C. 2020. Consciousness and Causality: Dharmakīrti against Physicalism. In, Reverberations of Dharmakīrti's Philosophy: *Proceedings of the Fifth International Dharmakīrti*, Vienna: 21-39.
- Damper, R. I. 2024. "Science and Religion in Conflict, Part 2: Barbour's Four Models Revisited." *Foundations of Science* 29(3): 703-740.
- De Cruz, H. 2017. Religion and Science. In, *The Stanford Encyclopedia of Philosophy*.
- Dorjee, D. 2016. "Defining Contemplative Science: The Metacognitive Self-Regulatory Capacity of the Mind, Context of Meditation Practice and Modes of Existential Awareness." *Frontiers in Psychology* 7: 1788.

- Early, F. G. B. T. 2018. "Western Foundations of Mind-Body, Mindfulness, and Meditation." In *Fundamentals of Complementary, Alternative, and Integrative Medicine*, 112. Philadelphia, Pennsylvania: Saunders,
- Engebretson, K., M. De Souza, G. Durka & L. Gearon, eds. 2010. *International Handbook of Inter-Religious Education*. 4. Dordrecht: Springer Science & Business Media.
- Engler, J. 2003. "Being Somebody and Being Nobody: A Reexamination of the Understanding of Self in Psychoanalysis and Buddhism." In *Psychoanalysis and Buddhism: An Unfolding Dialogue*, 35-79. Somerville, MA USA: Wisdom Publications
- Evans, S. A. 2007. "Doubting the Kālāma-Sutta: Epistemology, Ethics, and the 'Sacred'." *Buddhist Studies Review* 24(1): 91-107.
- Foy, G. E. 2003. "Engaging Religion: An Ethnography of Three Religious Adherents in Taiwan's Academic Culture." Ph. D. Dissertation, Berkeley, California, Graduate Theological Union.
- Frankenberg, G. 2017. "Critical Comparisons: Re-Thinking Comparative Law." In *Legal Theory and the Legal Academy*, 245-289. Abingdon: Routledge.
- Freiberger, O. 2016. "Modes of Comparison: Towards Creating a Methodological Framework for Comparative Studies." In *Interreligious Comparisons in Religious Studies and Theology: Comparison Revisited*, edited by Perry Schmidt-Leukel and Andreas Nehring, 53-71. London: Bloomsbury.
- Gethin, R. 2015. "Buddhist Conceptualizations of Mindfulness." In *Handbook of Mindfulness: Theory, Research, and Practice*, 9-41. New York: Guilford Press.
- Gleig, A. 2019. *American Dharma: Buddhism Beyond Modernity*. New Haven: USA, Yale University Press.
- Gordon, R. E. 2015. "The Heart in the Matter: Design, Belief and a History of Buddhist Architecture in America." Ph. D. Dissertation, University of Arizona.

- Gregory, K. 2012. "Buddhism: Perspectives for the Contemporary World." In *Oxford Textbook of Spirituality in Healthcare*, 11–18. Oxford: Oxford University Press.
- Haase, M. 2013. "Life and Mind." In *The Freedom of Life: Hegelian Perspectives*, 69–109. Berlin, Germany, August Verlag.
- Halbfass, W. 2017. *India and Europe: An Essay in Philosophical Understanding*. Delhi: Motilal Banarsidass.
- Haller, J. 2020. *Buddha's Midwife: Paul Carus and the Open Court Publishing Company*.
- Hasenkamp, W. 2019. "Fruits of the Buddhism–Science Dialogue in Contemporary Research." *Current Opinion in Psychology* 28: 126–132.
- Hoang, N. Q. 2019. "The Doctrine of Not–Self (Anattā) in Early Buddhism." *International Review of Social Research* 9(1): 18–27.
- Holmes, B. 2018. *Comparative Education: Some Considerations of Method*. Abingdon: Routledge.
- Hölzel, B. K., J. Carmody, M. Vangel, C. Congleton, S. M. Yerramsetti, T. Gard & S. W. Lazar. 2011. "Mindfulness Practice Leads to Increases in Regional Brain Gray Matter Density." *Psychiatry Research: Neuroimaging* 191(1): 36–43.
- Javed, M. R. 2024. "A Multidisciplinary Approach to Advancing Science and Society." *Physical Education, Health and Social Sciences* 2(3): 1–14.
- Jayasinghe, K. & T. Soobaroyen. 2009. "Religious 'Spirit' and Peoples' Perceptions of Accountability in Hindu and Buddhist Religious Organizations." *Accounting, Auditing & Accountability Journal* 22(7): 997–1028.
- Johnson, B. & R. Gray. 2010. "A History of Philosophical and Theoretical Issues for Mixed Methods Research." In *Sage Handbook of Mixed Methods in Social and Behavioral Research*, 2: 69–94. SAGE Publications, Inc.
- Kapila, S. 2007. "Race Matters: Orientalism and Religion, India and Beyond c. 1770–1880." *Modern Asian Studies* 41(3): 471–513.
- Kenaphoom, S., G. Savatsomboon, P. Senawiang & T. Pawala. 2025.

