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Title Page

A Study of Ignorance: Suffering and Freedom in Early Buddhist Teachings and
Parallels in Modern Neuroscience

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Abstract

What might early Buddhist teachings offer neuroscience and how might neuroscience inform contemporary Buddhism? Both early Buddhist teachings and cognitive neuroscience suggest that the conditioning of our cognitive apparatus and brain plays a role in agency that may be either efficacious or non-efficacious. Both consider internal time to play a central role in the efficacy of agency. Buddhism offers an approach that promises to increase the efficacy of agency. This approach is found in five early Buddhist teachings that are re-interpreted here with a view to explaining how they might be understood as a dynamic basis for ‘participatory will’ in the context of existing free will debates and the neuroscientific work of Patrick Haggard (et al.). These perspectives offer Buddhism and neuroscience a basis for informing each other as the shared themes of: (1) cognition is dynamic and complex/aggregate based, (2) being dynamic, cognition lacks a fixed basis of efficacy, and (3) efficacy of cognition may be achieved by an understanding of the concept of dynamic: as harmony and efficiency and by means of Buddha-warranted processes that involve internal time.

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List of Accompanying Material

Preface

The title of this project is ‘A Study of Ignorance’. Initially, the aim was to analyse the relationship between suffering and freedom in early Buddhist teachings. I was motivated by my continued interest in researching the concept of conditioned freedom, presented in the form of *windows of opportunities*¹ and the manipulation of internal time² such as promised in the practice of meditation.³ This interest arose from my BA dissertation, in which I examined the concept of the Epicurean Swerve as it featured in Marx's doctoral thesis, *The Difference Between the Democritean and Epicurean Philosophy of Nature*.⁴ It is worth noting here that Epicurus countered the position of Democritean atomism, arguing that atoms, though conditioned to flow in a particular linear fashion, each had the capacity to avoid collision with one another by means of what is known today as ‘the Epicurean Swerve’.

As I set out to identify themes of suffering and freedom in early Buddhist teachings, I concluded that the Buddhist teachings—preserved as the four Nikāyas (basket of teachings) of the Sutta Pitaka⁵: 1) The Three Characteristics of Existence, 2) The Four Noble Truths, 3) Dependent Origination, and 4) The Eightfold Path, plus the Buddha's theory of the five khandhas —offered a

¹ B., Libet, C.A., Gleason, E.W. Wright, D.K., Pearl, "Time of Conscious Intention to Act in Relation to Onset of Cerebral Activity (Readiness-Potential) - The Unconscious Initiation of a Freely Voluntary Act", *Brain* Vol. 106, (1983): pp. 623–642.

² ‘Internal time’ here refers to Patrick Haggard's definition of intentional binding: ‘[...] Intention, action and goal are not experienced as separate disconnected events, but as a tight and integrated flow. In particular, intentional actions, but not involuntary movements, display an effect called ‘intentional binding’, whereby the experiences of action and effect are perceived as temporally compressed and bound together (Haggard et al., 2002; Haggard and Cole, 2007), as if part of a single episode’. P. Haggard, ‘What are Intentions?’ in *Conscious will and responsibility: a tribute to Benjamin Libet*, (eds.) W. Sinnott-Armstrong and L. Nadel., (New York: Oxford University Press, 2010) p 75. The Buddhist correspondence is the effects of meditation and Mindfulness upon internal time, Marc Wittmann states: ‘[...] Because the feeling of time is created through attending to the embodied self at the present moment, being exceptionally mindful slows down the passage of time. Moreover, subjective time slows down in retrospect because greater awareness of one's experiences leads to enriched memory contents, which in turn expands subjective duration. An increased focus on an experienced self at the present moment slows down the subjective passage of time - now and in retrospect’. M Wittmann, & S. Schmidt, ‘Mindfulness Meditation and the Experience of Time’ in *Meditation - Neuroscientific Approaches and Philosophical Implications*, (eds.) S. Schmidt & H Walach, (Switzerland: Springer International Publishing, 2014), p. 206.

³ M Wittmann, & S. Schmidt, *Mindfulness Meditation and the Experience of Time*, op. cit.

⁴ K. Marx, ‘The Difference Between the Democritean and Epicurean Philosophy of Nature’ (1841); Published in *Marx-Engels Collected Works Volume 1*, (Moscow: Progress Publishers, 1902). Online Version: B. Baggins (marxists.org) 2000. Transcription/Markup: A. Blunden.

⁵ The Sutta Pitaka is one of the three divisions of the Tipitaka (or Pali Canon), which is of central importance to the Sri Lankan based Theravāda tradition. The other divisions are Vinaya Pitaka (which deals with monastic rules), and the Abhidhamma Pitaka (which contains scholarly analysis and revisions of the early oral teaching). The Buddha's teachings were not written down in an official text until circa 250 BCE. <http://www.accesstoinsight.org/tipitaka/>

comprehensive view of the concept of increasing and ‘warranting the efficacy’⁶ of agency through strategies that manipulate internal time such as concentration meditation and Mindfulness. The Buddha’s aim was liberation from suffering and ignorance (avidyā).⁷ I will argue here that his teachings provide a comprehensive practical basis for optimising efficacy of agency in alignment with cognitive neuroscience research conducted by Patrick Haggard (et al.).

This new dimension of the project followed my attendance of *The Human Mind* conference in London in May 2013. There neuroscientist Patrick Haggard delivered a presentation that encouraged me to associate emerging neuroscience research on agency and its prospective efficacy with the early Buddhist teachings named above. Of particular interest is his dynamic approach to agency and his observations of internal time with regard to retrospective and prospective action selection in agency.

The aim of this project thus became to identify and examine these intuitive parallels between early Buddhist teachings and modern neuroscience and to ask to what extent, if any, they could inform each other. My conclusion was that there are two significant ways in which our understanding of neuroscience can enhance our understanding of early Buddhist teachings, and vice versa. The first is the adoption of a dynamic approach to the current determinism versus free will debates. The second is the potential to increase both retrospective and prospective efficacy through the manipulation of internal time. The former requires an examination of these debates through a dynamic lens; this is the aim of chapter’s one and two. The latter is the alignment of this dynamic perspective with neuroscience; this is the aim of chapter three.

⁶ The term ‘internal warrant of efficacy’ proposes the Buddha’s teachings as practices and gnosis that, when executed correctly, ‘guarantee’ efficacy in cognitive agency both as personal and as a collective. The corresponding basis of efficacy in neuroscience is the concepts of ‘intentional binding’ and ‘retrospective and prospective action selection in agency. These terms are explained and discussed in chapter three. My claim is, that while approaching the subject from quite different perspectives, both Buddhism and neuroscience share an interest in what makes intentions to actions efficacious and non-efficacious. Efficacy in Buddhism refers to the elimination of suffering generating thought processes and actions. Efficacy in the context of neuroscience refers to how agency occurs. Both share an interest in the nature of moral efficacy. (See V. Chambon, N. Sidarus, P. Haggard, ‘From action intentions to action effects: how does the sense of agency come about?, *Frontiers in Human Neuroscience*, vol.8, no.320 (2014): pp. 1-9.

⁷ Gombrich defines avidyā as: ‘The word for ignorance in Sanskrit is avidyā . [avidyā] ... stands at the beginning of the Chain of Dependent Origination. This is an abstract noun, and the prefix a makes it negative. It goes back to a very common verbal root vid, which basically means ‘to know’. Indeed the very word Veda is another noun derived from that root. However, there is a second verbal root, vid, also common, meaning ‘to find, to obtain’. A verbal root is a kind of theoretical form used as the basis for deriving real words; but in some actual verbal forms these two roots vid continue to concede as homonyms. Thus the present passive, vidyate, can mean not only ignorance but also non-existence.’ R. Gombrich, *What the Buddha Thought*, (London: Equinox Publishing Ltd, 2009), p 139-40.

The models and frameworks presented throughout should be viewed as speculative, in the spirit of any early stage metaphysical theorising.

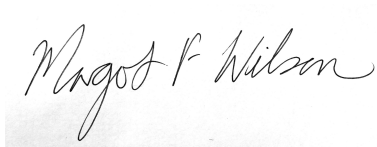
Acknowledgement

In gratitude of the neuroscience research published by Patrick Haggard, Valerian Chambon, Nura Sidarus, Margot A. Schel, Marcel Brass, K. Richard Ridderinkhof, Eveline A. Crone, Sam Clark, Jerry Kalogeris, Elisabeth Pacherie and Benjamin Libet, as well as mindfulness-related research by Marc Wittmann and Stefan Schmidt and the Buddhist scholars, Noa Ronkin, Andre Bareau, R.Gombrich, Susan Hamilton and Victoria Harrison. I add a special acknowledgment to the work of Rick Repetti and his framing of the current debates on free will and determinism. Finally, I add my sincere thanks to Mikel Burley for his recommended further reading and to Robert Cowan for his constructive remarks on argument structure.

Author's Declaration

I am aware of and understand the University's policy on plagiarism and I certify that this thesis is my own work, except where indicated by referencing, and that I have followed the good academic practices noted above.

Signed

A handwritten signature in black ink, reading "Margot F. Wilson". The signature is written in a cursive style with a large, stylized 'M' and 'W'.

Definitions/Abbreviations

D/O – Means ‘Dependent Origination’ and will be expressed as superscript text when referring to ‘cyclical causation’. Cyclical causation^{D/O}.

Ab – Means (Buddhist) ‘absolutist’ and will be expressed as superscript text when referring to atomistic ‘unity’. Unity^{Ab}.

Ag - Means (Buddhist) ‘aggregate and will be expressed as superscript text when referring to atomistic ‘unity’. Unity^{Ag}.

Chapter One - Early Buddhist Ignorance

Introduction

In this chapter I will discuss a variety of issues concerning determinism and free will, with the aim of establishing a Buddhist-compatible position that stands as an alternative to current western paradigms. The core theoretical term within this Buddhist-compatible position is ‘participatory will’.¹ Unpacking the significance of this term will bring additional value to the standard free will versus determinism debates, both within Buddhist scholarship and neuroscience. In order to explain participatory will I must first articulate its metaphysical basis. As I will explain, this metaphysical basis is to be found in the historical Buddha’s teaching on impermanence.

Dennett-style common sense² tells us that in every given day there is recognisable consistency and stability in every aspect of the natural world. To render the notion of participatory will consistent with common sense, I propose that there must be some form of equilibrium³ at work enabling the appearance of consistency and stability despite Impermanence in nature and mind. I will argue that embedded within impermanence must be some basis for coherence-making forces or dispositions. I am proposing that metaphysical equilibrium is necessary to account for the balanced tension between constant change, stabilised forms of nature and stabilised fluid cognitive experience as mind.

¹ ‘Participatory will’ incorporates aspects of all four theories of free will: determinism, indeterminism, compatibilism and incompatibilism discussed by Rick Repetti. It does so by means of a theory of agent-less agency that permits choosing. This theory of agency is supported by the Buddhist theory of impermanence as coherent, patterned and cyclical, entailing the characteristics of harmony and efficiency. This theory is explained throughout in this chapter. See R. Repetti, ‘Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,’ *Journal of Buddhist Ethics*, vol. 21 (2014): pp. 179 - 254.

² David Thompson explains: ‘Dennett’s own position is that there is indeed a self, but that the concept must be demythologized. The self, as we normally understand and experience it, cannot be taken at face value. [...] we must reveal then gradual development that is concealed within the all-or-nothing conception common sense gives us. Dennett as usual steers the middle course: between the conception of the self as a thing or substance and the total rejection of the self as an illusion. He offers us a concept of the self as a mode of organization that is neither a thing nor an illusion. To grasp this concept, we must look at the evolution of selfhood, at the distinctively human notion of a responsible agent, and, above all, examine the role of language in its construction as a narrative structure’. D.L., Thompson, *Selfhood: Memes, Language, and Narrative* (London: Continuum International Publishing Group, 2009), p. 79.

³ ‘Dynamic Equilibrium’ is the term I will use to denote agent-less agency in the form of a floating point of view consistent with coherent impermanence. It cuts across all four theories of free will and entails all five foundational teachings of the Buddha.

To explain such coherence-making forces or dispositions I discuss the Buddha's claim of cyclicity⁴ as the key concept, and I break this down into two components: 'harmony' and 'efficiency'. This allows me to explain the general stability experienced in the cycles and forms of nature. What I am proposing is that understanding natural cyclicity in terms of a standard interpretation of harmony and efficiency is consistent with the Buddha's metaphysical claim of impermanence, and it avoids the two extremes of absolutism (egoism) and nihilism that the Buddha rejected.⁵

In the rejection of these two extremes the Buddha claimed that impermanence entails that we have 'no-self' and that nothing is independently originated (i.e., nothing comes to be without at least one cause that is not within itself).⁶ Both of these entailments are, at first sight, contrary to the deliveries of common sense concerning natural cyclicity. Given the Buddha's radical metaphysical claims, he requires a satisfactory explanation for our experience of both physical and mental coherence. A key theme of the chapters that follow is that our experience of coherence in everyday life makes it feasible to conjecture that we must have an inherent capability for structuring our experience in this way. I will suggest that at the core of this capability lie harmony and efficiency. The characteristics of harmony and efficiency have been chosen as together they present and sustain a dynamic concept of the equilibrium of form as mental and material objects. The concept of participatory will is instigated by this dynamic basis of approach.

⁴ Cyclicity in terms of natural cycles is described here by Bodo Balsys as follows: 'Repetition of past patterns of events is a modus operandi of karma. The objective is so that eventually new attributes can appear. Karma thus manifests in relation to another law affecting samsara, the laws of cycles. Essentially this means that everything responds to cyclic processes. We have the zodiacal wheel turning because of the procession of the equinoxes: seasonal and yearly cycles: some plants work according to a diurnal cycle, others according to an annual one, etc. Our hearts beat regularly generally at 72 beats per minute, we cyclically breathe oxygen in and out in order to stay alive. Every seven years the cells in our body are replenished, the sun has an 11 year sunspot cycle, and so forth.' B. Balsys, 'The "Self" or "Non-self"', in *A Treatise on Mind*, vol. 1: Buddhism (Australia: Universal Dharma Publications, 2016), p. 335.

⁵ James Duerlinger explains this as follows: 'The Buddha warned his followers that they must be careful not to abandon the belief that we exist, since although we are not selves, we do exist. A theory of persons in which selfhood is attributed to us the Buddha called the 'eternal transcendence theory' (sasvatavada) and the contrary theory, that we do not exist at all, he called a 'nihilism theory' (ucchedavada). The correct theory, he said, is a middle way between these two extremes.' James Duerlinger, *Indian Buddhist Theories of Persons: Vasubandhu's Refutation of the Theory of a Self* (London: Routledge, 2003), p. 44.

⁶ The Buddha's view is that the concept of a self, or selves, is incompatible with universal impermanence. This is stated in his Three Characteristics of Existence, namely: 1) impermanence, 2) no-self, 3) suffering. See 'The Three Characteristics' (tilakkhaṇa) in H. C. Warren, *Buddhism in Translations*, Harvard Oriental Series, 3, 6th edition (Cambridge, MA: Harvard University Press, 1915). This text is a translation of Aṅguttara Nikāya, Dhammapada, iii, 134.

Participatory Will

From the Buddha's perspective, existence is a kind of conditioning spectrum which is always cyclically moving, forming and re-forming. This dynamic is at the heart of his theory of Dependent Origination,⁷ which is, as I will explain, rooted in his understanding of ignorance.⁸ This experience of stabilised flow appears to us as a coherent perception of unity.⁹ Being unaware of the movement is the basis of ignorance and it goes hand in hand with the illusion of self. (Later in chapter three I refer to this as the atomic point of view or POV.)¹⁰ On the Buddhist view, then, the experience of unity of self is a product of 'dispositional' (meaning conditioned) harmony and efficiency and is not grounded in an independently existing self: understood as an object. What is being described, however, is more than a linear or mega-linear¹¹ causal process. I argue that it is cyclical conditioned harmony and efficiency that both produces cognitive ignorance and at the *same time* can cultivate enlightenment, as the cessation of ignorance. It is the same cognitive apparatus that does both and does so in two ways. First is the pointing of the attention, which I call 'efficacious ignoring,' and second is the regulation of behaviour, which the Buddha calls his 'Eightfold Path'.¹² I further claim that to follow the Eightfold Path is to practice efficacious ignoring, or pointing of the actions. Efficacious pointing of the attention and regulation of behaviour are both supported by and

⁷ See Dependent Origination in the Dīgha Nikāya: D ii 55, Mahā Nidāna: *The Great Causes Discourse* translated from the Pali by Thanissaro Bhikkhu (1997). DN II_utf8". http://www.accesstoinsight.org/tipitaka/sltip/DN_II_utf8.html I define cyclical causation in accordance with Carl Olsen and J. Macy's explanations: 'The Buddha depicted causation as a cyclical, ceaseless chain that conditioned or produced everything except nibbāna, which is absolute freedom from the cycle of causation. C. Olsen, *Original Buddhist Sources: A Reader* (New Brunswick: Rutgers University Press, 2005), p 38 Also as: 'As systems scientists seek to express the import of these concepts and of the data emerging from their studies, terms like cyclical causality, reciprocal and mutual causality, and indeterminism are employed.' J. Macy, *Mutual Causality in Buddhism and General Systems Theory: The Dharma of Natural Systems* (New York: State University of New York Press, 1991), p 17.

⁸ Paul Williams writes: 'Perhaps ignorance and craving can better be seen as two different but inextricably mixed dimensions (the cognitive and the affective) of the samsaric experience (Gethin 1997b: 221). Either way, ignorance is not a first cause in Buddhism in the sense of something that chronologically started the whole process off. It is not that once there was nothing then ignorance occurred and the world came about. The traditional Buddhist view is that the series of lives extends as far as we can tell infinitely into the past. Moreover short of liberation rebirths will as far as we can tell stretch infinitely into the future. Thus there is no chronological (or indeed ontologically necessary) first cause. [...] If ignorance is the cause of samsara, knowing, gnosis (Vidyā= jnana) becomes the ultimate condition of nirvana.' Paul Williams, et al, *Buddhist Thought: A Complete Introduction to the Indian Tradition*, (London: Routledge, 2012), p. 34.

⁹ The term 'unity' is proposed throughout as the quality of the 'synthetic fixing' of the spatiotemporal cognition as an atomic point of view (unity^{ab}). The term implies the singular, absolutist, personal point of view as an 'agentless-agent'.

¹⁰ The term 'atomic POV' expresses the concept of 'unity' and is discussed at length in chapter two on Buddhist atomism.

¹¹ 'Mega-linear' is a term used by Rick Repetti in: R. Repetti, 'Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,' *Journal of Buddhist Ethics*, vol. 21 (2014): pages 304, 338, 343, 346.

¹² The Noble Eightfold Path (Pali: ariyo aṭṭhaṅgiko maggo, Sanskrit: āryāṣṭāṅgamārga.) See *Majjhima-Nikāya, Sutta-Pitaka*, iii, pp. 248-52: in 'Further Dialogues of the Buddha', II, translated by Lord Chalmers, *Sacred Books of the Buddhists*, VI (London: Oxford University Press, 1957).

include meditation.