- “Designed Techniques of Research Concept Frameworks Based on Concepts of Paṭiccasamuppāda–Buddhist Philosophy.” *Asian Education and Learning Review* 3(1): 5–5.
- Keown, D. 2020. *Buddhist Ethics: A Very Short Introduction*. Oxford: Oxford University Press.
- Keown, D. 2022. *Buddhism and Contemporary Society*. Hong Kong: Centre of Buddhist Studies.
- Khan, K. A. & D. Aigerim. 2020. “A Comparative Study on Buddhism and Hinduism: A Critical Review.” *Journal of Hospitality Management* 7(5): 2829–2834.
- King, J. B., Jr. 2015. “The One, the Many, and the Philosophy of Science: A Comparison of Trinitarian and Buddhist Epistemologies.” Ph. D. Dissertation, Graduate Theological Union.
- King, R. 2013. *Orientalism and Religion: Post-Colonial Theory, India and “The Mystic East”*. London: Routledge.
- King, R. 2019. *Indian Philosophy: An Introduction to Hindu and Buddhist Thought*. Edinburgh: Edinburgh University Press.
- Kleine, C., K. Kollmar–Paulenz & H. Seiwert, eds. 2025. *Buddhist Asia*. Berlin: Walter de Gruyter GmbH & Co. KG.
- Kraemer, K. M., F. A. Jain, D. H. Mehta & G. L. Fricchione. 2022. “Meditative and Mindfulness–Focused Interventions in Neurology: Principles, Science, and Patient Selection.” *Seminars in Neurology* 42(2): 123–135.
- Krauss, A. 2024. “Science of Science: A Multidisciplinary Field Studying Science.” *Heliyon* 10(17).
- Krech, V. 2015. “From Religious Contact to Scientific Comparison and Back: Some Methodological Considerations on Comparative Perspectives in the Science of Religion.” In *The Dynamics of Transculturality. Transcultural Research – Heidelberg Studies on Asia and Europe in a Global Context*. Springer, Cham.
- Kuhn, T. 2014. “The History of Science.” In *Philosophy, Science, and*

- History*, 106-121. London: Routledge.
- Kushner, K. P. 2017. "Zen and Behavioral Health: A Review of the Evidence." In *Handbook of Zen, Mindfulness, and Behavioral Health. Mindfulness in Behavioral Health*. Springer, Cham.
- Lapis, G. 2021. "Religious Education and East Asian Religions: A Study-of-Religion-Based Framework for Intercultural and Didactic Approaches." Ph. D. Dissertation, Ca' Foscari University.
- Laude, P. 2016. "Absolutizing the Relative and Relativizing the Absolute: Metaphysical Implications of the Christian and Buddhist Soteriological Perspectives, Part II." *Journal of Indian Council of Philosophical Research* 33(2): 213-239.
- Lecourt, S. 2016. "Idylls of the Buddh': Buddhist Modernism and Victorian Poetics in Colonial Ceylon." *PMLA* 131(3): 668-685.
- Lee, A. H. 2023. "Science and Religion as Languages: Using the "Language" Metaphor to Understand Science, Religion, and Their Relationship." Ph. D. Dissertation, University of Oxford.
- Leong, D. 2024. "Quantum Resonance with the Mind: A Comparative Analysis of Buddhism's Eighth Consciousness, Quantum Holography and Jung's Collective Unconscious." DOI: 10.32388/7SIZ7P.
- Lightman, B., ed. 2019. *Rethinking History, Science, and Religion: An Exploration of Conflict and the Complexity Principle*. Pittsburgh: University of Pittsburgh Press.
- Lo, K. C. 2018. "On the Argument of Infinite Regress in Proving Self-Awareness." *Journal of Indian Philosophy* 46(3): 553-576.
- Locke, J. 2023. "Ethics and Buddhism." In *Oxford Research Encyclopedia of Religion*. Oxford: Oxford University Press.
- Loke, A. 2023. "A New Fourfold Taxonomy of Science-Religion Relations." *Theology and Science* 21(1): 29-43.
- Lopez Jr, D. S. 2009. *Buddhism and Science: A Guide for the Perplexed*. Chicago: University of Chicago Press.