The Propagation and Cessation of Ignorance

Participatory will by this explanation propagates *both* ignorance *and* enlightenment. The more the pointing of participatory will swings towards the propagation of ignorance, the less free will is experienced, and, arguably, more ignorance-fuelled quasi-determinism is at play. Alternatively the further participatory will swings towards enlightenment, the more Buddhist ‘ignorance-free quasi-will’ is at play,¹³ which resembles more compatibilism (and at the extreme, libertarianism). Consequently, in any given lifetime the pointing of participatory will is never static but moves according to conditioning as the atomic or singular place of ‘looking out’. The Buddha’s blueprint (as I have put it) for efficacious participatory will aims pointedly towards ignorance-free will or agency. The Buddha’s blueprint also cultivates the ability to sustain the situating of all actions at the ignorance-free will end of the axis. He is clear that this requires continuous effort otherwise the needle will swing easily the other way. I conjecture that, had he been alive today, the Buddha might have gone so far as to apply a gravitational metaphor. He may have pointed to the gravitational pull towards ignorance that is counteracted by following his efficacious blueprint, which serves to lighten the downward drag and creates upwards buoyancy. There’s no room to expand this claim here, but I will add that anyone who has experienced kundalini¹⁴ or siddhi¹⁵ forms of upward buoyancy and lightness in meditation will understand this suggestion. I will revisit these claims in chapter three.

Buddhist Warranted Efficacious Cessation of Ignorance

My interpretation therefore takes seriously the efficacious transformations

¹³ I have applied the term ‘ignorance-free will’ as an alternative to ‘enlightenment’ as it is the natural opposite to ‘ignorance’.

¹⁴ ‘Kundalini’ is defined by John C. Huntington and D. Bangdel as a: ‘Coiled (Serpent-Arising) Unification. It is defined as the: ‘[...] fundamental methodology of Tantric meditational practices, both in Hindu and Buddhist practice. In the Buddhist context, the purifying inner fire awakens the energy centres of the subtle body until the yogin realizes the state of complete awakening.’ John C. Huntington and D. Bangdel, *The Circle of Bliss: Buddhist Meditational Art* (Ohio: Serindia Publications, 2003), p. 528.

¹⁵ As Huntington and Bangdel explain, ‘[...] a siddha is a Tantric Buddhist adept. The term siddha, “adept”, refers to a Tantric practitioner who has attained the goal of meditation, an attainment known as ‘siddhi’. [...] These powers are gained through the four modes of ritual action, which accomplish pacification, enrichment, control and destruction.’ *Ibid.*, p. 25.

promised in the core of the Buddha's teachings, especially as these are found in the Four Noble Truths.¹⁶ The claim is that eliminating ignorance about impermanence, no-self and cyclical arising^{D/O} leads to greater levels of participatory will and ultimately, freedom (nibbāna). This is consistent with the practical nature of the Eightfold Path. As for the subject of reincarnation¹⁷ proper, I will discuss it briefly in chapter two. It is my hope that concept of reincarnation does not provoke a flat rejection of the overall metaphysics discussed here. It is my view that the concepts of cyclical arising¹⁸ and conditioned being¹⁹ can be embraced without getting derailed by theories of reincarnation.

A Conditioning Spectrum - as Conceptual Regions of Determinism and Free Will

Such pointing of the attention as efficacious ignoring will be explained as a floating or moving holistic process that allows us to navigate between the two extremes of absolutism and nihilism. The same is the case with respect to the two extremes of determinism and indeterminism. What follows is a brief plotting of these four conceptual regions of determinism and free will.

Determinism: is the view that there is no free will because all our actions are causally determined. Hard determinism is outright fatalism while soft determinism permits volitional actions, but only ones that are conditioned.

Indeterminism: is the view that determinism is false and our actions are the product of unconditioned randomness. Libertarians are indeterminists who

¹⁶ As Mark Siderits claims: 'The Buddha's basic teachings are usually summarized using the device of the Four Noble Truths: There is suffering. There is the origination of suffering. There is the cessation of suffering. There is a path to the cessation of suffering.' M. Siderits, 'Buddha' in *The Stanford Encyclopedia of Philosophy* (2015), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2015/entries/buddha/>>.

¹⁷ 'Some English-speaking Buddhists prefer the term 'rebirth' or 'rebecoming' (Sanskrit: punarbhava; Pali: punabbhava) to 'reincarnation', as they take the latter to imply a fixed entity that is reborn. The early Buddhist texts make it clear that there is no permanent consciousness that moves from life to life. The lack of a fixed self does not mean lack of continuity. In the same way that a flame is transferred from one candle to another, there is a conditioned relationship between one life and the next.' P. Prakashan, 'Other Religions', in *World Encyclopaedia of Interfaith Studies* (Delhi: Text Book Promotion Society of India, 2009), p. 1329. Also see B. Ñāṇamoli (trans.) and B. Bodhi (ed.), *The Middle-Length Discourses of the Buddha: A Translation of the Majjhima Nikāya* (Boston: Wisdom Publications, 2001), pp. 27, 30, 31.

¹⁸ 'Arising' is a term commonly used by the Buddha to describe birth and rebirth. Its use here means manifestation.

¹⁹ 'Conditioned being' refers mainly to the metaphysics of Impermanence and cyclical causation as Dependent Origination.

believe that we have free will.

Compatibilism: is the view that causal determinism and free will may exist together. This presupposes that we are still able to make free choices in the presence of conditioning. This view lies towards the centre of the Conditioning Spectrum.

Incompatibilism: is the view that Determinism and Free Will are incompatible. Causal determinism makes free will impossible. Van Inwagen²⁰ avoids the ‘nihilism’ problem by modifying this claim to the effect that both causal determinism and free will are together impossible. This is because if determinism is true then free will must be false, and, if free will is true then determinism must be false. Van Inwagen does not deny there are possible worlds that would accommodate these respective positions: just not both at once. Therefore, in the determinism world, free will is illusory, and in the free will world, determinism is illusory. If both determinism and free will were illusory, this would be nihilism. The incompatibilist position then is the choice between determinism and free will.

These views have been summarised from Rick Repetti’s ‘Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond’.²¹

Building upon the Buddha’s teaching of an aggregate²² basis of cognition, I propose the concept of dynamic equilibrium as a coherent basis of such aggregation and its regulation.

²⁰ See P. van Inwagen, *An Essay on Free Will* (Oxford: Clarendon Press, 1983), pp. 93-104. Also, ‘The problem of free will in its broadest outlines is this. Free will seems to be incompatible both with determinism and indeterminism. Free will seems, therefore, to be impossible. But free will also seems to exist. The impossible therefore seems to exist. A solution to the problem of free will would be a way to resolve this apparent contradiction.’ P. Van Inwagen, ‘Free Will Remains a Mystery: The Eighth Philosophical Perspectives Lecture,’ *Philosophical Perspectives*, vol. 14 (2000): pp. 1-19, see pp. 10 - 11.

²¹ Rick Repetti in: R. Repetti, ‘Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,’ *Journal of Buddhist Ethics*, vol. 21 (2014): pp. 279 – 352.

²² The term ‘aggregate’ refers to the Buddha’s teaching of ‘Aggregates’ as the Five Khandhas. The term is applied throughout to mean ‘to form or group/cluster’ in a dynamic ‘non-linear’ way. Aggregate as dynamic means ‘distinct from theories of linearity such as multi or mega-linearity’ discussed by Rick Repetti (see chapter one). The usage of this term in its several different contexts is to emphasise the ‘non-linear’ basis of aggregation and are not defining terms. These include, ‘coherent “aggregation”’, ‘coherent “aggregate” regulation’, ‘contextual “aggregate” causation’, ‘causal “aggregate” arising’, ‘“aggregate” binding’ and ‘soma-neural “aggregate”’. The Buddha also describes cognition as ‘aggregate’ which chapters one and two discuss in detail. See R. Repetti, *Ibid.* Bodhi Bhikkhu also states: ‘The Khandhasamyutta consistently treats the aggregates as the objective referent of identity view (sakkayaditthi), the views that seek to give substance to the idea of a self.’ See the: ‘The Khandhasamyutta’, in the *Samyutta Nikāya*, 22.3, III 9, 20-23, SN 844, published in 1124 IV. ‘The Book of the Six Sense Bases (Salayatanaavagga)’, B. Bhikkhu (trans.), *The Connected Discourses of the Buddha: A Translation of the Samyutta Nikāya*, (Boston: Wisdom Publications, 2000b).

Dynamic Equilibrium (Stabilised Harmony and Efficiency)

The next term I introduce is ‘dynamic equilibrium’ which encompasses the dynamic aspect of the conditioned spectrum conceptually stabilised by harmony and efficiency. This is a dynamic process that enables regulation of experience to yield the appearance of unity. How much a person buys into the illusion of self as personal unity drives the *varying degrees* of participatory will. At times some people have arguably very close to no participatory will, however, with the adoption of the Buddha’s Eightfold Path (the Middle Way), the optimal or maximum potential measure of participatory will may be achieved. Interestingly the concept of The Middle Way has been commonly interpreted statically as a set of rules, rather than as including movement and dynamism. The notion of dynamic equilibrium brings these latter qualities to the forefront.

Dynamic Equilibrium (Coherent Aggregate Regulation)

Developing the Buddhist concept of dynamic aggregation further as coherent and observably regulated, I propose the compressed term of ‘coherent aggregate regulation’. This term represents a process of agentless dynamic neural and cognitive regulation that provides the regulating point of view: I.e. the egoic experience of ‘I’. Coherent aggregate regulation can be connected with the quasi-static experience of the ‘I’ and as a crude means of explaining the metaphysics of the Buddha’s ‘no-self’ principle. It does not make sense to talk about Buddhist free will without addressing what it is that is free, or what it is that possesses free will, given the no-self teaching. At face value, the free will in the Buddhist scenario bears no resemblance to that being discussed in the context of the western debate. Yet, with closer scrutiny, determinism and compatibilism in all their forms are not made obsolete on the Buddhist view, only shown in a different context, that of a dynamic but coherent metaphysical construct of a conditioning spectrum.

I have already proposed that determinism/indeterminism, compatibilism/incompatibilism may be viewed as regions or quadrants of the conditioned spectrum and dynamic equilibrium is the movement within the range as varying participant will. I draw a parallel here to how specific regions of the brain were

once thought to be the originators of particular types of behaviours etc. Today we know that this is not the case and that multiple, so-called regions of the brain ‘work together’. This is what we would expect given the truth of the five foundational teachings.²³

These proposed five foundational teachings are taken from the Sutta Pitaka.²⁴ Accounts and interpretations of the Buddha’s oral teachings are vast in number however these foundational teachings (1-5) are, to my knowledge, embraced across all schools of Buddhism and encapsulate the basis of the Buddha’s metaphysics. They are:

1. The Three Characteristics (tri-lakṣaṇa)
2. The Four Noble Truths (cattāri ariyasaccāni)
3. The Eightfold Path (ariyo aṭṭhaṅgiko maggo)
4. Dependent Origination (pratītyasamutpāda)
5. The Five Khandhas (pañcakkhandha [five aggregates])²⁵

²³ The teaching of the Three Characteristics of Existence provided the foundational metaphysical principle of impermanence, the theory of no-self and the theory of suffering. The Four Noble Truths expand the theory of suffering as: 1) there is suffering, 2) there is the origination of suffering, 3) there is the cessation of suffering and 4) there is a path to the cessation of suffering. The Eightfold Path provides the solution to suffering while the theory of Dependent Origination explains the cyclical nature of arising of suffering as illusory self and all that accompanies the concept of independent origination and absolutism. The theory of the five khandhas present an aggregate basis of spatiotemporal cognition.

²⁴ The Sutta Pitaka is one of the three divisions of the Tripitaka (or Pali Canon), which is of central importance to the Sri Lankan based Theravāda tradition. The other divisions are Vinaya Pitaka (which deals with monastic rules), and the Abhidhamma Pitaka (which contains scholarly analysis and revisions of the early oral teaching). The Buddha’s teachings were not written down in an official text until circa 250 BCE. <http://www.accesstoinsight.org/tipitaka/abhi/>. Sources: The Sutta Pitaka: Bodhi, B., *Connected Discourses of the Buddha* (Somerville, Mass.: Wisdom Publications, 2000), and N. Mahathera, *A Comprehensive Manual of Abhidhamma: the philosophical psychology of Buddhism*, trans. edited and revised by Bhikkhu Bodhi, Kandy: Buddhist Publication Society, 1999).

²⁵ The khandhas here concur with Rupert Gethin’s ‘The five khandhas: their treatment in the Nikāyas and early Abhidhamma, in P. Williams (ed.) *Buddhism: Abhidharma and Madhyamaka, Volume 4*, (Oxford: Routledge, 2005), p 144-150. These are: (1) ‘Rupa is typically defined as the four elements, earth, water, fire and wind, and rupa dependent upon (upadaya) them. [...] (2) The translation of vedana as “feeling” [...] is usually defined as being pleasant (sukha), unpleasant (dukkha), or not-unpleasant (adukkhamasukha), and is said to be either bodily (kāyika) or mental (cetasika)’. [...] (3) The stock definition of sanna in the Nikāyas illustrates its function by referring to various colours. [...] Alex Wayman pointed [...] that it is the word “idea” that should regularly be employed as a translation of sanna.¹⁰ [...] A sanna of say, “blue” then becomes, not so much a passive awareness of the visual sensation [...] but the active noting of that sensation, and the recognising of it as “blue”. [...] (4) Cetana is, of course, understood as kamma on the mental level¹², and in the early abhidhamma texts all those mental factors that are considered to be specifically skilful (kusala) or unskillful (akusala) fall within the domain of samkharakkhandha.¹³ [...] (5) Vinnana is here characterised as discriminating (vijanati) the three feelings, vedana as feeling (vedeti) the three feelings, and sanna as noting (sanjanati) yellow, blue, etc. [...] These three states (dhammas) [...] “what one feels, that one notes; what one notes, that one discriminates”. [...] Finally we may note how the khandha-samyutta explains vedana, sanna, samkharas and vinnana each in terms of (5) six classes corresponding to consciousness that is related to the five senses of eye, ear, nose, tongue and body, and sixthly mind⁵ - that is, the six internal spheres of sense (salayatana). See also T. Bhikkhu, *Five piles of bricks*:

The first four foundational teachings are interrelated and I will treat them here as a ‘body’ or ‘conceptual aggregate’. The fifth teaching is the Buddha’s theory of an aggregate basis of conditioning the human person. The five aggregates together produce the spatiotemporal cognitive experience. These five foundational teachings together support the Buddha’s claim of the origin of suffering being ignorance and why ignorance drives cyclical arising as suffering. However, in order to forge the parallels that I am asserting with neuroscience, it is necessary to unpack and re-frame them as outlined above. It is my aim to avoid any loss of original meaning and I caution now that this interpretation is not aligned with any of the major or minor Buddhist schools. I will refer to both Theravāda and Mahāyāna commentary, citing mainly in Pali, though it is my hope that this particular dynamic drafting of the Buddha’s metaphysics will provoke new streams of debate within Buddhist scholarship.

With regard to these teachings, I will be limiting my inquiry then to the following claims: First, that the human cognitive apparatus has the capacity to both produce and eliminate ignorance, and second that cognitive understanding is by itself insufficient to bring about enlightenment, appropriate behavior is also required (otherwise the Eightfold Path would be redundant). In order to address these questions and establish a basis for my claim of participatory will, it is necessary to examine some of the key western and Buddhist debates of determinism and free will as framed by Rick Repetti.

Determinism v Free Will Debates

Repetti discusses early Buddhist compatibilist and later Buddhist incompatibilist scholarly positions.²⁶ This will be deliberately brief, though of central significance, as I will contextualise my thesis to Repetti’s framework. It is my hope that the navigation through the re-postulated metaphysics will not be hindered by objections to the Repetti framework, which I am only deploying as a heuristic aid. I am not therefore engaging extensively in a direct critique of the

the khandhas as burden and path (2010). Available from: <<http://www.accesstosight.org/lib/authors/thanissaro/khandha.html>>.

²⁶ R. Repetti, ‘Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond, op. cit. pp. 279 - 354. Aslo R. Repetti, ‘Buddhist Reductionism and Free Will: Paleo-compatibilism’, *Journal of Buddhist Ethics* vol. 19 (2012).

Repetti framework, or of his claim of ‘mega-linearity’.²⁷ Rather I am referring to his understanding of the determinism versus free will debates as conceptual demarcations in reductive thinking. I use the conceptual tools he provides to further explore my notion of ‘dynamic equilibrium’. Rather than aligning with one of the positions Repetti outlines dynamic equilibrium is both distinct from, and includes, these four standard positions of determinism/indeterminism and compatibilism/incompatibilism. I will show this, first, by presenting dynamic equilibrium as a dynamic compound or aggregate term that is compliant with the five foundational teachings of the Buddha. What follows immediately is a deeper discussion on dynamic equilibrium.

The Repetti Framework²⁸

As explained above, I have adopted the Repetti ‘determinism v free will’ framework because of the ‘reductionist’²⁹ approach he has adopted.^{30 31} The view here that I am proposing is that the reduction process is limited to being a useful kind of thought experiment or exercise in logic, often allowing one to intellectualise or go ‘full circle’. It is this view of reductionism that I am interested in, and I am indebted to Repetti for his discussion of the problems attendant upon this view.

Repetti draws parallels between the conceptual delineation of the Theravāda and the Mahāyāna doctrinal interpretations of the Buddha’s teachings, and claims that the traditions themselves divide between compatibilist³² (early) and incompatibilist (later). Building on this platform he identifies a middle way or middle ground view, which accepts both. This has to do with the treatment of

²⁷ Repetti holds the view that all theories of determinism and free will are ultimately linear and at best are multi-or mega linear. R. Repetti, *Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond*, op. cit., pp. 295, 304, 338, 324 and 346.

²⁸ Repetti at no time uses the term ‘framework’ or views his analysis of determinism and free will debates as a framework. This is my term to represent the relations and differences he identifies in ‘Recent Theories of Free Will, Compatibilism, Incompatibilism, and Beyond,’ *Journal of Buddhist Ethics*, vol. 21 (2014).

²⁹ ‘Reductionist’ here refers to Repetti’s claim of linear/mega linear reduction. There is another use of it by Mark Siderits, who states: ‘I shall use “Reductionism” to refer to the view of persons and personal identity developed in Parfit 1984, and “reductionism” to refer to any theory that attempts to reduce entities of one sort to entities of a distinct sort. As shall soon become clear, not every reductionist about persons is a Reductionist’. M. Siderits, ‘Buddhist Reductionism,’ *Philosophy East and West*, vol. 47, no. 4 (Oct., 1997): pp. 455-478. Here quoted p. 473.

³⁰ Based upon observations Repetti has made throughout the 4 papers, in particular his 2012 paper on Siderits’ view of Paleo-compatibilism which Repetti has called Buddhist Reductionism. R. Repetti, ‘Buddhist Reductionism and Free Will: Paleo-compatibilism,’ *Journal of Buddhist Ethics*, vol.19 (2012b): pp. 33-95.

³¹ Buddhist Reductionism distinguishes between ‘ultimate’ and ‘conventional’ reality, which follows the scholarly interpretation taught by Madhyamaka teacher, Nāgārjuna (c. 150 - c. 250 CE).

³² Repetti, ‘Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,’ op. cit. p 285 fn. 9.

determinism, whether it is hard or soft, thus the softer the determinism, the closer to incompatibilism. Repetti's distinction between hard and soft determinism is that the latter allows some forms of 'agential control'.³³ Fatalism on the other hand differs from hard determinism in that, although some argue that alternative choices may be made, the outcomes remain literally futile. He defines 'semi-compatibilism' as hard determinism' in terms of ruling out agential autonomy at the level of ultimate reality, but notes that it is 'soft' in terms of being compatible with the sort of free will (in the moral-responsibility-entailing sense) that we attribute at the level of conventional reality.³⁴ Repetti's view of Buddhist Dependent Origination is one of 'soft determinism': 'determinism is true, that free will (in the moral-responsibility-entailing sense) is real, and that determinism does not entail inevitability (because knowledge of volitional causes and effects renders undesirable actions and outcomes avoidable)'.³⁵ He qualifies this: 'The Buddha rejected the idea that actions are inevitable, and he rejected fatalism on that ground (DN I 249-253)'.³⁶ He further writes:

Arguably, the Buddha seems to have tacitly accepted a minimalistic sense of "free will" involving wholesome volitional regulation in connection with progress along the Buddhist path. Because mindful volitional regulation fosters mental freedom and mindless unregulated volition fosters mental bondage, I think the Buddha would consider the only relevant type of free will one that involves volitional regulation, as opposed to the sort of unregulated volitional expression associated with free will in the West—the freedom to do as one pleases or to express one's volitions spontaneously in actions. Regulated volitional expression may be described as "controlled" will and unregulated volitional expression may be described as "unrestrained" or "free" will, where "free" implies "spontaneous." According to Buddhism, it is regulated will that leads to the central Buddhist goal of liberation or mental freedom— freedom

³³ Ibid., pp. 284, 286, 330.

³⁴ Ibid., p. 284, fn. 11.

³⁵ Ibid., p. 285.

³⁶ Repetti's footnote commentary is of interest. 'Digha Nikāya (DN), "Long Discourses." Goodman ("Resentment") rightfully disagrees with the equation of hard determinism and fatalism, because fatalism is acausal, as I noted earlier. However, Harvey ("Freedom") and Federman ("Buddha") each argue forcefully that hard determinism and fatalism share the implication that actions are inevitable, which I also noted earlier, that the Buddha rejected the idea that actions are inevitable, and thus that the Buddha would have rejected hard determinism.' Ibid., fn. 12.

precisely from the sort of mental bondage caused by unregulated will.³⁷

The link made by Repetti contrasting 'unrestrained' or 'spontaneous' free will and 'regulated' will concerns one of the many paradoxical cases that arise within the paradigm of freedom: that all acts of regulation necessarily curb absolute freedom, while absolute spontaneity is arbitrary and absent of choice making, therefore defeating the claim of freedom and free will.

By this reading, what is at stake in the free will debate is not so much unbound freedom, but 'power', or the power 'to choose' this over that. Absolute, or unbound freedom, like absolute determinism, as van Inwagen holds, lead to the same unfree place, which aligns with incompatibilism. Repetti addresses this problem from a moral perspective, calling it a semi-compatibilist sense of 'free' relating to 'reason-responsiveness' in moral responsibility. I remain unconvinced that conflating moral freedom with deterministic causation, hard or soft, addresses the problem of the definition of freedom and with it free will.

Otherwise the Buddha would have posited moral truth (dogma) as the root of ignorance, and he did not, he made perceptual and intellectual ignorance the root. Further, such a moral root requires being absolutist, there are no shades of moral right and wrong. Ignorance, on the other hand, as dynamic 'ignoring', may be both efficacious and non-efficacious. There appears then, to be a missing step that flows from absolute determinism as no freedom, to partial determinism as partial freedom. Treating this problem in a quantitative³⁸ way means the softening of determinism as discussed above, and involves empowering causation with an Epicurean-like swerve³⁹ type of principle, embedding in the process some form of self-regulation. On the other hand, a

³⁷ Repetti defines unregulated will as follows: 'This line of thought calls to mind an interesting parallel: between unregulated volitional expression as a chief cause of individual suffering and unregulated consumerism as a chief cause of collective suffering, but that is a topic for another inquiry.' Ibid., p. 285-6, fn. 13.

³⁸ 'Quantitative' here means the concept of weighting and the effects of addition and subtraction from the problem, as aligned with reductive approaches.

³⁹ Konstan David states: 'More problematic today is how the swerve might explain freedom of will – if indeed Epicurus' idea of the will was like our own. It did, at all events, introduce an indeterminacy into the universe, and if soul atoms, thanks to their fineness, were more susceptible to the effects of such deviations than coarser matter, the swerve could at least represent a breach in any strict predestination of human behaviour. And this might have been enough for Epicurus' purposes: he may not have invoked the swerve in order to explain voluntary action (claiming that it is action deriving, immediately or ultimately, from a swerve or some swerves of the soul's atoms). He may have wished merely to establish the possibility of action not deriving from the positions of the soul's constituent atoms at any time plus the effects of collisions among them resulting from their given movements at that time.' K. David, "Epicurus," *The Stanford Encyclopedia of Philosophy* (2014), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/sum2014/entries/epicurus/>>.

qualitative⁴⁰ treatment of the problem produces a quite different result, such as the ability to regulate the quality of the spatiotemporal cognitive 'arising', meaning the ability to monitor and reframe the causal experience as it occurs. What I conjecture the Buddha taught is that to do so reliably, requires an ignorance proof or 'Buddha warranted' basis of blueprint, and this is the purpose of Arahants,⁴¹ those who, so to speak, pass backwards the fruits of their nirvanic quests. Here the conditioning is threefold, the evolutionary or ancestral continuum as causation, the environmental continuum as causation (including the mind/body form) and the imported 'Buddha warranted',⁴² blueprint,⁴³ commonly known as The Middle Way (*ariyo aṭṭhaṅgiko maggo*). These three types of causal influencers participate in what is experienced as volitional action. Volitional action may arise out of any part of the causal spectrum spoken of earlier and is never a static or fixed action.

The problem is not so much the validity of the term 'volitional', as meaning intended or free to make, but rather the 'quality' of the intended action and therefore at what end of the ignorance/ignorance-free will spectrum it arises from. One can equally have misguided or misinformed intentions. The term 'ignorance' is therefore qualitative and points to *where* on the ignorance/ignorance-free will spectrum it arises from. It is helpful here to imagine the arising of the volition to take heroin which, on the face of it, appears free. The Buddha would say, yes, there is choosing taking place but its source can be identified on the ignorance spectrum by applying the foundational teachings (1-4) as a kind of cognitive manifold, designed specifically to illuminate the place of the arising actions. Taking the drug is technically volitional, but is nonetheless actually rooted in strong dependency. Therefore is not volitional in the free sense. Hence the extent of the Buddha's claim that all existence is suffering; to some greater or less degree, all volitions arise out of

⁴⁰ Qualitative here ignores the quantitative values and concentrates upon the characteristics and behaviours of the overall process. It is a meta-rather than reductive approach. Here it refers to the concept of 'regulation' as a whole function rather than a linear process.

⁴¹ An arahant (Pali) is 'perfected' person who has attained 'nirvana'. A.K. Warder, *Indian Buddhism* (Delhi: Motilal Banarsidass Publishers, 2000), p 67.

⁴² 'Buddha warranted' here means approved or rubber-stamped by the Buddha. Meaning, his teachings are guaranteed to guide and facilitate a person's journey to arahanthood.

⁴³ 'Blueprint' here means something more than just a teaching or guideline, it is a definitive map to be navigated in a definitive way.

the ignorance spectrum, until such time as one is empowered with the right set of tools to regulate the volitions strictly from the ignorance-free end of the spectrum. Further, this is not necessarily a moral process.

Therefore I will now present determinism/indeterminism, compatibilism/incompatibilism as conceptual regions of the spectrum of cyclically conditioned human *being*, which corresponds with the Buddha's foundational teachings of fundamental impermanence, 'no-self', and cyclical causation as Dependent Origination. It is important to note that there are many theories of determinism and free will, but these are the four main forms currently in circulation and they are the ones that Repetti works with. He identifies B. Alan Wallace⁴⁴ as an incompatibilist, and Asaf Federman⁴⁵ and Peter Harvey as advocating 'Theravāda compatibilism'. Wallace argues that, '[...] although determinism and free will are incompatible, subtle complexities of Mahāyāna Buddhist metaphysics circumvent the free will and determinism dichotomy'.⁴⁶ The view of dynamic equilibrium as 'coherent impermanence,' which I will now explain, accepts all of these positions as subjectively valid, but none as universally valid.

The Incompatibilist Position

As already established, coherent impermanence entails harmony and efficiency. For the moment it is sufficient to qualify it as double-edged and both pleasure- and pain-bearing in the Buddhist account of 'suffering' (*dukkha*). The principles of harmony and efficiency are central to my explanation for coherent aggregate arising, which, as has been established, is what the Buddha describes in his theory of Dependent Origination⁴⁷. In effect, coherent impermanence, as part of

⁴⁴ See Repetti, R. Repetti, 'Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,' *Journal of Buddhist Ethics*, vol. 21 (2014): pp. 279-352, op.cit., p. 280, pp. 336 - 344.

⁴⁵ 'Almost all of Federman's arguments about free will are from Dennett (Elbow Room/Varieties), ignoring a variety of nuanced compatibilist positions that diverge from Dennett's and better cohere with Federman's account—particularly Frankfurt's ("Freedom"), whose influence on contemporary free will discussions is inestimable.' Ibid., pp. 326 - 336.

⁴⁶ R. Repetti, 'Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,' *Journal of Buddhist Ethics*, vol. 21 (2014): pp. 279-352, op.cit. p. 280.

⁴⁷ 'As the doctrine of dependent origination is elaborated, three kinds of relevant dependence are identified. Together they constitute a complex web of interdependence on multiple dimension. [...] In a short text called *Instructions on the Profound Middle Path of the Prasāṅgika Mādhyamaka Tradition* [...] 1991a), Tsongkhapa writes that dependent origination is to be understood as "dependent arising, dependent existence and dependent designation" (Collected Works, Sha 578:3). J. L. Garfield, *Engaging Buddhism: Why it Matters to Philosophy*, (Oxford: Oxford University Press, 2015), pp. 27-28. Dependent Origination is stated as follows: 1) Avijjapaccaya saṅkhara: "Through ignorance the rebirth-producing volitions, or kamma-formations, are conditioned." 2) Saṅkhara-paccaya viññānaṃ: "Through the kamma-formations (in the past life, the present) consciousness is conditioned." 3) Viññāna-paccaya nāma-rūpaṃ: "Through consciousness the mental and physical phenomena (which make up our so-called individual existence) are conditioned." 4) Nāma-rūpa-paccaya salāyatanam:" 5)

dynamic equilibrium, allows for the agency of *empowered* or volitional change in the absence of a singular agent controlling the relations between two or more such singular entities: (such as self and other, or self and the concept of self, and self and the world, or self and the concept of the world). In effect what the Buddha taught is that we experience the ‘other’ as ‘unitary’ because we experience ‘self’ as unitary when, in fact, both experiences of absolutist unity are illusory. Applying this view of Buddhist impermanence and cyclical causation^{D/O} we can now turn back to the Repetti Framework. It is helpful to begin with Wallace’s⁴⁸ incompatibilist position.

Holographic Model (Wallace)

Repetti explains Wallace’s central position as pseudo-idealist (my term) as Wallace rejects all determinism as hard. He calls this view ‘Mahāyāna anti-realism’ based on a view of consciousness as unbound and absolutely free and which can be consciously accessed by humans, and exists constantly in Arahants. Wallace calls this a ‘non-linear holographic model’⁴⁹ that is ultimately ‘multiply-complex’.⁵⁰ This substrate consciousness is accessed by means of tantric yoga and meditation practices that invoke the so-called ‘unbound’⁵¹ qualities active in deity forms. This is not the same as appealing to the gods to solve problems and remove obstacles, such as in the case of Greek and Egyptian idol worship. Repetti’s view is that all theories of causation whether deflated or inflated rely upon linearity and at best can be described as ‘mega-linearity’. Wallace’s

Through the mental and physical phenomena the six bases (of mental life, i.e. the five physical sense-organs and consciousness as the sixth) are conditioned." 5) Salayatana-paccaya phasso: "Through the six bases the (sensory and mental) impression is conditioned." 6) Phassa-paccaya vedana: "Through (the sensory or mental) impression feeling is conditioned." 7) Vedana-paccaya tanha: "Through feeling craving is conditioned." 8) Tanha-paccaya upadanam: "Through craving clinging is conditioned." 9) Upadana-paccaya bhavo: "Through clinging the process of becoming (consisting of the active and the passive life-process, that is to say, the rebirth-producing kammic process, and as its result, the rebirth-process) is conditioned." 10) Bhava-paccaya jati: "Through the (rebirth-producing kammic) process of becoming rebirth is conditioned." 11) Jati-paccaya jaramaranam, etc.: "Through rebirth, decay and death, sorrow, lamentation, pain, grief and despair are conditioned. Thus arises this whole mass of suffering (in the future)." N. Mahathera, 'paticca-samuppāda: Dependent Origination (Second Lecture under the Dona Alphina Ratnayaka Trust, University College, Colombo (1938)', in *Fundamentals of Buddhism, Four Lectures*, (2005). *The Wheel Publication* No. 394/396, (Sri Lanka: Buddhist Publication Society, 1994). For translation see H. C. Warren, 'Buddhism in Translations', xxii.90, *Harvard Oriental Series, Vol. III* (Cambridge MA: Harvard University Press, 6th issue, 1915). P 161.

⁴⁸ R. Repetti, 'Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,' *Journal of Buddhist Ethics*, vol. 21 (2014): pp. 279-352, op.cit. p. 280.

⁴⁹ Ibid., pp. 338, 343.

⁵⁰ Means 'non-conventional'. Ibid., p. 338.

⁵¹ David Loy explains boundless as follows: '[...] the above claim about awareness, bound and unbound, it is necessary to emphasize how widespread and important it is within the Mahāyāna tradition, for it is found in many other canonical and commentarial texts besides the Perfection of Wisdom in Eight Thousand Lines. [...] "Let your mind come forth without fixing it anywhere."' D. Loy, *Awareness Bound and Unbound* (Albany NY: SUNY Press, 2009), p. 14. The importance of Nāgārjuna's position here is that it is consistent with the claim that samsara is awareness bound and nirvana is the "same" awareness as liberated [unbound]'. Ibid., p. 19.

substrate consciousness is unbound and therefore transcends even mega-linearity, hence Repetti's labeling of anti-realism. Repetti counters that Wallace has not succeeded in denouncing realism just on the grounds of all determinism being hard and fatalist - which the Buddha rejected.⁵²

While I agree with Repetti's objection here, I think the problem may be resolved if Wallace's view was approached via the proposed participatory will model. The result would not emphasise the two levels of bound and unbound states, but instead view them once again as shades of a conceptual spectrum within which a coherent basis of equilibrium occurs. The problem with fixing the two levels is that it makes static and *over-fixes* the cognitive point of view, thus there is either bound ignorance-bearing consciousness or unbound transcendental consciousness. I propose that this approach is inconsistent with the Buddha's axiom of continuous impermanence. The second fixed level view means either being here, or there, just as on a chequer board, the rook can only be in one place at a time. What I am saying is that if these states were viewed as opposite ends of a conceptual spectrum as 'bound/unbound', the rook(ie)'s personal equilibrium necessarily involves both. Therefore as with the rook, the Buddhist rook is never of a fixed state in a fixed two-dimensional place, but is always in a state of dynamic equilibrium that continually combines both bound and unbound states.

The result is a conditional spectrum that incorporates cognition and agency as both efficacious and non-efficacious ignoring. Such participatory will basis of agency is subjective and has no inbuilt warrant. What the Buddha provides is a warrant of efficaciousness as the Eightfold Path that includes meditation, Mindfulness.

What the Buddha teaches then, is the conscious combining of dynamic harmony and efficiency with meditation and Mindfulness (this being the alchemy of efficacious unbinding) and the moral edicts (these being the alchemy of

⁵² Repetti's footnote on this: Dīgha Nikāya (DN), "Long Discourses." Goodman ("Resentment") rightfully disagrees with the equation of hard determinism and fatalism, because fatalism is acausal, as I noted earlier. However, Harvey ("Freedom") and Federman ("Buddha") each argue forcefully that hard determinism and fatalism share the implication that actions are inevitable, which I also noted earlier, that the Buddha rejected the idea that actions are inevitable, and thus that the Buddha would have rejected hard determinism. Ibid., p. 285.

efficacious binding). As both are actively engaged with simultaneously, there is no need to posit two distinct levels. Wallace's view, I think, is very close to the Buddha's but has not treated as hard, foundational impermanence. Next I will zoom in further on the micro processes of free will and discuss Federman's position, as posited in the Repetti Framework.

A Sequential Process (Federman)

Federman, contrary to Wallace, considers why the Buddha did not go all the way from the rejection of top-down soul power to absolute free will. He surmises, 'Buddhism fails to meet this expectation. Buddhist arguments systematically shift the attention from agent causation to a causal sequence of impersonal processes'.⁵³ Federman cites the following arguments from the *Ànattalakkhana-sutta*:⁵⁴

First argument

1. If body was soul, and soul could not lead to affliction, then body does not lead to affliction.
2. It is not true that body does not lead to affliction.
3. Therefore it is not true that body is soul.

Second argument

1. If body was soul, it could be changed at will.
2. It is not possible to change body at will.
3. Therefore body is not soul.

(*Ànattalakkhana-sutta*)

I interpret these arguments as going back to the Buddha's 'no first cause'

⁵³ Ibid., pp. 315, 318.

⁵⁴ A. Federman, 'What Kind of Free Will Did the Buddha Teach?' *Philosophy East and West*, vol. 60 no. 1 (2010): pp. 1-19, see p. 8. For source text see: *Anattalakkhana Sutta – The Discourse on the Not-self Characteristic*, SN 22:59, S iii 66, i 901, translated by T. Bhikkhu, (1993), <http://www.accesstoinsight.org/tipitaka/sn/sn22/sn22.059.than.html>.

theory. The arguments suppose that soul can be changed at will: the point is that body is not soul. Federman interprets the soul/body relation differently, claiming that '[t]he text takes it for granted that if soul-as-aggregate exists, then the aggregate could be directly manipulated. Although it does not explicitly say the soul controls the aggregates, it does associate the existence of soul-as-aggregate with the ability to control.⁵⁵ This is a well-known form of argument used by Buddhists in support of the theory of 'no-self'. It is sometimes known as the argument from executive function. The conclusion is that there is not 'soul-as-aggregate'.

My view is that the treatment of the body and soul as conceptual things is a red herring⁵⁶ applied for the sake of stepping through the argument: to refer to P as P and Q as Q does not mean every such use claims the existence of absolutes, the purpose may be to examine the logical footprint of a claim. For example:

First argument

1. If P (body) was Q (soul), and Q could not lead to affliction, then P does not lead to affliction.
2. It is not true that P does not lead to affliction.
3. Therefore it is not true that P is Q.

Second argument

1. If P was Q, it (P) could be changed at will.
2. It is not possible to change P at will.
3. Therefore P is not Q.

⁵⁵ A. Federman, 'What Kind of Free Will Did the Buddha Teach?' *Philosophy East and West* vol. 60, no. 1 (2010): pp. 1-19, see p. 7.

⁵⁶ The definition of the term 'red herring' is as follows: 'an attempt to shift debate away from the issue that is the topic of an argument', L.A. Groarke, C.W. Tindale, *Good Reasoning Matters!: A Constructive Approach to Critical Thinking*, (Oxford University Press, 2004) p 66). Basically, a red herring is an objection to a position that doesn't address the actual argument. Its premises are irrelevant to the conclusion it seeks to negate/oppose. Sue Hamilton also makes reference to its use concerning the principle of 'no soul'. 'Because of its subjective connotations, the term anatta can act as a red herring. The Buddha was denying not people's selves, but that anything exists independently.' S. Hamilton, *Indian Philosophy: A Very Short Introduction* (Oxford: Oxford University Press, 2001), p. 51.

Federman claims ' [t]he conclusion does not say that soul does not exist, but rather says that none of the five aggregates is soul. More interesting than the conclusion is the premise, which says that soul entails entertaining ultimate agent causation ("Let my form be thus; let my form not be thus").