- Lubina, M. 2019. *The Moral Democracy: The Political Thought of Aung San Suu Kyi*. Warsaw: Scholar Publishing House.
- MacKenzie, M. 2010. "Enacting the Self: Buddhist and Enactivist Approaches to the Emergence of the Self." *Phenomenology and the Cognitive Sciences* 9: 75–99.
- Manno, F. A. 2019. "Monk on Fire: The Meditative Mind of a Burning Monk." *Cogent Psychology* 6(1): 1678556.
- Masi, M. 2022. "Vitalism and Cognition in a Conscious Universe." *Communicative & Integrative Biology* 15(1): 121–136.
- McGrath, A. E. 2020. *Science & Religion: A New Introduction*. Hoboken, NJ: John Wiley & Sons.
- McMahan, D. L. 2008. "A Brief History of Interdependence." *Pacific World: Journal of the Institute of Buddhist Studies* (10): 131–176.
- Mehrmann, C. & R. Karmacharya. 2013. "Principles and Neurobiological Correlates of Concentrative, Diffuse, and Insight Meditation." *Harvard Review of Psychiatry* 21(4): 205–218.
- Merrick, T. & T. Merrick. 2020. "Some Sanctifying Precepts for Science and Religion." In *Philosophical Studies in Contemporary Culture*, 27: 161–266, Springer, Cham.
- Mitchell, S. A. 2023. *The Making of American Buddhism*. Oxford: Oxford University Press.
- Omodan, B. I. 2024. *Research Paradigms and Their Methodological Alignment in Social Sciences: A Practical Guide for Researchers*. Abingdon: Taylor & Francis.
- Patil, D. D. & B. D. Wagh. 2023. *Research Methodologies in Multidisciplinary Subjects*, 1. Bhopal, India: Academic Guru Publishing House.
- Picard, M. 2017. "Introduction: Local Traditions and World Religions." In *Encountering 'Religion' in Southeast Asia and Melanesia: The Appropriation of Religion in Southeast Asia and Beyond*, 1–38. Switzerland: Palgrave Macmillan Cham.

- Poskett, J. 2022. *Horizons: A Global History of Science*. London: Penguin UK.
- Priest, G. 2024. "Science, Reason, and Buddhism." In *Global Dialogues in the Philosophy of Religion: From Religious Experience to the Afterlife*, edited by Yujin Nagasawa and Mohammad Saleh Zarepour. Oxford: Oxford University Press. Online edition, Oxford Academic, 30 April 2024.
- Reddy, J. S. K., A. Pereira Jr., E. de Souza Leite & S. Roy. 2020. "Meditative Introspection Promotes the First-Person's Science of Consciousness via Intuitive Pathways: A Hypothesis Based on Traditional Buddhist and Contemporary Monist Frameworks." *New Ideas in Psychology* 58: 100774.
- Ryan, J. G. 2002. "Feyerabend and Incommensurability." Ph. D. Dissertation, Durham University (unpublished).
- Samuel, G. 2014. "Between Buddhism and Science, Between Mind and Body." *Religions* 5(3): 560-579.
- Segall, S. Z. 2021. "Mindfulness In and Out of the Context of Western Buddhist Modernism." *The Humanistic Psychologist* 49(1): 40.
- Sharf, R. H. 2021. "The Looping Structure of Buddhist Thought (Or, How Chan Buddhism Resolves the Quantum Measurement Problem)." *Journal of the American Academy of Religion* 89(3): 1039-1073.
- Sharma, K. 2015. *Interdependence: Biology and Beyond*. New York: Fordham University Press.
- Sheng, C. 2017. "Buddhism and Science: Some Reflections." *Journal of Buddhist Education and Research (Online)* 3(2): 19-31.
- Silverman, G. S. 2015. "Complexities and Contradictions: Prayer, Healing, Belief, and Identity among Liberal American Jews." Ph. D. Dissertation, University of Arizona.
- Steinmo, S. 2017. "Wendt's Challenge to Social Science: Quantum Physics, Consciousness, and Society." *Critical Review* 29(2): 189-198.
- Stoltz, J. 2021. *Illuminating the Mind: An Introduction to Buddhist Epistemology*. Oxford: Oxford University Press.
- Tan, C. 2016. "Investigator Bias and Theory-Ladenness in Cross-Cultural