I counter Federman's claim to say that the soul (Q) does not exist but for reasons that Q cannot ontologically change P. Secondly, P cannot be Q and vice versa, by laying out the logic the Buddha is demonstrating the problems encountered by viewing existence in this atomistic or particularised way, which then leads to the extremes of absolutism and nihilism.

On the face of it 'Line 2' is a strong case for determinism, however, the red herring that the Buddha appears to apply consistently is to set up these exercises in logic without applying the caveat of universal (but not homogenous) impermanence. Therefore his foundational claim of no soul (meaning a permanent soul) is a product of impermanence, which he then qualifies as non-homogenous (my term). However, absolute impermanence would mean *no* formed things at all, just a chaotic indistinct soup or emptiness, such as with nihilism. However, each time-formed existence is reduced as per the arguments above, it appears to bottom out in Wallace's anti-realism, or emptiness and not as the Buddha's dynamic and bound impermanence, which only follows once the concepts of absolutism and emptiness are understood. In other words, the Buddha does not continuously discuss impermanence but teaches to keep the concept present at all times.⁵⁷ I conjecture this is because it is through these examples that one 'realises' the conclusion of impermanence. The logical exercise is itself a process of 'attached'⁵⁸ pursuit of 'one unitary' outcome, that of permanence, only to arrive at absolutism and nihilism, and from there deduce impermanence. Another way of expressing this is that the pursuit of the 'ultimately real' necessarily bottoms out as 'anti-real'. Therefore, as was the case with Wallace's argument, Federman's argument appears to have not

⁵⁷ 'The perceiving of impermanence, bhikkhus, developed and frequently practiced, removes all sensual passion, removes all passion for material existence, removes all passion for becoming, removes all ignorance, removes and abolishes all conceit of "I am."' SN 22.102. 'Perception of Impermanence.' In WH 107-109: Samyutta Nikāya, J.D. Ireland, *Collected Wheel Publications*, Volume VIII, Numbers 105-115, (Sri Lanka: Buddhist Publication Society, 2010), p 180.

⁵⁸ 'Attached' here refers to the Buddhist concept of attachment to personal unity as I, and the desire for independent singularity. I am suggesting that is desire influences all logical pursuits that is to reach a definitive singular outcome.

continuously applied the condition of prevailing impermanence.

'Wiggly Determinism' (Harvey)

Before discussing the second Federman claim of interest it will be helpful to consider Repetti's critique of Peter Harvey's position.⁵⁹ Repetti positions Harvey as supporting 'wiggly-determinism' that centers on the 'choice-making' component of determinism. Firstly, Harvey thinks that absolutist free will is illusory '[i]f there is no essential person-entity, "it" can not be said to be either determined or free'.⁶⁰ Secondly, Harvey locates his 'wiggle-room' in *already initiated* action, within which a range of 'choosing' occurs.⁶¹ This synthetically avoids the Wallace, and van Inwagen, claim of the impossibility of having *both* determinism *and* free will. Wallace resists the logical outcome of van Inwagen style incompatibilism by the introduction of his holographic model. I add that Harvey also makes such a synthetic 'meta' move. Repetti's view is that Harvey would be on stronger philosophical ground if he opted for a form of 'soft determinism'.⁶² I propose that he did not do so because he fundamentally accepts the incompatibility of absolute determinism with absolute free will. Therefore in order to avoid the problems of determinism hard or soft, that claims of free will produce, he has ring-fenced his version of meta-autonomy. This is not the same as the claim of 'participatory will' that I hold, as it is a synthetic (ultimately linear) partitioning designed to be a 'bridge' between determinism and free will. Repetti analyses this position as:

Meta-mental volitional regulation and, to the extent that - both within and outside Buddhism - a thing's causal powers count as grounds for its ontological status, they also support a somewhat Pudgalavādin-type view

⁵⁹ Repetti, p 331. fn. 84. 'The soft determinist thinks we would be free to choose otherwise under slightly different deterministic conditions: if we wanted to choose otherwise; the hard determinist replies we can never want to choose otherwise; the soft determinist counters we could want to choose otherwise if we had different wants; the hard determinist retort is that we can never have different wants; and so on. The debate boils down to whether it is reasonable to consider unactualized possibilities sufficient for purposes of moral responsibility. I argue that it is reasonable (Counterfactual).' Repetti, R. Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond, *Journal of Buddhist Ethics*, vol. 21 (2014). p. 331, fn. 84.

⁶⁰ Ibid., p 338.

⁶¹ Repetti states, 'Harvey's tacit resistance to this line of thought might be due to the fact that the Buddha's reference to this "element of initiating" is illustrated by the possibly-limited ability to control one's movements'. Ibid., p 329.

⁶² 'Soft determinism differs from hard determinism in that it allows the possibility of 'slightly different deterministic conditions: if we wanted to choose otherwise; the hard determinist replies we can never want to choose otherwise; the soft determinist retort is that we can never have different wants; and so on.'⁶² Repetti, p 332, fn. 84.

that the Buddhist has intermediate-level functional and/or ontological status between conventional/ultimate) as a self-regulating (autonomous) agent.⁶³

Another of Harvey's views which Repetti questions is the claim that the Buddha was opposed to determinism because of the ability to suspend and re-point one's actions ('unwholesome/unskillful (akusala) and wholesome/skillful (kusala)).^{64 65 66} What these compatibilists both strive to preserve is common sense agency that we experience in our daily actions. However, thus far, this only seems possible through artificially fixing the meta-component in what they believe corresponds with the middle ground view between the extremes of fatalism and nihilism.

Finally, Repetti thinks that because Harvey considers the unfree conventional level as efficaciously real and not a 'myth', it is then illogical for him to reject soft determinism.

Partial Incompatibilism (Goodman)

Moving onto the Goodman position, according to Repetti, Goodman is stricter about the claim of no-self and holds that free will is impossible without a self to possess such abilities, which has already been highlighted. This is precisely what I mean about the Buddha's 'red herring' logic, where he appears to deliberately offer propositions that invite the imposing of an artificial assumption or premise to make the proposition work. Goodman's case is logically watertight, that the discussion of free will is moot if there is no self to possess it. Arguably, I am guilty of the same tactic by importing the dynamic characteristics of harmony and efficiency; however, I have grounded these as premises of the Buddha's

⁶³ Ibid., p 329.

⁶⁴ Ibid., p 330. Repetti fn. 83 'Goodman is correct, but thinks Buddhism is hard determinist, and he ignores the fact that hard determinism and fatalism nonetheless share inevitabilism (one causal, one acausal, respectively); see Buddhist 'Hard Determinism: No Self, No Free Will, No Responsibility,' *Journal of Buddhist Ethics* vol. 19 (2012), 130-197'. Also, P. Harvey, 'Freedom of the Will in Light of Theravāda Teachings,' *Journal of Buddhist Ethics*, vol. 14, (2007), p 40.

⁶⁵ I have also included his helpful footnote (83) which supports Repetti's view that the Harvey position is fallible to fatalism presumably because it makes absolute the components of causation. 12 'Dīgha Nikāya (DN), "Long Discourses." Goodman ("Resentment") rightfully disagrees with the equation of hard determinism and fatalism, because fatalism is acausal, as I noted earlier. However, Harvey ("Freedom") and Federman ("Buddha") each argue forcefully that hard determinism and fatalism share the implication that actions are inevitable, which I also noted earlier, that the Buddha rejected the idea that actions are inevitable, and thus that the Buddha would have rejected hard determinism.

⁶⁶ 'Both he and Wallace quote Federman on this point, as if the Buddha discussed "determinism" in his objection to the fatalist view of Makkhali Gosāla (DN I 53-54). Goodman rightly objects to this inference, however, because the fatalism the Buddha rejected is not necessarily deterministic ("Resentment"). Ibid., p 330.

metaphysical cyclicity and impermanence.

Therefore, to paraphrase Goodman: for any kind of willing to occur there needs to be something that possesses it. My analysis is that the Buddha's foundational teachings (1-5) provide all that is needed to make this apparently absurd claim work. To further restate Goodman's conclusion: free will is impossible without 'a basis' of 'producing' such abilities, the appearance of which looks like a self. The basis of producing such abilities, then, is the dispositional capacity to seek and sustain dynamic equilibrium between the two extremes of absolutism and nihilism, made possible by observably coherent impermanence: the coherence of which entails dynamic harmony and efficiency as cyclicity. Goodman, however, is correct in his statement that when impermanence is made coherent as being stabilised but not fixed or static, the outcome is no absolute 'free will' but potential (and I add) 'participatory will'. It is the combining of these dynamic principles that produce general, and what appears as individual, choosing. Therefore the Buddha's foundational teachings (1-5) can be stated as follows: 'there is 'choosing', but no absolute 'free' will as this would require independent origination of selves. This may be further restated as: 'there is ignoring, and how one ignores is dynamic as the spectrum of ignorance'. Therefore, there is choosing, but as dynamic interdependent origination which allows participatory choosing. Participatory choosing is fluid and complex, the viewpoint of which moves between the two poles of absolutism and nihilism. It is towards the middle position that participatory choosing is optimally participatory because it resists the strong subjectivity of the two extremes. This middle point, or region, is dynamic, the equilibrium of which is tested with each arising moment. The cultivating and sustaining of this middle point region is the blueprint of the Buddha's Middle Way. Within this process is the spectrum of ignorance and ignorance-free will (as discussed earlier).

To conclude, then, Goodman's claim of no free will in the absence of a self is true because of the two extremes of absolutism and nihilism discussed. However, there can be agent-less agency of choice within the spectrum of ignorance and ignorance-free will, in the absence of moral idealism.

‘Paleo-Compatibilism’ (Siderits)

As already touched upon in my footnotes, Siderits also approaches this problem by aligning himself with the Nāgārjuna view of two truths,⁶⁷ Nāgārjuna identified two levels of existence, one conventional and one absolute, situating the decision making process we all experience both of them, one unfree (conventional) and the other free (absolute). The middle path then may be understood as the ability to cultivate greater understanding of this duality through the Eightfold Path, which allows one to navigate away from the illusory conventional towards the true ultimate. What this two level model explains is that all forms of conventional level choosing are unfree, and therefore determined. This is what Repetti disagrees with when he says that Goodman ‘simply embraces hard determinism’, while Siderits ‘adduces a “paleo-compatibilist” position between hard determinism and libertarian indeterminism by parsing each at different levels of reality’.⁶⁸ What I am proposing is that all three views are correct in so far as they show where the thread of logic lands on the conditioning spectrum as the quadrants of determinism/indeterminism, compatibilism/incompatibilism. This, I propose, is precisely the aim of the Buddha’s ‘red herring’ type claims. I will now revisit the compatibilist position, picking up with the Federman viewpoint with regard to Dennett’s.

Compatibilism (as the Federman/Dennett Position)

Firstly, Federman makes clear that Dennett’s Darwinian evolution ‘has no Buddhist counterpart’.⁶⁹ Federman also frames Dennett’s free will as ‘as a kind of self-control that is based on a unique set of cognitive skills: to represent, to reflect, and to imagine possibilities’.⁷⁰

We are the only species whose members can imagine the adaptive

⁶⁷ ‘Nāgārjuna says: ‘The Buddha’s teachings of the Dharma / Is based on two truths: / A truth of worldly convention / And an ultimate truth’ (Garfield, 1995, p 68)’ in A. Pitkin’s, *Scandalous Ethics: Infinite Presence with Suffering* in (ed.) E. Thompson, *Between Ourselves: Second-person Issues in the Study of Consciousness* (Charlottesville: Imprint Academic, 2001) p 241. Translated text is the Mūlamadhyamakakārikā in J.L. Garfield’s, *The Fundamental Wisdom of the Middle Way*, (Oxford: Oxford University Press, 1995).

⁶⁸ R. Repetti, ‘Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,’ *Journal of Buddhist Ethics*, vol. 21 (2014): p 291.

⁶⁹ A. Federman, ‘What Kind of Free Will Did the Buddha Teach?’ *Philosophy East and West* vol. 60 no. 1, (2010): pp. 1-19. p 9.

⁷⁰ Ibid., p 9. Fn. 36.

landscape of possibilities beyond the physical landscape, who can "see" across the valleys to other conceivable peaks evolved capacity to reflect gives us - and only us - both the opportunity and the competence to evaluate the ends, not just the means.⁷¹

Federman views this imagining process as 'non linear' and 'accumulative'.⁷² In order to make sense of all the permutations that sit between the absolutes of permanence and impermanence, the first step is to decide which aspect or theoretical part is to be examined. The second step is to test it by means of applying different scenarios; these scenarios may be deliberately absurd or contradictory for the purpose of demonstrating fallibility in the argument. The Buddha chose his wording very carefully and I argue that many of his arguments are demonstrating one thing to reveal another, just as I have shown above.⁷³ Taking this forward, the question once again is where to begin with the problem of free will? And, if the Buddha's theory is foundational impermanence, then how do we step through our thinking on free will if we can't get past first base? As Federman writes:

The more accurately one represents reality and imagines possibilities, the more freedom one has. Free will is, therefore, our imperfect ability to control ourselves, to direct ourselves (our bodies, to begin with) toward the imagined goal. Free will in this sense is necessarily a property of an agent who wants something, and who can drive himself in the direction of fulfilling the desire.⁷⁴ This is the second kind of free will that is mentioned above (FW2):⁷⁵ an agent's ability to control action in

⁷¹ Ibid., p 9. Fn. 36.

⁷² Ibid., p 10.

⁷³ For example, see Graham Priest's short essay titled *Beyond True and False* in which he demonstrates how mathematics can accommodate the contradictory teachings of the Buddha. He states: 'Philosophers in the Mahāyāna traditions hold some things to be ineffable; but they also explain why they are ineffable [...]. Now, you can't explain why something is ineffable without talking about it. That's a plain contradiction: talking of the ineffable.' He goes on to show that Russell's Paradox accommodates what is known in Buddhism as the causkoti principle. '[t]his principle is called the catuskoti, meaning 'four corners'. It insists that there are four possibilities regarding any statement: it might be true (and true only), false (and false only), both true and false, or neither true nor false.' Priest concludes 'Some sets are members of themselves; the set of all sets, for example, is a set, so it belongs to itself. But some sets are not members of themselves. The set of cats, for example, is not a cat, so it's not a member of the set of cats. But what about the set of all the sets that are not members of themselves? If it is a member of itself, then it isn't. But if it isn't, then it is. It seems that it both is and isn't. So, goodbye Principle of Non-Contradiction. The catuskoti beckons.' G. Priest, *Beyond True and False*, *Aeon*, (5 May 2014). <https://aeon.co/essays/the-logic-of-buddhist-philosophy-goes-beyond-simple-truth>.

⁷⁴ Ibid., p 9, fn. 37: D.C. Dennett, *Elbow Room: The Varieties of Free Will Worth Wanting* (Oxford: Clarendon, 1984), pp. 52 ff.

⁷⁵ Federman's term for 'free will 2'.

conformity with his will when there are no constraints, coercions, and compulsions that limit performance.⁷⁶

The first sentence may then become, 'the more accurately one represents foundational impermanence and imagine possibilities, the more freedom one actually has'.⁷⁷ The second sentence does not easily follow because we cannot make an easy leap from understanding impermanence to being able to 'direct ourselves towards our imagined goals'. His second goal is more manageable as it is conceivably through understanding impermanence that some, if not all of the constraints, coercions, and compulsions that limit freedom are understood, all of which may be interpreted as the elimination of ignorance. What seems to be missing here is the alignment of the question of free will with metaphysical impermanence. To pursue free will in this way seems to compound the claim of ignorance the Buddha repeatedly made. Two potentially good questions designed to bridge this gap are: 1) what is the central obstacle to understanding impermanence? and 2) what is the central basis of stabilised impermanence as experienced in everyday life? To answer the first question one may propose the greatest obstacle is the tendency to inappropriately regard something as existing independently. The second question aids our understanding of the first because, rather than speak immediately of free will, the ground work lies in looking at what might stabilise - but not fix - impermanence. This has been discussed as the concept of dynamic equilibrium. Accepting the synthetic nature of the principles of dynamic harmony and efficiency as rooted in impermanence and cyclical causation^{D/O}, I argue that they provide a basis of explaining why both absolute determinism and absolute free will are incompatible. This is because they are red herring concepts.

Red Herring Free Will

I argue that the very process of working out the problem of free will in the presence of the theory of 'no self' will lead to landing on one of the quadrants of the conditioning spectrum. Further, each line of inquiry is legitimate just as

⁷⁶ Ibid., p 9.

⁷⁷ My usage.

its conclusions are valid, even though they are sometimes contradictory. This is a conceptual metaphysical maze conceived to promote the mastery of all its necessary dead ends in pursuit of understanding the problem of fixing or making static, even conceptually, foundational impermanence. I go so far as to propose that the Buddha would be accepting of all the diverse interpretations of his teachings in circulation today, considering each of them as embarked on their respective journeys through the maze. Furthermore, all that he would do is restate the claims of his foundational teachings (1-5). He would simply say, if you wish to escape this illusory maze, adopt these metaphysical principles (impermanence, no-self) and this basis of existence (the Four Noble Truths, Dependent Origination and the theory of the khandhas) and by understanding all of this, approach the illusory maze in this way (The Eightfold Path). Then he would leave us to work out why. By doing all of this, one will see the maze and one's experiential locus, as fluid, cyclical and participatory. However, in a given life time one may not quite get there in sufficient time without the aid of a blueprint such as the Buddha's Eightfold Path and accompanying metaphysics.

A Linearity Problem (Repetti)

The red herring appears to lie in the fixing of one or more aspects of the Buddha's metaphysical claims, resulting in the atomisation of absolutist unity (as self and independent objects), which leads to Repetti's claim of reductionist linearity. Applying this conclusion within the Repetti Framework, what both Repetti and I have shown is that the importing of external assumptions is inconsistent with Buddhist impermanence and produces atomist linearity. For example Harvey's agentless agency (as may the creation of a dual or multi-level metaphysical domain) only compound the atomisation of causation as per Repetti's claim of foundational linearity (single/multiple/mega). The problem with approaching causation as the linear effecting of things is that it assumes ontologically founded 'this-ness' and 'that-ness', which conceptually atomises these things. Such exercises in (Buddhist) linear logic do not appear to sufficiently take into account the prevalence of impermanence, - this problem is discussed in chapter two on atomism. Further, in order to avoid the imposing of multiple levels and metaphysical hierarchy, the prevailing quality of

impermanence must be paramount, accepting the subjective nature of perception.⁷⁸ The metaphysical construct I interpret the Buddha to have meant, contains no real hierarchy or levels as such, only qualitative aggregate patterned emergence, taking place both physically and mentally. This metaphysical construct and logical problems that accompany it, may be expressed as the conundrum of coherent impermanence.

The Conundrum Of Coherent impermanence

It could be argued that what the Buddha meant by the aggregates⁷⁹ is that they combine in complementary cyclical patterns expressing dynamic harmony and efficiency. Repetti would counter, and I would agree, that this analogy is still strictly atomic in its spatiotemporal linearity and still lends itself to the two-level, if not a mega-linear, interpretation. But theories of multiple linearity will always face the problem of trying to explain the experience of self in the absence of *something* that produces the fusion or binding of the multiple causes. If we insist on linear models we therefore must also import secondary assumptions.

Fusion Determinism (Binding Of The Khandhas)

To recap, a coherent impermanence view requires that we step inside the combined deterministic and indeterministic metaphysics and identify the patterns that drive forward the fusion of harmony and efficiency: I will descriptively call this, for the moment, ‘Fusion Determinism’.⁸⁰

Arguably there is some basis for Fusion Determinism to be debated as Dual-Determinism (the combining of determinism and indeterminism) but that would once again to reduce it too far to atomic principles and Repetti’s mega-linearity. Fusion here is just a term that embraces the compatible binding of conditioned

⁷⁸ Specific to each personal conditioning also spatial temporal proximity - close, far away etc.

⁷⁹ Rupert Gethin proposes a cyclical basis for the arising of the khandhas: ‘The theme of the arising and passing away of the khandhas is interwoven in a cycle of khandha-samyutta suttas with that of the their pleasure (assāda), their danger (ādinava) and the escape from them (nissarana); this apparently brings together all the various aspects which make for the full understanding of the nature of the khandhas. R. Gethin, ‘The five khandhas: their treatment in the Nikāyas and early Abhidhamma’, in P. Williams (ed.) *Buddhism: Abhidharma and Madhyamaka, Volume 4*, (Oxford: Routledge, 2005), p 150.

⁸⁰ ‘Fusion Determinism’ is not proposed as a formal term but is offered as a thought experiment to convey first the concept of mega-linearity (Repetti) and then to convey the holistic concept of dynamic equilibrium.

dynamic flow as the harmony and efficiency of the spatiotemporal framework. From a Buddhist stance, this preserves impermanence as indeterminism and the fusion of the two, but a problem arises with the fixing of determinism, particularly as fatalism, as highlighted by Federman. To quote Harvey ‘hard determinists do not deny we make choices, but that we are free to choose otherwise under identical deterministic conditions’.⁸¹

Repetti summarises his peers’ treatment of determinism as follows:

Early-period scholarship mostly shares a neutral, middle-path position between “rigid” (hard) determinism and “chaotic” (libertarian) indeterminism that I call “wiggly-determinism” and which I have argued is unsuccessful. Goodman, simply embraces hard determinism, whereas Siderits⁸² adduces a “paleo-compatibilist” position between hard determinism and libertarian indeterminism by parsing each at different levels of reality.⁸³

Echoing Siderits and Goodman,⁸⁴ Repetti reduces each of these positions to linear determinism. Where Federman is concerned, Repetti describes it as ‘Dennett-like’⁸⁵ which will be examined in brief now.

A Dynamic Approach (Spectrum not Linear)

The entry point to stabilised impermanence once again is the metaphysical cyclicity. To sustain a circle there must be a holding manifold, otherwise the integrity of the form would be lost. I have proposed that there are two metaphysical features of this manifold, that of dynamic harmony and efficiency, both of which shape spatiotemporal emergence and maintain the cyclical form. If cyclicity exists then something necessarily regulates its existence. Everything that pushes equilibrium outside these thresholds breaks these relations. At no time or place (spatiotemporal) is there an ontologically fixed entity, only

⁸¹ Ibid., p 284, fn. 10.

⁸² Ibid., p 291, fn. 24.

⁸³ Ibid., p 292.

⁸⁴ Ibid., p 328, fn. 79.

⁸⁵ Refers to Daniel Dennett’s evolutionary approach which is aligned with Richard Dawkin’s view. ‘Evolution is the blind watchmaker, and we must never forget it.’ See chapter two in D.C. Dennett, *Freedom Evolves*, (New York: Viking Penguin, 2004).

dynamic equilibrium entailed in coherent cyclical form. It is my view that what the Buddha taught was the cultivation and mastery of equilibrium within the conditioning spectrum.

What I propose is that the concept of dynamic equilibrium as a conditioning spectrum may be viewed in more than one way. The first is as linear forward causation, which immediately raises requests for confirmation from determinists. This problem is transcended in two ways, the first is synthetic and requires the introduction of a meta-domain, such as has been shown in the Wallace and Harvey examples. The second is to expand linear causation as mega-linearity, as shown by Repetti's perspective. Neither of these strategies makes truly compatible absolute determinism and absolute free will, which Buddhism metaphysically accepts; otherwise there would be no need for a 'middle' path. What I propose and will demonstrate in chapter two is that all linear formulations are founded in absolutism, which is central to the Buddha's project. This I discuss as absolute unity and the atomic POV. What I propose, is that the theories of determinism, indeterminism, compatibilism and incompatibilism each and together, respond to the problem of absolutism as approached by the Buddha. Individuals then, in their respective contemplation of absolutism, will encounter the opposite extreme of nihilism and with it, the intermediary positions discussed above. Each of these positions is a valid analysis of the problem of absolutism. The key difference between Western and Buddhist analysis is that the latter make central the problem of absolutism, and with it the doctrine of 'no-self', the starting point. The Western position starts with the assumption of absolutist causal relations and is therefore linear and multi-linear. This claim is strictly for the purpose of aligning the Buddhist perspective with some current themes in neuroscience, by demonstrating the significance of the atomic point of view. This subject is developed further in chapter two as some of the early Buddhist attempts to allow synthetic absolute unity as atomism.

Dennett-Style Compatibilism

Before concluding this chapter I will briefly discuss another position not discussed, although cited by Repetti: Daniel Dennett's compatibilism. What Dennett essentially states is that within evolutionary adaptation we can

recognise patterns, but these do not lock down determinism as fatalism, which would disallow the function of adapting. He also discounts Frankfurt's 'principle of alternate possibilities'⁸⁶ because such a principle destabilises the ability to assess anything as willing or responsibility at all. He calls this 'a most peculiar problem of ignorance'.⁸⁷ Dennett writes:

If our responsibility really did hinge, as this major philosophical tradition insists, on the question of whether we ever could do otherwise than we in fact do in exactly those circumstances, we would be faced with a most peculiar problem of ignorance: it would be unlikely in the extreme, given what now seems to be the case in physics, that anyone would ever know whether anyone has ever been responsible. For today's orthodoxy is that indeterminism reigns at the subatomic level of quantum mechanics, so in the absence of any general and accepted argument for universal determinism, it is possible for all we know that our decisions and actions are truly the magnified, macroscopic effects of quantum-level indeterminacies occurring in our brains.⁸⁸

Dennett's analysis of Frankfurt's principle echoes the problems that I have shown arise with the imposing of two or more metaphysical levels of existence. Further, Dennett's objection that there would be no way of knowing whether anyone was ever responsible for anything holds in the Buddhist sense: particularly in the absence of a self, this is because prevailing randomness as incompatibilism in the extreme produces chaos and nihilism. Dennett's theory, I feel, allows for variation in responsibility such as we might experience today in a court of law. It may also be in loose alignment with participatory will and the spectrum approach I have applied to the determinism versus free will debate, and to ignorance and ignorance-free will. Peter van Inwagen objects to Dennett's approach, claiming it is just another way of packaging up determinism to an absolutist end (my paraphrasing). The problem once again is the pursuit of a fixed constancy of arising.

⁸⁶ H. Frankfurt, 'Freedom of the Will and the Concept of the Person,' *Journal of Philosophy*, vol. 68 (1971): pp. 5-20. See also 'Alternate Possibilities and Moral Responsibility,' *Journal of Philosophy* vol. 66, no. 23 (1969), pp. 829-839.

⁸⁷ D.C. Dennett, *Elbow Room: The Varieties of Free Will Worth Wanting* (Cambridge, MA: MIT Press, 1984): pp. 131-136.

⁸⁸ *Ibid.*, p 148.

But, looked at this way, Dennett's arguments are not really new. Don't they come down to this? To say that A could have done X is to ascribe to him the following feature: he would have done X if he had tried (or wanted) to- he was not "trapped in a pocket of local fatalism, and, in relevantly similar future circumstances, he may well try (or want) to."⁸⁹

However, Paul Williams goes so far as to align van Inwagen's incompatibilist viewpoint with Buddhism.

Peter van Inwagen refers to the imaginary case of Alice, a 'staccato being'. Every thousandth of a second later a perfect duplicate of her appears. This continues for an indefinite period. No one notices any difference. This appears to me very much like certain Buddhist views of impermanence. Van Inwagen argues - I think correctly - that since there is actually no continuous being here there could be no continuous conscious being. Since there is no continuous conscious being we cannot speak of consciousness at all [a consciousness which lasted only a split second and belonged to no continuous conscious being could not be consciousness] - 'a world of 'Alices' would be a world without consciousness.'⁹⁰

What van Inwagen has identified is the problem of linear causation being discussed here, which, as we have seen, Repetti has extended into infinity. I will discuss this specific problem in chapter two within the context of Buddhist momentariness. However, in order to conclude this chapter, note that van Inwagen's position sits at the incompatibilist end of the conditioning spectrum. I have argued that in any given instance a person's decisions and actions may be considered from the perspective of each of the quadrants of the conditioning spectrum and that the spatiotemporal motion in question is one that may be described as coherent impermanence. It is this 'perspective' then that corresponds with efficacious and non-efficacious ignoring and it is the definitions of determinism, indeterminism, compatibilism and incompatibilism that correspond with spatiotemporal 'basis' of cognitive ignoring. In other words,

⁸⁹ P. van Inwagen, 'Dennett on 'Could Have Done Otherwise'', *The Journal of Philosophy* (1994), vol. 81, no.10, Eighty-First Annual Meeting American Philosophical Association, Eastern Division (Oct., 1984), pp. 565-567, p 567.

⁹⁰ P. van Inwagen, *Material Beings* (New York: Cornell Press,1990), pp. 209 -210.

these perspectives are intellectual constructs as atomist rooted linearity and the conditioned attachment to absolutist unity (as the Buddhist atomistic ‘I’ point of view).

Conclusion

The central aim of this chapter was to propose an alternative way of viewing the debates on determinism and free will, applying the foundational teachings (1-5) of the Buddha. In order to do so, I had to first frame the metaphysics of these five teachings in such a way that foundational impermanence could be seen as a coherent constant. In doing so I introduced some new terms aimed to be descriptive of the principles discussed. To offer an explanation of the observable coherence of nature and of spatiotemporal cognition, I broke apart the Buddha’s concept of cyclicity, choosing the standard terms ‘harmony’ and ‘efficiency’ to denote the dynamic parts. It is the dynamic principle of harmony and efficiency that underpins coherent impermanence and participatory will. I then discussed Repetti’s interpretation of the Buddhist view and his objections to the views of Wallace and Federman and, briefly, of Siderits, Dennett and van Inwagen. I also discussed Repetti’s view of multi-linearity. In doing so I aimed to illustrate the validity of each point of view, placing them side-by-side as a kind of spectrum of conditioning. I proposed that dynamic equilibrium is an alternative interpretation of the Buddha’s Middle Way that keeps present at all times the concept of coherent impermanence and is based upon the parameters of absolutism and nihilism. The result is a definitive shift away from, but not the denial of, the linear models objected to by Repetti. In other words, the metaphysical positions of determinism/indeterminism, compatibilism/incompatibilism each identify different aspects of the same conditioning spectrum of the spatiotemporal cognitive apparatus. My claim then is, that they are each individually and together valid and raise useful questions that reveal the parameters of the Buddha’s Middle Way as a guide for the efficacious harnessing the dynamic harmony and efficiency aspects of the spatiotemporal cognitive apparatus. I have also claimed that the Buddha’s teachings are at times deliberately ‘red herrings’, advanced for the purpose of inciting the pupil (or reader in this case), to discover, along with other views, these four

expressions of the metaphysical principles of absolutism and nihilism.

Chapter Two: Early Buddhist Atomism and Multi-linearity

In chapter two, I illustrate early Buddhist atomist reductive attempts to make particular the Buddha's theory of impermanence as momentariness¹ and divisionalised² and dimensionalised³ unitariness.

In all cases the view was materialist and I have analysed some of the approaches as efforts to make permanent the spatial or temporal elements of the atomic structure, and, in some cases, both. The concept of atomism is discussed as 1) metaphysical 'unity' 2) absolute unity (unity^{ab}) and 3) aggregate unity (unity^{ag}).⁴ This is done in alignment with Rick Repetti's analysis of multiple-linearity that was discussed in chapter one.

Unity and Linearity

I propose that linearity incurs a fundamental problem. It requires that an atomistic *some-thing* must first assume spatiotemporal dimension, and then spatially and temporally travel from a fixed A to a fixed B, landing upon the fixed stations of A¹, A², A³...and so on along the way. The whole conceit of linearity requires the *insertion* of an atomistic principle such as an absolutist metaphysical basis, including the abstract forms of numeric and geometrical concepts. The concept of the atom (as unity^{ab}) entails the characteristics of singular and independent unity based upon the intersection of the two geometrical axes of space and time. Because the principle of unity^{ab} requires the

¹ 'Momentariness (khānavāda)' is a Buddhist term used to explain impermanence. In a discussion of what he calls 'the two dimensions of the mind', Christian Coseru explains: 'An important, and perhaps unintended, consequence of this project of reductive analysis is that momentariness is revealed to be not only a principle of the nature of reality, but also (and more significantly) of cognitive awareness itself. In the formula of dependent arising (...), the awareness that arises in conjunction with the activity of a given sensory system is itself impermanent and momentary: visual awareness and visual object, for instance, are both events within a mental stream of continuing relations.' C. Coseru, 'Mind in Indian Buddhist Philosophy,' *The Stanford Encyclopaedia of Philosophy* (2012), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/win2012/entries/mind-indian-buddhism/>>. See *Āṅguttara-nikāya*: I 286; *Majjhima-nikāya* I 230, 336, 500; *Samyutta-nikāya*: II 26, III 24-5, 96-9, IV 214.

² 'Divisionalisation' is a term I have applied to illustrate the reduction process by division.

³ 'Dimensionalisation' is a term I have applied to illustrate the process of extension into infinity. 'To divisionalise' means to break down or reduce, while 'to dimensionalise' means to build out or project into infinity. Both methods are consistent with Repetti's theory of linearity. See R. Repetti, 'Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,' *op. cit.*, pp. 295, 304, 338, 324 and 346.

⁴ The terms 'unity^{ab}' and 'unity^{ag}' will be used throughout this chapter and adapted in chapter three to 'agentic^{ab} self' and 'agentic^{ag} self'

synthetic fixing of one or more aspects of the atomic spatiotemporal structure, this fixed spatiotemporal intersection is the basis of both simple and mega-linearity, such as that identified by Repetti. As we have seen, in the case of mega-linearity, Repetti's - focus is on the principle of reductionism. He claims that all metaphysical claims, complex and simple may ultimately be expressed as linear. I take Repetti's view a stage further here and claim that all metaphysical claims, complex and simple, reduce to, or may be expressed as atomist unity^{ab}.

Effectively I agree with Repetti's claim but add that the reductionist linearity he has identified is precisely what the Buddha endeavoured to correct but did not approach head on. My aim is to explain why the Buddha may have chosen to veil or teach by means of 'red herring' propositions: bearing in mind that the basis of his entire philosophy is one of 'understanding' and the 'avoiding' of extremes. In doing so, the Buddha established his Middle Way as a 'warranted' and 'reliable' method of avoiding the pitfalls of extremes. It is clear that he did not advocate coming to know the reality of extremes through direct experience, instead he taught by parable-style metaphors and red herring questioning that present the novice with arguments designed to bring them to fully comprehend the metaphysics and common sense nature of the Middle Way.⁵

Following this speculative exploration of the Buddha's approach to teaching the avoidance of extremes, I next introduce the concept of aggregate unity (unity^{ag}), which I propose is the cognitive basis of the Buddha's experience of awakening. By this I propose he shifted wholly from a unity^{ab} (absolutist) perspective to a unity^{ag} (aggregate) perspective, which can only be understood by fully comprehending the metaphysical extremes of absolutism and nihilism by means of the many forms of multi-linearity described by Repetti. Thus the concept of

⁵ Mark Siderits states 'When the Buddha says that a person in one life and the person in another life are neither the same nor different, one's first response might be to take 'different' to mean something other than 'not the same. [...] This has led some to wonder whether the Buddha does not employ a deviant logic. Such suspicions are strengthened by those cases where the options are not two but four, cases of the so-called tetralemma (*catuskoṭi*). For instance, when the Buddha is questioned about the post-mortem status of the enlightened person or arhat (e.g., at *Majjhima-nikāya*: I.483-8) the possibilities are listed as: (1) the arhat continues to exist after death, (2) does not exist after death, (3) both exists and does not exist after death, and (4) neither exists nor does not exist after death. [...] And their denial seems tantamount to affirmation of excluded middle, which is *prima facie* incompatible with the denial of both (1) and (2). One might wonder whether we are here in the presence of the mystical.' I argue these claims may be understood if impermanence and cyclical causation is understood from a harmony and efficiency point of view. The arhat is at no time a fixed spatiotemporal thing. 'M. Siderits, 5. Attitude towards Reason' in, 'Buddha', *The Stanford Encyclopedia of Philosophy* (2015), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2015/entries/buddha/>>.

the atom as unity^{ab} is incompatible with the theory of impermanence.

Impermanence is the only ontological metaphysical claim the Buddha made. This is ironic in that impermanence defies ontological fixing, everything else in his teaching explains how to understand impermanence and how to fail to understand it.

My claim then is that this specific stage of comprehension is critical to achieving Buddha-awakening, during which the novice partakes in the intellectual praxis of extending (dimensionalising) and reducing (divisionalising), the process of which leads to the conclusion that universal permanence does not hold. Within this process is the realisation that the personal 'self' as the 'I', and the mega-'self' as the godhead 'I' of independent origination, is incompatible with foundational impermanence metaphysics. The novice then experiences a kind of psycho-physical mind bend that provides the insight to a non-linear basis of aggregation (i.e. not simply mega-linearity) and comprehends unity^{ag} as the basis of the full and final rejection of absolutism. This of course cannot be understood until it is truly cognitively broken apart, which red herring type questions essentially aid. It is Buddha-common sense then that the cognitive apparatus as an aggregate of the five khandhas can be harnessed to its maximum potential to contemplate, visualise, imagine, and hypnagogically experience these metaphysical principles within the tenure of an average lifetime.

The view I am presenting then is that ordinary humans by default cognitise unity^{ab} and that Arahants and Buddhas have cognitively evolved to understand and perceive unity^{ag}. The understanding of unity^{ag} is therefore the cessation of attachment to unity^{ab}, and with it atomist unity and simple or mega-linearity: and is therefore the blowing out of ignorance.⁶ The alternatives within the absolutist linear model lead always to extremes, first that nothing is fixed and everything is randomly moving ad infinitum, which the Buddha's rejected as eternalism, and second, that of absolutism. Both routes ultimately lead to nihilism, which is the dénouement of enlightenment and the turning point at

⁶ See Sue Hamilton, *Early Buddhism: A New Approach* (London: Curzon Press, 2000), p. 58. There she draws parallels between the blowing out of ritualistic dogma of Brahminism (in particular, the three sacrificial fires which are symbolic as the source of fuel that drives the cycle of reincarnation). Blowing out the fires first blows out the illusory concept of the 'I' in terms of entitlement and need (greed, hatred and ignorance). The extinguishing of the fires leads to the extinguishing of 'I' leading to the extinguishing of reincarnation.

which one grasps precisely why the Buddha taught the Middle Way. If left to practical trial and error the process inevitably requires longer than an average lifetime. Therefore, the Buddha's Middle Way offers a practical and cognitively immersive short cut. His method and teachings activate this accelerated process and include meditation practices (which are immersive cognitive experiences of stillness) and practical ethics (which are practical immersive experiences of the Middle Way and are guaranteed to fast track the process of enlightenment). Finally there are the teachings which pointedly lead to realising the metaphysical problems of unity^{ab} as 'self', 'I' and the claim of independent origination. I add to this the beneficial consideration of material atomism in line with the Buddha's Middle Way metaphysics.