- Research: Insights from Wittgenstein." *Current Issues in Comparative Education* 18(1): 83–95.
- Tarabout, G. 2019. "Compassion for Living Creatures in Indian Law Courts." *Religions* 10(6): 383.
- Teeuwen, M. 2017. "Buddhist Modernities: Modernism and Its Limits." In *Buddhist Modernities*, 1–11. London: Routledge.
- Tempone–Wiltshire, J. & T. Dowie. 2024. "A Mindful Bypassing: Mindfulness, Trauma and the Buddhist Theory of No–Self." *Journal of the Oxford Centre for Buddhist Studies* 23 (1):149–174.
- Thakchoe, S. & J. T. Wiltshire. 2019. "Madhyamaka Philosophy of No–Mind: Taktsang Lotsāwa's on Prāsaṅgika, Pramāṇa, Buddhahood and a Defense of No–Mind Thesis." *Journal of Indian Philosophy* 47: 453–487.
- Thera, N. 2008. *The Roots of Good and Evil: Buddhist Texts Translated from the Pali with Comments and Introduction*. Kandy, Sri Lanka: Buddhist Publication Society.
- Thompson, E. 2023. "What's in a Concept? Conceptualizing the Nonconceptual in Buddhist Philosophy and Cognitive Science." In *Reasons and Empty Persons: Mind, Metaphysics, and Morality: Essays in Honor of Mark Siderits*, 165–210. Cham: Springer International Publishing.
- Tideman, S. 2017. *Business as an Instrument for Societal Change: In Conversation with the Dalai Lama*. London: Routledge.
- Tirch, D. D. 2010. "Mindfulness as a Context for the Cultivation of Compassion." *International Journal of Cognitive Therapy* 3(2): 113–123.
- Topham, J. R. 2016. "Rethinking the History of Science Popularization/Popular Science." In *Popularizing Science and Technology in the European Periphery, 1800–2000*, 1–20. London: Routledge.
- Valencia–Contrera, M., L. Avilés & N. Febré. 2025. "Reconciliation of Work and Personal Roles Among Critical Care Nurses: A Constructivist Grounded Theory." *Healthcare (Basel)* 13(10):1206.
- Varela, F. 1999. "The Specious Present: A Neurophenomenology of Time

- Consciousness.” In *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science*, 266-317. Stanford, CA: Stanford University Press.
- Vy, H. T. H. & V. Huynh. 2015. “Śūnyatā from Madhyamaka to Early Yogācāra Philosophy.” Master’s Thesis, International Buddhist College.
- Wagner, H. G. 2024. “Bridging Worlds: Exploring the Ethical Synergy Between Buddhism and Science.” *Subhasita: Journal of Buddhist and Religious Studies* 2(2): 107-120.
- Wallace, B. A. 2007. *Contemplative Science: Where Buddhism and Neuroscience Converge*. New York: Columbia University Press.
- Wallace, B. A. 2008. “Buddhism and Science.” In *The Oxford Handbook of Religion and Science*, edited by Philip Clayton. Oxford: Oxford University Press.
- Wallace, B. A. 2014. *Mind in the Balance: Meditation in Science, Buddhism, and Christianity*. New York: Columbia University Press.
- Wallis, G. 2018. *A Critique of Western Buddhism: Ruins of the Buddhist Real*. London: Bloomsbury Academic.
- Wawrytko, S. A. 2013. “The Buddhist Challenge to the Noumenal: Analyzing Epistemological Deconstruction.” In *Constructive Engagement of Analytic and Continental Approaches in Philosophy: From the Vantage Point of Comparative Philosophy*, edited by Bo Mou and Richard Tieszen. Leiden: Brill.
- Weber, R. 2014. “Comparative Philosophy and the Tertium: Comparing What with What, and in What Respect?” *Dao* 13(2): 151-171.
- Wells, R. E., E. K. Seng, R. R. Edwards, D. E. Victorson, C. R. Pierce, L. Rosenberg, V. Napadow & Z. Schuman-Olivier. 2020. “Mindfulness in Migraine: A Narrative Review.” *Expert Review of Neurotherapeutics* 20(3): 207-225.
- Wildman, W. J. 2010. *Religious Philosophy as Multidisciplinary Comparative Inquiry: Envisioning a Future for the Philosophy of Religion*.