In order to demonstrate this transition from the assumption of cognitive unity^{ab} (bound as linear) to the realization of cognitive unity^{ag} (unbound non-linear plus the comprehension of cyclicity) I will show how the metaphysics of unity^{ab} are manipulated to appear to incorporate aggregation, but do not succeed in defeating Repetti Framework-type linearity. In doing so, I will show that dynamic harmony and efficiency are conceptually inherent to *formed* cyclicity, as discussed in chapter one, and are integral to the production of ignorance. Once this process is understood, the same principles enable the cessation of such ignorance. In effect, the Buddha came to understand, the metaphysics of cyclicity in all its forms. This understanding released him from ignorance as the attachment to linear metaphysics such as presented here. He used this vehicle of logical demonstration (particularly contradictions),⁷ coupled with his teachings, in particular the five teachings discussed, to aid the novice in working out the nature of cyclicity for himself.

The contradictions therefore are considered and deliberate for the purpose of stimulating the kind of personal awakening and exit from the maze discussed in

⁷ Another example is 'The very same perfection of insight, Subhuti, which the realised one has preached is indeed perfectionless.' Y. Deguchi, J.L., Garfield, G. Priest, "The Way of the Dialetheist: Contradictions in Buddhism", *Philosophy East and West*, vol. 58, no. 3, 2008: p 395. Source text quoted is from P. Harrison, "Vajracchedika Prajnaparamita: A New English Translation of the Sanskrit Text Based on Two Manuscripts from Greater Gandhara," forthcoming in J. Braarvig, ed., *Manuscripts in the Schoyen Collection VII: Buddhist Manuscripts*, vol. 3 (Oslo: Hermes Publishing, 2006). See also M. Siderits, 'Buddha', *The Stanford Encyclopedia of Philosophy* (2015), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2015/entries/buddha/>>.

chapter one.⁸ What I conjecture then is that he pondered long and hard as to whether to lay out the metaphysics, as I am framing it here, and that he concluded enlightenment is essentially a personal process that must be immersed in as an evolutionary journey from cognitive unity^{ab} to cognitive unity^{ag}. From the Buddha's ultimate point of view, it is a shift in perception that must be completely understood and applied in every aspect of life. This is the realist component of enlightenment. Therefore the linear contradictions that arise in the Buddha's teachings are not 'compatibilist' mutually maintained parallels but are exercises in the defeat of linear metaphysics. Repetti explains this as the Barnhart fallacy:

[...]it follows that we cannot assume that anyone maintaining two beliefs has a belief about their compatibility, much less an account of it. Let us name the assumption that the mere maintenance of two beliefs in one mind or doctrine entails a belief in their compatibility 'Barnhart's fallacy,' and reasoning that avoids it 'Barnhart's virtue'. Any account that attributes 'compatibilism' (between free will and determinism) to the Buddha risks Barnhart's fallacy, and any account that attributes a view of 'free will' to the Buddha also risks flouting the sutra above.⁹

Repetti of course is not applying the Barnhart fallacy in the same way as I am, and is specifically referring to the Buddha's position on free will, which is not the focus of this chapter (see chapter one). However it will be helpful to keep this fallacy in mind when engaging in the Buddha's teachings.

impermanence and Unity Contradict

To recap on the five foundational teaching, the first is the Three Characteristics of Existence which comprise the first elements of the Buddha's foundational metaphysics, these include 1) fundamental impermanence, the consequences of

⁸ In chapter one I introduced The Maze Metaphor to illustrate how experience of repeated trial and error is necessary in order to actually exit a maze, intellectualising will only bring one to the point of trial and error, the execution of which may produce success or error.

⁹ R. Repetti, Earlier Buddhist Theories of Free Will: Compatibilism, *Journal of Buddhist Ethics* 17 (2010), p 285. The sutra quoted is the "Neyyatha Sutta: A Meaning to be Inferred" (AN 2.25), translated from the Pali by T. Bhikkhu. *Access to Insight*, (2010), "Monks, these two slander the Tathagata. Which two? He who explains a discourse whose meaning needs to be inferred as one whose meaning has already been fully drawn out. And he who explains a discourse whose meaning has already been fully drawn out as one whose meaning needs to be inferred. These are two who slander the Tathagata." AN 2.2512. <http://www.accesstoinsight.org/tipitaka/an/an02/an02.025.than.html>

which are 2) unsatisfactoriness as suffering and 3) insubstantiality, or absence of permanent substance. These three characteristics are further interpreted here to mean that it is the condition of impermanence that renders a) the desire or conceptualisation of absolute unity (unity^{ab}), and its by-product, b) the concept of independent origination or any form of being of absolute unity (unity^{ab}) as a futile activity, because it will always produce an infinite regress (no first cause), or contradiction (impermanence is incompatible with unity^{ab}). These two problems can only be resolved by introducing secondary or causal forces or conditions that ‘atomise’ part or all of the components of unity^{ab}. The early Buddhist atomists discussed here appear to have approached resolving impermanence and unity^{ab} by means of secondary factors, sometimes as forces and sometimes as properties—but always, I assert, by means of dimensionalising and divisionalising. The latter was mainly advocated by the Sarvāstivādins, Sautrāntikas and Darśanīkas, who did so both in material and mental cases, but in a manner that avoided physical dualism.

The next four of the foundation teachings (1-5) are:

2. The Four Noble Truths are 1) there is suffering; 2) there is a cause of suffering (that is, impermanence, and the desire for permanence 3) there is the end of suffering and 4) there is a solution to suffering as The Eightfold Path. The cause of suffering is understood as ignorance, which is the first stage of Dependent Origination.

3. Dependent Origination is the conditioning causal flow from ignorance to false attachment and suffering as unity^{ab}, and the reality of formed cyclicity as experiential sustaining of life and health, ultimate death and re-birth, fuelled by ignorance and cyclicity.

3. There is, however, a two-fold solution to suffering: first, the intellectual understanding of the Three Characteristics and Dependent Origination, and second, the practical solution of following The Eightfold Path, an eight-step manifesto of action incorporating ‘efficacious ignoring’. Efficacious ignoring will be discussed in chapter three. Recall that I am presenting these foundational teachings (plus the teaching about the five aggregates) as a holistic body of

teachings designed to work together by means of the Eightfold Path. Concentration, wisdom and morality form the three sections of the Eightfold Path which individually and collectively guide the novice towards enlightenment. Concentration entails disciplined meditation and Mindfulness practices, wisdom requires the analysis and understanding of the metaphysics and parable-style teachings and morality extends the mindfulness concept beyond self to others.¹⁰

Concepts Of Linearity as Divisionalism and Dimensionalism

I'm now going to introduce the concepts of divisionalisation and dimensionalisation as acceptable multi-linear rational strategies to explore the metaphysics of permanence and impermanence. This is in alignment with Repetti's view of linearity, particularly multi-directional or mega-linearity.¹¹ Chapter one explained Repetti's view that the interpretations of Buddhist metaphysics proposed by Harvey, Federman, Siderits and even Wallace, are all ultimately linear. I agree with this perspective, and present some reasons for my agreement here. I also make the further claim that the Buddha put great thought into coupling of his core metaphysics as impermanence and cyclical causation and embedded the problems of these two forces or conditions. An example of this strategy occurs in his teaching of 'Right View':

By & large, Kaccayana, this world is supported by (takes as its object) a polarity, that of existence & non-existence. But when one sees the origination of the world as it actually is with right discernment, 'non-existence' with reference to the world does not occur to one. When one

¹⁰The Eightfold Path comprises: 'Right outlook is to know suffering, the origin of suffering, the cessation of suffering, and the path that leads to the cessation of suffering. Right resolves are the resolve to renounce the world and do no hurt or harm. Right speech is to abstain from lies and slander from reviling, and from tattling. Right acts are to abstain from taking life, from stealing, and from lechery. Right livelihood is that by which the disciple of the Noble One supports himself, to the exclusion of wrong modes of livelihood. Right endeavour and energy, struggles and strives with all his heart, to stop bad and wrong qualities which have not yet arisen from ever arising, to renounce those which have already arisen, to foster good qualities which have not yet arisen and, finally, to establish, clarify, multiply, enlarge, develop and perfect those good qualities which are there already. Right mindfulness is when realising that the body is - what feelings are - what the heart is - and what the mental states are - an almsman dwells ardent, alert, and mindful, in freedom from the wants and discontents attendant on any of these things. Right rapture, of concentration is when, divested of lusts and divested of wrong dispositions, an almsman develops, and dwells in, the first ecstasy with all its zest and satisfaction, a state bred of aloofness and not divorced from observation and reflection, he develops and wells in inward serenity, in [the] focusing of the heart, in the zest and satisfaction of the second ecstasy, which is divorced from observation and reflection and is bred of concentration - passing thence to the third and fourth ecstasies.' Majjhima-Nikāya, iii.248-53: in *Further Dialogues of the Buddha*, II, translated by Lord Chalmers, Sacred Books of the Buddhists, VI (London: Oxford University Press, 1927), pp. 296-9.

¹¹ R. Repetti, 'Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,' *Journal of Buddhist Ethics*, vol. 21 (2014): pp. 304, 338, 343, 346.

sees the cessation of the world as it actually is with right discernment, 'existence' with reference to the world does not occur to one.¹²

The terms 'existence' and 'non-existence' represent absolutism and nihilism. One then refrains from looking at the formed world in this way and understands that impermanence and causation *together* enable such formation and drives its cyclical and patterned nature. When cessation is spoken of, it is not the cessation of impermanence and causation but concerns one's perception of the observable characteristics, cycles and patterns, and the personal meanings one attaches to them. With the cessation of the characteristics and patterns, it follows that there is cessation of the cycles, for these are the fuel of cyclical arising of such perception.

What occurs is the process of grasping at the evident harmony and efficiency of form. What is concluded is that the world as it is formed is evidence of both, such that there is recognisable dynamic harmony and efficiency in all contextual forms and cycles. I reiterate here that the Buddha did not use the terms 'harmony' and 'efficiency'. The key point is that the Buddha took the world as cyclically real and formed, and mapped to it his theory of ignorance and attachment as the fuel of cyclical arising. Thus the metaphysical basis of cyclical form cannot be broken apart beyond impermanence and cyclical causation^{D/O} because this would produce artificially stable outcomes, which he would then falsify as either absolutist or nihilist.

The relevance of this to the determinism vs. free will debate discussed in chapter one is that the root of freedom, according to the Buddha, is seated within the cognitive apparatus - with how one sees and experiences the world. By positing that the root of freedom is inside the mind one may counter the deterministic conditioning of cyclical causation^{D/O} and the conceptually indeterministic condition of impermanence. Inherent in all of this atomistic speculation is the search for the metaphysical validation of autonomy in the form of repeatable self-directed outcomes, even in the absence of an

¹² Kaccānagotta Sutta: To Kaccāyana Gotta (on 'Right View'), SN 12.15 PTS: S ii 16 CDB i 544, translated from the Pali by T. Bhikkhu (1997). <http://www.accesstoinsight.org/tipitaka/sn/sn12/sn12.015.than.html>

independent self. By situating the unity^{ab} concept of self inside the mind, or aggregate cognitive apparatus, cases for both compatibilism and incompatibilism gather ground. In other words, it allows for an ‘ideal’ self (unity^{ab}) but not a ‘real’ self, which is the basis of the incompatibilist view held by Wallace.¹³ It is also the basis of the view of Gier and Kjellberg, which presents the Theravāda position as compatibilist and the Mahāyāna position as tending towards incompatibilism. They state that the ‘Buddhist is an agent of her preferences . . . rather than being just a passive victim of her desires’¹⁴. Repetti’s response to Gier and Kjellberg’s thesis is that:

They assert that Buddhist “determinism,” unlike standard Western interpretations, is not linear: “Buddhist causality . . . is seen as a cosmic web of causal conditions rather than linear mechanical notions of push-pull causation”. To them, non-linearity in causality evades the fatalistic sting of linear determinism, according to which event A necessarily and inevitably causes event B, B necessarily/inevitably causes C, C causes D, and so on, leaving no wiggle room for free will.¹⁵

Repetti concludes ‘Thus, interdependence makes possible indefinitely-many more linear causal pairs for determinism—yielding a mega-linear-determinism!’¹⁶ I agree with Repetti and add that this whole treatment of linear causation is based upon atomistic unity^{ab} principles. For example, in order to make an unity^{ab} *something* out of impermanence, it naturally becomes momentariness, and in order to make an unity^{ab} something out of momentariness, it naturally becomes endurance, in order to make an unity^{ab} something out of endurance, we arrive at permanence of what endures, which is the principle of unity^{ab}, thus all that has

¹³ Repetti presents Wallace as holding the view of the anti-realist: ‘...there is no conceptual-construction-independent or independently existing substantive reality, but both deterministic and indeterministic models depict reality as a conceptual-construction-independent, independently existing substantive or objective reality: on the deterministic view, a conception-independent reality is constituted by a sequence of discrete events all of which are causally necessitated; on the indeterministic view, a conception-independent reality is constituted by a sequence of discrete events many of which are not causally necessitated.[...] he would say that if determinism was true, then free will is impossible: because if determinism was true, then consciousness would not seem to be unobstructed, free, boundless, and so on, either.’ R. Repetti, ‘Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,’ *Journal of Buddhist Ethics*, vol. 21 (2014): P 337.

¹⁴ N. Gier, and P. Kjellberg, *Buddhism and Freedom of the Will: Pali and Mahayanist Responses*, in *Freedom and Determinism*, Ed, J. Keim Campbell, M. O’Rourke, D. Shier, (Cambridge, MA: Mlt Press, 2004), p 283.

¹⁵ R. Repetti, ‘Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,’ *Journal of Buddhist Ethics*, vol. 21 (2014): p 294.

¹⁶ *Ibid.*, p 304.

been demonstrated is the validity of the artificial assumption of unity^{ab}, the argument is ultimately circular beginning and ending with unity^{ab}.

Looking into this further, ‘momentariness’ here is an example of the divisionalisation of impermanence, and ‘endurance’ is an example of the dimensionalisation of impermanence which, again, is how I am positioning the postulate of the early Buddhist atomists. These early atomists would have known that the Buddha rejected the concept of atomistic independent objects, which is why they needed to artificially extrapolate and collapse their linear theories to the extreme and import additional assumptions, such as what I am terming unity^{ab}, to make their claims work. They were and are, however, valid attempts to combine the metaphysics of impermanence and causation, what they are seeking is ways to explain continuity, both micro and macro.

Divisionalism as Momentariness

To explore atomistic unity^{ab} further I will discuss the idea that when a moment is viewed as atomic it is dependent on the prior and following moments. These are viewed as the stages of momentariness. Noa Ronkin explains:

In the Abhidharma tradition of the Sarvāstivāda-Vaibhāṣika the term ‘moment’ (ksana) is used in a highly technical sense as the smallest, definite unit of time that cannot be subdivided, the length of which came to be equated with the duration of mental entities as the briefest conceivable events. This usage presupposes an atomistic conception of time in the sense that time is not reckoned indefinitely.¹⁷

Ronkin further explains that Buddhist momentariness -

[...] atomises phenomena temporally by dissecting them into a succession of discrete, momentary (ksanika/khanika) events that pass out of existence as soon as they have originated. As one event is exhausted, it conditions a new event of its kind that proceeds immediately afterwards.

¹⁷ N. Ronkin, *Early Buddhist metaphysics: the making of a philosophical tradition*, London: Routledge Curzon, 2005), p. 61.

The result is an uninterrupted, flowing continuum (*santana*) of causally connected momentary events. These succeed each other so fast that we conceive of the phenomena they constitute as temporally extended.¹⁸

The strategy applied here is to synthetically divisionalise impermanence as momentariness, rendering it subject to the problem of infinite regress unless impermanence is preserved. The solution is provided by the introduction of the causal influence of preceding moments, which themselves are subject to causal forces. This is reminiscent of Repetti's argument against Gier and Kjeilberg. The result resembles determinist mega-linearity unless it is considered that it is the constancy of causation that produces the condition of impermanence and it is impermanence that destabilises absolute deterministic causation. However, as has been discussed, this strategy creates another problem. It raises the question of: *what* is it that *endures*? The contra-solution then dimensionalises impermanence as an aggregation in the form of temporal extendedness, and it is extended aggregation that endures by means of constant causation. Both strategies rely upon the constancy of causation to posit a foundational condition while retaining impermanence. However, the synthetic nature of the maneuvers cannot be avoided and are inescapably linear in Repetti's sense.

In terms of the determinism vs. free will debate discussed in chapter one, this second framing of momentariness conceptually satisfies a compatibilist position in that the synthetic treatment of the moment allows for conditioned 'choosing', the circumstances of which are pre-determined. The concept of momentariness may be seen as a synthetic atomistic simulation to support the concept of quasi-autonomous 'choice-making'. Without the latter there could be no 'Middle Way' or outcome of *nibbāna* as freedom from the dependent conditioning that underpins cyclical existence. But the same presentation of momentariness may also be interpreted within the framework of determinism, both strong and weak. Both terms which Gier and Kjeilberg rejected and proposed instead the term: Wiggly Determinism, not unlike that which occurs in the Epicurean Swerve.¹⁹

¹⁸ N. Ronkin, "Abhidharma", *The Stanford Encyclopaedia of Philosophy* (2014), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/fall2014/entries/abhidharma/>>

¹⁹ See D. Konstan, "Epicurus", *The Stanford Encyclopaedia of Philosophy* (2014), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/sum2014/entries/epicurus/>>.

While Wiggly Determinism focuses upon the power to choose this over that, Epicurus focuses upon the ability to swerve and avoid an otherwise fatalistic outcome. In both cases the atomistic entity is empowered with contributive self-determining properties such as discussed within the theory of participatory will in chapter one. The obvious problem that arises, is the demarcation between partial and absolute, the latter of which Buddha rejects. The basis for this objection is that it is dynamic harmony and efficiency that contextualises the aggregation process and not the causal properties of the atomic units. This however, leaves in place the appearance of unity^{ab} and reality of choosing. It is not therefore a question of momentariness as linear ‘partial’ or ‘absolute’ power to choose, but the degree or quality of ignorance of the process - and the basis of the experience of choosing.

Absolutism as Spatiotemporal: The Circle

To further illustrate the synthetic strategies of divisionalising and dimensionalising consider the geometrical form of a circle. It has 360 divisional degrees and equal diametrical dimensions, making it harmoniously extended in either two or three or more dimensions. Efficiency is at work within the principle only two axes being required to successfully produce a two dimensional circle. One could say that the concept of a circle is a synthetic maneuver that makes manifold the absolute basis of the ideal whole, such is consistent with the Cartesian co-ordinates system.²⁰ The circle appears as fixed and constrained, but may also be understood as the bound intersection of dynamic harmony and efficiency. The threshold of the form is dependent upon the dynamic equilibrium of both as cyclical causation^{D/O} and impermanence. Regardless of how this is achieved, there appears to be an overriding motivation to make ontology fundamentally atomic; that is, conceptually coherent in every aspect of its relational qualities.²¹

Dynamic equilibrium may once again be stated as prevailing impermanence

²⁰ R. Descartes, *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. by Paul J. Oscamp (Revised ed.). (Indianapolis: Hackett Publishing, 2001).

²¹ This theme is of particular significance in the neuroscience chapter: that the brain or cognitive apparatus approves action based on feelings of fluency and conceptual coherence (Haggard (et al.), V. Chambon, N. Sidarus, P. Haggard, ‘From action intentions to action effects: how does the sense of agency come about?, *Frontiers in Human Neuroscience*, vol.8, no.320 (2014): pp. 1 - 9.

coupled with prevailing cyclical causation^{D/O}; the one underscores the other. Such is the continuous inter-conditioning of aggregates, which never individually produce causation. In stating this, I agree with Repetti that such maneuvers do not avoid the problem of mega-linearity just on the basis of being complex. Therefore such inter-conditioning must be a characteristic of the aggregate flow and not characteristic of (the illusion of) the fixed, as atomism or momentariness. The Buddha's test of the extremes of absolutism and nihilism reveals the problems that arise from fixing the metaphysics.

This is achieved by freeing ourselves from our first obvious or apparent response, that something directly causes something else be it an event or other thing such as the procreation of a child, and we grasp that what we are seeing is the emergence and reemergence of patterned form and cycles which are fuelled by all that has gone before, but not in a homogenous equally distributed Democritrean²² sense, rather, in a varied form of converging patterned cyclicity. We then see the patterned nature of cyclicity as dynamic rather than fixed, in doing so, we understand the illusion of absolutist linearity and all that goes with it as the fuel of ignorance.

The Buddha, I claim, saw the fuel of suffering as the ignorance of the nature of dynamic cyclicity as discussed here. In effect, the problem of absolutist metaphysics is that it fixes the outcomes, thus atomic inputs inevitably produce linearity. The Buddha aimed beyond this limitation so that cognition and intuition are released from attachment to all fixed metaphysical bases of existence, which is, I propose, the basis of his claim of ignorance as the root of all suffering.

Pluralist Realism - Abhidharma Schools

To explore these claims further, I will discuss the pluralist position on atomism.

²² See Pieter Sjoerd Hasper's article in D. Sedley, *Oxford Studies in Ancient Philosophy* (Oxford: Oxford University Press, 1999), pp. 10 - 14. See also J. Barnes, *The Presocratic Philosophers*, 2nd edn, (London and New York, 1982) Quotation from Aristotle's *De generatione et corruptione*, trans. an comm. C.J.F. Williams (DGC) (Oxford, 1982), 'However, it is clear that it divides into separable and into ever smaller magnitudes and into magnitudes coming apart and separated. But neither may one dividing in successive stages bring about an infinite process of breaking, nor can the magnitudes be divided at every point at the same time (for it is not possible), but only up to its limit. If necessary, therefore, that there are invisible atomic magnitudes in it, especially if, that is, coming to be and passing away are going to be by segregation and aggregation.'

The early Buddhist Abhidharma and atomist schools accepted the Buddha's Three Characteristics but generally disagreed about the metaphysics of how to reconcile unitariness (or unity^{ab}) and impermanence. Since they had rejected independent origination, they had to introduce secondary principles to explain the appearance of unitary concepts.

Ronkin states that the Abhidharma²³ schools, while varying in their interpretation of atomism, agreed that atoms were independent things as such or attributes of a meta-atom.²⁴ This was the view of the Vaisheshika, an orthodox (āstika) Indian philosophical school. The Vaisheshika, along with the Nyāya, endorsed pluralist realism and material atomism. They also accepted causation in the form of effects being independent things and not merely attributes of what caused them.²⁵

The Vaisheshika theory exhibits the substance-attribute ontological model, whereas for the Buddhists sensibilia are not the attributes or qualities of the mahābhūtas; they are a set of secondary elements dependent on the latter. The Atthasālinī declares: '[w]ho has said that visual forms etc., are qualities of heat, and so on? For it is not permissible to say of indivisible phenomena "this is a quality of that."'²⁶

Driving the debate about this was presumably the conceptual conflict between unity^{ab} as absolutism and impermanence as cyclical change. Ronkin holds that Buddhist Abhidhamma theorists 'atomised phenomena':

[...] temporally by dissecting them into a succession of discrete,

²³ The Abhidharma is both a Buddhist genre and an exegesis approach incorporating metaphysics, epistemology and ontology. Its focus was to organise and systemise the oral teachings and in doing so adopted a 'higher' perspective of the overall teachings and offered new interpretations. Noa Ronkin states: 'The Sanskrit term abhidharma seems to derive from the expression "concerning (abhi) the teaching(s) (Skt., dharma, Pali, dhamma). [...] This body of literature includes the third of the "three baskets" (Skt., tripiṭaka, Pali, tipitaka) of the Buddhist canon, namely, the Abhidharma-piṭaka (Pali, Abhidhamma-piṭaka), its commentaries, and later exegetical texts.' N. Ronkin, "Abhidharma", *The Stanford Encyclopedia of Philosophy* (2014), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/fall2014/entries/abhidharma/>>. See also N. Mahathera, *Abhidhamma: A Comprehensive Manual of Abhidhamma: the philosophical psychology of Buddhism*, trans. edited and revised by B. Bodhi, (Kandy: Buddhist Publication Society, 1999).

²⁴ Ronkin states: 'While the analogy of atoms may be useful here, dharmas notably embrace both physical and mental phenomena, and are generally understood as evanescent events, occurrences, or dynamic properties rather than enduring substances.' Ibid., 1.2. P. Tan, 'Buddhist Atomism: The Theories of Paramanu and kalapa in Post-Canonical Buddhism,' *SD 26.2 Buddhist Atomism*, <http://dharmafarer.org/wordpress/wp-content/uploads/2015/08/SD-26.2-Buddhist-Atomism.pdf>.

²⁵ See *The Oxford Handbook of World Philosophy*. Oxford Handbooks Online. 27 Aug. 2015. <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780195328998.001.0001/oxfordhb-9780195328998>.

²⁶ See N. Ronkin, *Early Buddhist metaphysics: the making of a philosophical tradition*, (London: Routledge Curzon, 2005), p 58, ff. 105 and 106.

momentary (ksanika/khanika) events that pass out of existence as soon as they have originated. As one event is exhausted, it conditions a new event of its kind that proceeds immediately afterwards. The result is an uninterrupted, flowing continuum (santāna) of causally connected momentary events. These succeed each other so fast that we conceive of the phenomena they constitute as temporally extended.²⁷

Once again, the overarching metaphysical strategy appears to be that of division and divisibility, whether as elements (atoms were thought to be comprised of four elements: air, fire, earth and water), or as processes: time and momentariness. Ronkin identifies this as ‘a constant process of conditioned construction’.²⁸

Ronkin summarises this form of Buddhist thought as transitioning ‘from an empirically oriented postulate of impermanence to an all-encompassing schematisation of experience-in-time construed in terms of moments: from anicca to khanikavada’.²⁹ This transition was intellectually volatile and no one Buddhist school was able to retain a theory of momentariness strictly in keeping with the Buddha’s Three Characteristics; in particular, that of impermanence. The metaphysical goal of the various schools in fact may present a contradiction in itself: they (unity^{ab}) unitarised impermanence by means of divisions and dimensionalising. Divisionalism of the atomic unit drove the development of the concept of momentariness and multi-linear theories of time, while dimensionalism led to the notion of process characteristics, including causal ones. The Theravādin then advocated the (unity^{ab}) unitary moment as an event, rejecting momentariness.

Divisionalism as Momentariness

While Theravādins dimensionalised impermanence they rejected momentariness on the basis that, if existence is momentary and atomic, it would not be possible to experience or explain sensory experience as the complex five khandhas

²⁷ Ibid., p 59, fn. 108.

²⁸ Ibid., p 60.

²⁹ Ibid., p 63.

(aggregates). In other words, they endeavoured to avoid the problems of spatiotemporally locking down the moment; instead, they treated the empirical moment as an event (*cittakkhana*). Ronkin summarises this as follows:

In this basic sense as denoting a very brief stretch of time, the term *khana* does not entail an atomistic conception of a definite and ultimate, smallest unit of time, but leaves open the possibility that time is infinitely divisible. In the canonical texts *khana* covers a wider range of meaning than merely ‘moment’ and often denotes ‘opportunity’ or ‘auspicious moment’.³⁰

In this case, momentariness is consistent with the five *khandhas*. Note, although Ronkin identifies this synthetic process she does not refer to it as divisionalising or dimensionalising per se:

Rather, they represent three phases (*avatthā*) of a single momentary phenomenon and are defined as one single consciousness-moment (*ekacittakkhana*): a dhamma occurs in the first sub-moment, endures in the second sub-moment and perishes in the third one.³¹

Here, in place of the temporal component is three synthetic phases, once again, they are ‘origination (*uppāda*), endurance (*thiti*) and dissolution (*Bhaṅgā*)’.³²

It is easy to see the link between these three synthetic phases and the concept of divisionalising and dimensionalising; in particular this is an example of divisionalism of the temporal component. The introduction of sub-moments is a clear result of divisionalisation and is a synthetic attempt to fix the principle of unity^{ab} to the three-part whole of which the sub-parts are attributes. This is not so dissimilar to the concept of the absolute (unity^{ab}) Brahman and the attributive (unity^{ab}) brahman seen in Vedic creationism. It remains linear and fixes cyclicity as absolutist. The view also aligns with material determinism.

What is clear here is that there are tensions around the independent basis of the

³⁰ Ibid., p 62.

³¹ Ibid., p 62.

³² Ibid., p 62, fn. 123.

atomist principle of unity^{ab} and the unitary basis of the aggregation process. What the Theravādins have attempted to do is manipulate the temporal component of (unity^{ab}) unitariness and in doing so conceptualise it as a window of opportunity for potential transformation.

Aggregation as Dynamic Harmony and Efficiency

Once again, we find ourselves returned to Repetti's view of multi or mega-linearity. This invites a deeper discussion of what impermanence might look like from an observational point of view. Is it random and chaotic? Is it disposed towards any kind of ideal harmonious aggregation? Such would open wide the Vedic door that where there is ideal harmony, there must surely be grand design? The Buddha we know would disagree; countering always with his bottom line that impermanence is both the enabler and destroyer of contextually fixed aggregate things and experiences, as such would be multi-linear. The concept of aggregation entails the common disposition to aggregate 'together'. Harmony here then is proposed as a dispositional or conditioned basis for common aggregate binding with no specific aim other than contextually optimal harmony, and in the process, contextually optimal efficiency. This is an important distinction from the creationist position because instead it mirrors evolution as entailing contextually causal influences that evolve but on a variable trajectory that is not fatalistic. For example, humanity is not necessarily evolving into the best or perfect version of itself, only the version that from an unity^{ab} perspective keeps it optimally functional individually and collectively. The Buddha perspective would identify such ideal harmony and efficiency as unity^{ab} and argue that it produces alienation, power struggles and suffering. We are all aware that one man's ideal harmony is invariably another man's disharmony and suffering. Therefore, what is being argued here, is that these two dynamic characteristics of harmony and efficiency while not being forces or things, may point to a viable thread of investigation into why the aggregation process occurs at all. The focus therefore becomes that of the aggregation process and not the aggregate composition.

What I have not yet explained is why I am proposing two dynamic characteristics instead of one. This is because, as well as the evident dynamic harmony and

efficiency of form, be they aggregates in nature (trees, people, animals, art, etcetera) or aggregates in abstract (geometry, mathematics, logic, etcetera), there is the question of how such aggregates function together and endure; and, further, how they become better at enduring. Aggregation as dynamic harmony and efficiency in cognition is a central focus of discussion in the following chapter.

Enlightenment is Too Onerous To Achieve In One Lifetime

Before concluding this chapter I will briefly speculate on the process the Buddha may have worked through to come up with the composite basis of his teaching, and consider why he stops at foundational impermanence. Finally, I will return to the issue of why he so often taught by means of fallacy and contradiction.³³ This discussion will serve to clarify the links I am making between linearity and cyclicity in relation to the Buddha's personal journey and his enlightenment.

What he rejected from the Orthodox Vedic traditions had to pain him internally as a clear and strong feeling of 'wrongness'³⁴ that he could not ignore³⁵ resulting in his sacrifice of the privileged family life he possessed. Perhaps then Gautama just had the kind of brain, mind and intuition that couldn't let go of the bigger questions in life and was driven to find the best answers he could. As we have seen, the first leg of this journey led him to join the forest Wanderers and to seek the teachings of seasoned elders.

It is known that Gautama was advanced in meditation practices, so such an

³³ Paul Williams explains 'Hence, although the corpus of teachings attributed to the Buddha, if taken as a whole, embodies many contradictions, these contradictions are only apparent. Teachings are appropriate to the context in which they are given and thus their contradictions evaporate. The Buddha's teachings are to be used like ladders, or, to apply an age-old Buddhist image, life a raft employed to cross a river.' P. Williams, *Mahāyāna Buddhism: The Doctrinal Foundations*, 2nd Edition (London: Routledge, 2009), p. 151. The Dalai Lama takes a different position, that there are no true contradictions in the Buddha's teachings, only a large variety of illusory ones designed to cover the infinite reach of different point of views. See Dalai Lama XIV Bstan-'dzin-rgya-mtsho, G. Newland, *From Here to Enlightenment: An Introduction to Tsong-kha-pa's Classic Text* (Boston, Boston & London: Snow Lion, 2012), p. 22.

³⁴ This term will be used in chapter three and briefly relates to Haggard (et al.'s.) reference to the concept of intuitive or experiential 'wrongness: 'The experiment used subliminal primes to test the presence of prospective activity and found that 'participants' sense of agency could not be based on (conscious) beliefs about the primes. Instead, action priming itself presumably directly influenced the subjective sense of agency. Pacherie (Pacherie, 2008; see Synofzik et al., 2008) has suggested that action selection conflict need not necessarily be conscious (Morsella et al., 2009). Such conflict may elicit the feeling 'that something is wrong', without necessarily leading to knowledge about what is wrong. Wenke et al.'s study shows that subjects can rely on this feeling to make judgments about their own control over action effects.' V. Chambon, N. Sidarus, P. Haggard, 'From action intentions to action effects: how does the sense of agency come about?', *Frontiers in Human Neuroscience*, vol.8, no.320 (2014): p 3.

³⁵ It is of interest to note here the relation between the verb 'to ignore' and the arising of ignorance, therefore to choose not to ignore, such as in this case, is central to the cessation of ignorance. The concept of efficacious ignoring is discussed in chapter three.

experience would not be out of sorts.³⁶ What is different is what he made of it during his illumination. It is valuable here to note that enlightenment as a psychophysical meditation experience is given no special precedent or value by the Buddha and should be considered in the same light as the practical and analytical aspects of awakening, otherwise Gautama would simply have taught that meditation alone leads to enlightenment.³⁷

The Brahmanical life of that time was one of ritual, prayer, meditation and alms.³⁸ Gautama then conceived a progressively non-absolutist and non-Brahmanic - but still holistic solution to the problem of suffering - that had no godhead. In terms of meditation-based experiences of awakening, there are subsequent Zen Buddhist schools that argue for spontaneous enlightenment,³⁹ which are supported by varying theories of spontaneous kundalini⁴⁰ style awakening, what I am proposing is that Buddha had a bit of both, and that his journey (steered by the feeling of intuitive 'wrongness') led him to see the fundamental metaphysics of the wrongness of permanence. He found the 'stuck' or 'false' part of his troubles was that of foundational permanence, upon which all absolutist metaphysics are built.

Would The Buddha's Theory Work Without Reincarnation?

There is one more aspect of the Buddha's intellectual journey that I would like to touch on before the next chapter: that is the matter of reincarnation. Would the Buddha's composite metaphysics work equally well without the claim of reincarnation or is it just an inherited dogma of his time that he had to work

³⁶ In joining the Wanderers Gautama was exposed to an unknown range of extreme and intensive forms of meditation including denial of the body's needs, prolonged seated concentration, self flagellation and non-sleep. See chapter three in S. Hamilton's, *Indian Philosophy: A Very Short Introduction* (Oxford: Oxford University Press, 2001).

³⁷ See Mark Siderits for the following view of enlightenment: 'What is not immediately evident is why the denial of such a self is not tantamount to the claim that the person is annihilated at death (or even sooner, depending on just how impermanent one takes the psychophysical elements to be). The solution to this puzzle lies in the fact that eternalism and annihilationism both share the presupposition that there is an 'I' whose existence might either extend beyond death or terminate at death. The idea of the 'middle path' is that all of life's continuities can be explained in terms of facts about a causal series of psychophysical elements. There being nothing more than a succession of these impermanent, impersonal events and states, the question of the ultimate fate of this 'I', the supposed owner of these elements, simply does not arise.' M. Siderits, "Buddha", *The Stanford Encyclopaedia of Philosophy* (2015), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2015/entries/buddha/>>

³⁸ 'Gifts offered to Brahmins were not alms in the common sense of the word - they were an entitlement of the receiver and an obligation of the giver.' A. Eraly, *The First Spring: The Golden Age of India*, (New Dehli, Viking: 2011), p. 292.

³⁹ See 'The Influence of Chinese Buddhism in the Snga-Dar Period in *The Spread of Buddhism*, edited by A. Heiman, S.P. Bumbacher (Boston: Brill Publishing, 2007), pp. 325-328.

⁴⁰ The concept of kundalini is described in the Upanisads as 'circular, annular'. It is also described as a 'coiled snake' and later as a 'bowl, water pot'. For further reading see: T. McEvilley, *The Spinal Serpent. RES: Anthropology and Aesthetics*, vol. 24,(1993): pp. 67-77.

with?⁴¹ Given the rigour of his realist thinking my best estimate is that if reincarnation could have been done away with, it would have been. If he had concluded that it was a hangover or by-product of absolutism, he would have said so. He therefore must have felt it was intuitively and logically right and passed his tests of intuitive rightness and wrongness and was consistent with his foundational teachings. So what could it be that is reincarnated, if not a single soul, as held by the Brahmanical tradition?

I conjecture that he had to put impermanence and cyclical causation^{D/O} together because absolute impermanence leads to annihilation and absolute causation leads first to absolutism and then to annihilation because of the stasis absolutism brings. Combining the two and laying out the framework as a maze of dead ends to be avoided, leave us left with what arises from the combining of impermanence of causation, that is, perpetual formation and reformation, made possible by the cyclicity forming characteristics of harmony and efficiency. This allows for observable continuity of form in the presence of perpetual change. Therefore we cannot talk about micro continuity of form in the presence of perpetual change - without talking about macro continuity of form in the presence of perpetual change, there must logically be a micro/macro correspondence or projection, for this not to be the case would be annihilationism.

Conclusion

This chapter has provided a glance at a few of theories of Buddhist atomism that developed from the Buddha's early teachings, as viewed through the lens of a unity^{ag} point of view. This unity^{ag} point of view is contextually active as dynamic harmony and efficiency rather than randomly active, reflecting the general causal consistency observed in every day life. The terms 'harmony' and 'efficiency' are strictly characteristics of cyclical flow and of fluency of action. These are the characteristics of the pathway of consistent cyclical causation^{D/O}. Atomism, then, may have been a valid project but with a misguided goal.

⁴¹ Western Buddhist scholarship varies in its view of reincarnation. However it tends towards avoiding a literal interpretation, preferring to mythologise or psychologise the topic. See M. Burley, 'Karma and Rebirth in the Stream of Thought and Life', *Philosophy East and West*, vol. 64, no. 4, (2014): pp. 965-982.

I therefore conclude this chapter on early Buddhist atomism by establishing how aggregation may be understood as reciprocal and dynamic causal pathways that produce the experience of unity^{ab} and the subjective, but not necessarily as a moral ‘right and wrong’ basis of the experience of autonomy. What the Buddha offers is the reliability of Buddha warranted discernment of the subjective condition and intuition. In effect, the feeling of cognitive and intuitive rightness corresponds with Buddha warranted view of rightness. Everything else is the basis of ignorance as defined by the Buddha. Thus, dynamic harmony and efficiency, inherent in cyclicity and patterned formation, emerge and re-emerge moment to moment, but not as a result of atomic linear causation, rather, as reciprocal and contextual aggregation that produces the illusion of unity^{ab} and the reality of unity^{ag}. Pathways then produce the moments of unity^{ag} which are cognitively perceived as experiences of unity^{ab}.