- Albany: State University of New York Press.
- Wildman, W. J. 2016. *Science and Religious Anthropology: A Spiritually Evocative Naturalist Interpretation of Human Life*. London: Routledge.
- Williams, C. 2024. "Western Rationalism and the Visionary Nature of Meditative Experience in the Buddhist Tradition." Ph. D. Dissertation, University of Bristol.
- Youvan, D. C. 2024. *Humans and Harmony: A Multidisciplinary Exploration of Pattern Appreciation and Its Impacts on Culture and Well-Being*. DOI: 10.13140/RG.2.2.31732.97923
- Zambrano, Y. 2012. *Neuroepistemology*. North Carolina: Lulu Press, Inc, USA.
- Zhang, X. 2010. "Comparison Paradox, Comparative Situation and Inter-Paradigmaticity: A Methodological Reflection on Cross-Cultural Philosophical Comparison." *Comparative Philosophy* 1(1): 29-29.

(논문 접수 : 2025.05.19. / 수정본 접수 : 2025.06.20. / 게재 승인 : 2025.06.20.)

조화의 발견: 불교와 과학적 사유의 융합을 탐색하다

비비크 모르야

한림대학교 성심병원 수석연구원

불교 전통과 현대 과학 사상의 관계는 본질적인 조화와 합치를 강조하는 서사를 통해 널리 관심을 받아왔다. 그러나 이러한 서술은 철학적·방법론적·역사적 복잡성, 특히 불일치, 긴장, 갈등의 지점을 종종 간과한다. 본 논문은 이러한 복잡성을 다루기 위해 방법론적으로 근거 있는 비교 분석을 수행한다. 단순한 합치 주장에 머무르지 않고, 특정 불교 개념과 관련 과학적 틀 간의 생산적인 대화 영역과 근본적인 차이 모두를 비판적으로 고찰한다. 비교 철학(Comparative Philosophy)에 기반한 방법론을 채택하여 비교의 틀을 명확히 규정하고, 조화를 우선시하면서 마찰 지점을 소외시켜온 서사인 ‘불교 근대주의(Buddhist Modernism)’의 역사적 영향을 인식한다. 논문은 상호 의존, 인식론적 유사성 등 표면적 공명 영역을 체계적으로 탐색하되, 이를 비판적으로 검토한다. 나아가 의식과 유클론을 둘러싼 형이상학적 분열, 윤회와 업(karma) 교리에 대한 과학적 관점이 제기하는 도전, 무아(anattā)에 대한 상이한 해석, 궁극적 목표와 가치관의 근본적 차이 등 중요한 불일치와 갈등의 지점을 심층적으로 분석한다. 이러한 분석 결과를 종합하

여, 본 논문은 불교와 과학의 관계를 공명과 극복 불가능한 차이를 모두 인정하는 복합적이고 다층적인 시각으로 이해할 필요가 있음을 주장한다. 본 논문의 목적은 두 전통 간의 우열을 가리려는 것이 아니라, 양자의 상호작용이 지닌 복잡하고 때로는 도전적인 성격을 이해하고, 역사적으로 민감하며 방법론적으로 자각적인 보다 정교한 대화를 촉진하는 데 있다.

주제어 : 불교, 과학, 비교철학, 방법론, 인식론