These are the themes that, in the next chapter, I connect with neuroscience. Carried forward from chapter one are the themes of participatory will, the Buddhist metaphysics of cyclical causation^{D/O} and impermanence (explained as dynamic equilibrium incorporating harmony and efficiency) and the concept of efficacious and non-efficacious ignoring. The linear concepts of chapter one having been broken apart here in chapter two as Buddhist momentariness and atomism, are next discussed as ‘fluency of agency’. I now propose these concepts as synergistic with the following neuroscience concepts of ‘intentional binding’, ‘fluency of action’ and the ‘prospective’ component of agency. The concept of unity^{ab} as discussed in chapters one and two is also linked, along with the Buddhist view that the cognitive operation may be transformed in alignment with Patrick Haggard (et al.’s) view of ‘agency’. These terms are explained in the following chapter.

Chapter Three – Parallels between the Early Buddhist Teachings and Cognitive Neuroscience

We rarely have an intense, clear phenomenology of agency, but we clearly recognize failures of agency when we experience actions that do not unfold as expected or fail to produce intended effects. One might even say that our sense of “authorship” becomes apparent only when it is falsified, resulting in a break of the flow from intentions to action effects that normally characterize experience. Thus, determining where the sense of agency comes from requires properly specifying where the break may occur along the intention-action-effect chain. Identifying the break may in turn depend on how we choose to specify the chain, and on the causal relation between its constituents (intention, action, effect).¹

Introduction

In this chapter I will continue with the principally materialist perspective of chapter two. The central focus is the determinist views of cognitive neuroscientist Patrick Haggard who openly ‘accepts the concept of “will” but rejects the concept of “free”’.² While rejecting the concept of free will, Haggard believes that interrogating the subject of agency is likely to be a more fruitful project than pursuing the traditional debates about free will. As should be clear from the discussion in chapter one, I agree that we need to move away from seeking a fixed theory of free will towards the development of a dynamic theory of participatory agency.

I have explained the role of ‘participatory will’ in chapter one and the ‘unity^{ab}/unity^{ag}’ paradigm in chapter two. My aim here is to show how Haggard’s approach to agency may be compatible with my interpretation of participatory

¹V. Chambon, N. Sidarus, P. Haggard, ‘From action intentions to action effects: how does the sense of agency come about?’ *Frontiers in Human Neuroscience*, vol.8, no.320 (2014), p 1.

² P. Haggard in his presentation of ‘Sense of Agency: A Neurocognitive Approach’ lecture, op. cit.

will be based upon the Buddha's five foundational teachings, which, I have proposed, incorporate metaphysical harmony and efficiency as dynamic equilibrium. My hypothesis is that both the Buddha's foundational teachings (1-5) and Haggard's perspective on agency provide a framework to explain the arising (and in the Buddha's case, the cessation) of ignorance. This, I suggest, is by means of selective ignoring biased towards the continuity of the illusion of unity^{ab} by means of cognitively fixing physical impermanence. Before discussing the body of these claims I will recap and connect the claims of chapters one and two.

Recap of Objectives

In alignment with the Buddha's foundational teachings (1-5), chapter one proposed a reframing of the classical debates on determinism and free will to focus on the notion of participatory will. The foundational Buddhist metaphysics have been described as cyclical causation^{D/O} and impermanence that bind together as dynamic equilibrium^{Unity^{ab}}. Perception is presented as a form of selective filtering as ignoring and the binding of the perceiver to the perceived. It is 'how' this 'ignoring' takes place that is the entry point to my claims of synergy between early Buddhist teachings and neuroscience.

The Concept of (Aggregate) 'Binding' in the Buddha's Foundational Teachings (1-5) and Neuroscience		
Intentional Binding	Prospective Action Selection in Agency	Fluency of Action
The binding of internal state to external goals.	The capacity to make forward choices.	Feeling of 'rightness' or 'wrongness' in action.
Breaks apart at 500 milliseconds.	'Healthy' uses both prospective and retrospective. 'Unhealthy' use only retrospective.	No inbuilt basis ('warrant') of quality of action.
Corresponds with: Cyclical Causation ^{D/O} and impermanence Efficacious & Non-Efficacious Ignoring.	Corresponds with: Necessary (Dynamic Equilibrium). Harmony and Efficiency.	Corresponds with: Efficacious & Non-Efficacious Ignoring.
Buddha's Teachings: The Three Characteristics of Existence Dependent Origination.	Buddha's Teachings: The Four Noble Truths The Eightfold Path.	Buddha's Teachings: The Eightfold Path.

The above table presents a broad-brush alignment of these teachings in relation to the neuroscience themes I have picked out. My terms of 'efficacious' and

‘non-efficacious’ ignoring are clarified as being dependent on dynamic equilibrium, which is subsequently dependent on the inter-dynamic of harmony and efficiency of cyclical causation ^{D/O} and impermanence. Unity^{ab} as a concept corresponds with the atomic point of view, and the term applied here, the ‘agentic self’.

What is striking as common to both Buddhism and cognitive neuroscience is the same common sense approach discussed in chapter one. The acceptance of an absence of proof of a permanent ‘self’, which the Buddhist view extends to the claim of no permanent ‘self’, establishes the shared ground. The first may be viewed as ‘hard’ and the second as ‘soft’. The perspectives presented here accept the absence of an abiding homunculus and that agency requires a dynamic aggregate basis of cognitive binding. Finally, both agree that the ‘window’ of binding is critically temporal in which agency has no inbuilt warrant of cognitive efficacy. The Buddhist solutions with regard to each are 1) the metaphysics of ‘no-self’ as The Three Characteristics of Existence, in particular impermanence and cyclical causation ^{D/O}. 2) The concept of ‘binding’ pertains to The Five Khandhas and 3) the concept of ‘warrant of efficacy’ aligns with The Four Noble Truths and the Eightfold Path. The Buddha’s teachings (1-4), explain that suffering and transitoriness are rooted in non-efficacious ignoring and subsequent ignorance. Therefore it is the absence of a controlling ‘self’(absolute) in tandem with the potential of ‘efficacious agency’, that underpin my aligned claim of participatory will.

What follows now is a brief overview of Patrick Haggard’s perspective.

The Haggard (et al.) Perspective

This initial commentary is taken largely from two conferences he presented at, first in London at The Human Mind Project³ (2014) and second, in Brazil at The Eighteenth Annual Colloquium of Philosophy Unisinos in 2015⁴. Therefore these are first hand notes rather than quoted papers, which are cited in detail in the

³ P. Haggard, ‘Comments on Philosophical Views about the Nature of Conscious Sensory Experience, D. Papineau, Professor of Philosophy, King’s College London,’ *The Human Mind conference*, (London, 2014).

⁴ P. Haggard, ‘Comments on the Sense of Agency: A Neurocognitive Approach’ lecture, op. cit.

experiment discussions.

Firstly, Haggard is a self declared determinist who embraces a strong sense of Humean style ‘associative learning’ based upon the three associative principles published by Hume in his *Enquiry Concerning Human Understanding*. These are Resemblance, Contiguity in time or place, and Cause or Effect.⁵

Here, then, is a kind of pre-established harmony between the course of nature and the succession of our ideas; and though the powers and forces, by which the former is governed, be wholly unknown to us; yet our thoughts and conceptions have still, we find, gone on in the same train with the other works of nature. Custom is that principle, by which this correspondence has been effected; so necessary to the subsistence of our species, and the regulation of our conduct, in every circumstance and occurrence of human life.⁶

Haggard is particularly interested in the causation component of Humean association, however at a further glance I also see a strong case for the resemblance and contiguity components also. This will be discussed later in the chapter. Haggard resists the claim of free will and proposes a greater focus upon ‘agency’ and the concept of an ‘agentic self’ that may be described as the regulation of the intentional binding and fluency of action.

The Agentic Self and Autonomy

Haggard recognises that the experience of the agentic self is critical to the feeling of autonomy. However, thus far a single or regional corresponding ‘agentic’ brain structure has not been pinpointed. Haggard, like Adina Roskies, tends towards a more holistic view of agency than the one proposed by, for example, Daniel Dennett.⁷ She adopts an extended approach that is not

⁵ See D. Hume, *An Enquiry of Human Understanding*, a Project Gutenberg eBook. *Enquiries Concerning The Human Understanding, And Concerning The Principles Of Morals*, By David Hume. p 11. Reprinted From The Posthumous Edition Of 1777. Second Edition, (1902). <http://www.gutenberg.org/dirs/etext06/8echu10h.htm>.

⁶ Ibid., p 26.

⁷ In 1974 Dennett introduced a functionalist model comprised of two stages, the first is a ‘consideration-generator’ and the second is the selection process. See Dennett, D.C., *Brainstorms: Philosophical Essays on Mind and Psychology*, (Massachusetts: MIT Press, 1978), p 295. He describes himself as a ‘teleofunctionalist’ and a ‘verificationist’. And states: all varieties of perception - indeed all varieties of thought or mental activity- are accomplished in the brain by parallel, multitrack processes of interpretation and elaboration of sensory inputs. Information entering the nervous system is

confined to the physical responses of the brain. These include, either or both, the extended nervous system of the body and subjective internal psycho-emotional experience, and in the case of Haggard (et al.) the prospective component of agency. As anticipated, neither invokes mystical origins. The term ‘agentic self’ endorses the view of agency as including both retrospective and prospective action selection in agency that is limited to effecting future actions and cannot effect the present. Hence his rejection of the concept of ‘free’ in free will. The usage here relates more to the activity of agency-regulation than to debates over the origin, location or ontology of the agentic self.^{8 9}

We often have the impression that our internal conscious decisions drive our behaviour. In other words, we feel that our decisions and actions are not simply determined by the immediate environment, but rather expressions of our ‘agentic self’.¹⁰

Haggard (et al.) provide a clear basis for a participatory role of agency in prospective selection in agency. Such basis is distinct from the claim of free will because of the claim of ‘agentless-agency’; therefore, there is no distinct self that possesses free will. In its place is an interdependent aggregate ‘quasi-agentic self’ that cognitises as efficacious and non-efficacious ignoring.

In accepting a basis for (participatory) ‘will’ as agency, Haggard maintains an updated view of Benjamin Libet’s linear or binary theory of ‘free won’t’. One of the key shifts being made in current neuroscience that corresponds with

under continuous ‘editorial revision.’ See *Consciousness Explained*, (USA: Little, Brown & Co., 1991), p 11. I interpret Dennett’s view to be ‘multi-linear’ as per Rick Repetti’s position discussed in chapter one.

⁸ The following definition of the agentic self is from the field of psychology - T.D. Little, C.R. Snyder, M. Wehmeyer, ‘The agentic self: on the nature and origins of personal agency across the lifespan,’ in *Handbook of personality development*, D Mroczek & TD Little (eds.), (Mahwah, NJ: LEA, 2006): pp. 61-80: ‘Both current and past theories of agency share the metatheoretical view that organismic aspirations drive human behaviours. This organismic perspective presumes that humans are the ‘authors’ and active contributors to their behaviour and development. Most human behaviour is seen as volitional and described in terms of self regulated, goal-directed actions, where actions are defined as self-initiated and purposive activities (Boesch, 1991; Brandstadter, 1998; Chapman, 1984’ Ryan, 1993). Because of this inherent propensity toward activity and self-regulation, the individual is described in terms of personal agency or as an agentic self. The concept of personal agency does not reinvent constructs such as self-esteem, self-efficacy, self-concept and so on. Rather, it helps to organise such concepts into the multi-layered model that is premised on volitional goal directed actions.’

⁹ The agentic self in the context used here is comprised of the soma-neural aggregate, which incorporates meta-cognition identified by Haggard as playing a role in prospective forms of agency.

¹⁰ ‘We often have the impression that our internal conscious decisions drive our behaviour. In other words, we feel that our decisions and actions are not simple determined by the immediate environment, but rather expressions of our ‘agentic self’’ (Kane, 2005; Schuur & Haggard, 2011). R. Kane, *A contemporary introduction to free will*, (USA: Oxford University Press, 2005); F. Schuur & P. Haggard, ‘What are self-generated actions?’ *Consciousness and Cognition*, vol. 20, no. 4, (2011): pp. 1697-1704.

Buddhism is towards a dynamic approach that emphasises ‘fluency of action’ and that moves away from binary stimulus-response perspectives (such as those adopted in Libet earlier experiments).¹¹

Some of the key arguments against free will are based on the time delay in impulse response identified in Libet’s experiment. Libet¹² interpreted his results in this way although he also argued for the capacity for ‘free won’t’ based upon a ‘window of opportunity’ that allows a limited range of choosing *not* to act. Haggard now argues that the temporal lag does not provide decisive evidence against the existence of free will. Rather he regards the delay as being of significance to the ‘associative’ aspect of the ‘intentional binding’ process. In doing so, he has adopted Hume’s Principle of Association,¹³ in particular, that of causation. Roskies, on the other hand, takes a stronger stance against Libet’s view. She claims Libet’s approach is ‘tangential’. Roskies examines free will from a broader subjective basis, allowing for the highest possible degree of the ‘feeling of free will’ to play a role in agency. My proposition is: that Haggard (et al.’s.) work¹⁴ suggests, at most, only a ‘participatory’ role.

Haggard (et al.) further accepts that he has thus far not succeeded in locating a single origin or ‘initialisation of action’, which I am connecting to the Buddhist equivalent view. The Buddhist view is that such a fixed locus of origination cannot be found because of prevailing impermanence and cyclical causation ^{D/O}. This of course is not the view of Haggard, however, he observes a range of influencers or shapers of action based on the ‘already initiated’ action. I believe these correspond with the dynamic equilibrium of Buddhist impermanence and cyclical causation ^{D/O}. To what extent these marks of intention in action may themselves be consciously developed is of interest here, and will be linked to

¹¹ B. Libet, E.W. Wright Jr., W. Elwood, B. Feinstein, D.K. Pearl, ‘Subjective Referral of the Timing for a Conscious Sensory Experience - A Functional Role for the Somatosensory Specific Projection System in Man.’ *Brain*, vol. no. 102, (1979): pp. 193-224 and B. Libet, G.A. Curtis; Wright, W. Elwood; D.K Pearl, ‘Time of Conscious Intention to Act in Relation to Onset of Cerebral Activity (Readiness-Potential) - The Unconscious Initiation of a Freely Voluntary Act’, *Brain*, vol. 106, (1983): pp. 623-642.

¹² Libet’s theory of ‘free won’t’ is based on the fact that there exists a temporal delay of up to 500 milliseconds between the inception of a motor impulse and being aware of one’s readiness for action.

¹³ D. Hume, *A Treatise of Human Nature* (1888), edited by L.A. Selby-Bigge, 2nd ed. revised by P.H. Nidditch (Oxford: Clarendon Press, 1975) (See 1.1.4.1/10, 1.3.2.3/74, 1.1.4.2/11, 1.1.4.6/12-13). See also W.E. Morris and C.R. Brown, ‘David Hume,’ *The Stanford Encyclopaedia of Philosophy* (Spring 2016 Edition), E.N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2016/entries/hume/>>.

¹⁴ V. Chambon, P. Haggard, & Sidarus, ‘From action intentions to action effects: how does the sense of agency come about?’, op. cit., pp.1-9.

the Buddha's Eightfold Path, onto which I have grafted the concept of efficacious ignoring. What follows is an examination of the parallels between Buddhist ignorance (the foundational teachings (1-5)) and cognitive neuroscience.

Identified Parallels between the Buddha's Foundational Teachings (1-5) and Select Themes in Cognitive Neuroscience

I have identified three themes in Haggard's work that seem particularly well aligned to the Buddha's five foundational teachings:

- 1) The theory of 'intentional binding'¹⁵, 2) The 'prospective' selection of action in agency,¹⁶ and 3) The theory of 'fluency of action'¹⁷.

As discussed above, these three themes do not have literal like for like correspondences with the Buddha's teachings as such, but each supports the Buddha's claim of no permanent or absolute unified self and his theory of metaphysical impermanence. It is also the case that my claim requires the intermediary metaphysics of dynamic equilibrium as harmony and efficiency. This aside, it stands that both Haggard and the Buddha regard the experience of agency as perceptually unified. Haggard claims that it is sustained by a feeling of flow, which I propose is rooted in Buddhist cyclical causation^{D/O} and impermanence. Both consider the process of agency to be complex and dynamic in a way that is greater than the sum of the binary causal parts. The Buddhist

¹⁵ Haggard states intentional binding as: 'An interesting conscious correlate of this episodic quality is the very integrated experience we have of our own voluntary action. Intention, action and goal are not experienced as separate disconnected events, but as a tight and integrated flow. In particular, intentional actions, but not involuntary movements, display an effect called 'intentional binding', whereby the experiences of action and effect are perceived as temporally compressed and bound together (Haggard et al., 2002; Haggard and Cole, 2007), as if part of a single episode.' P. Haggard, 'What are Intentions?' in *Conscious will and responsibility: a tribute to Benjamin Libet*, eds. W. Sinnott-Armstrong and L. Nadel., (New York: Oxford University Press, 2010), p 75.

¹⁶ Both prospective and retrospective cues influence the fluency of action. Prospective selection of action applies only to future actions. Both involve the monitoring action-related signals or 'cues'. Too much reliance upon prospective signals 'may produce [...] delusion of omnipotence.' See V. Chambon, P. Haggard, & N. Sidarus, 'From action intentions to action effects: how does the sense of agency come about?', *op. cit.*, p. 6.

¹⁷ Fluency of action is prospective in that it involves a process of preparing for action, such as learning a type of activity. It is also described as a buffering of intention, which is then actively applied in action. This concept has largely been studied via the testimony of subjects, who report experiencing feelings of right and wrong during specific experiments. Fluency of action therefore relates to the overall or meta-flow of the aggregate neural pathway, while individual neural activity is retrospective in its behaviour; the convergence of these two streams produce feelings of right or wrong. See V. Chambon, P. Haggard, 'Sense of control depends on fluency of action selection, not motor performance,' *Cognition*, vol. 125, no. 3, (2012): p 450.

term for this is ‘aggregate’.

Intentional Binding

Intentional Binding as ‘the Binding of an Action Towards an Outcome’

Haggard first published the term ‘intentional binding’ in 2002 and it is applied here to mean ‘the binding of an action towards an outcome’.¹⁸ The experiment involved the moving hand of a large clock which participants observed to predict when they will next hear the beep (tone) within a sequence of tones given to them over a set period of time. The range of volunteers included those with schizophrenia. The interval sequence of the tones was deliberately manipulated, sometimes forming a regular pattern and sometimes being quite random. What the experiment showed is that ‘sense of agency is a distinctive experience of one’s own actions’, noting here, that the experiment was largely based upon the testimony of the volunteers. Haggard endorses the use of subjective testimony as of scientific value in the connecting of the visual clock and internal consciousness of the beep.

With regard to the concept of intentional binding, Haggard states that ‘Intentional binding is the relation between awareness of action and the effect. What we are measuring is the difference’, further, that ‘people often think they pressed the button before they did’.¹⁹ This is of striking significance in relation to where I aim to place the concept of ignoring (efficacious and non-efficacious). Haggard states that one ‘often gets a big gap in synchronisation between the perception of the clock and the beep because the brain just ‘ignores’ it’ - similar to how it adapts by means of filtering or ignoring when watching poorly dubbed foreign language films.²⁰ This is an example of unwarranted ignoring taking place the efficacy of which is measured by the temporal difference.

¹⁸ See P. Haggard, S. Clark, K. Kalogeris, ‘Voluntary actions and conscious awareness’, *Nature Neuroscience*, vol. 5, no. 4, (2002): pp. 1 - 4.

¹⁹ Haggard states this to happens most frequently. See P. Haggard, ‘Comments on the Sense of Agency: A Neurocognitive Approach’ lecture op.cit.

²⁰ .ibid.

Viewing intentional binding as a form of Humean associative binding, Haggard identifies the necessity of a maximum length of interval, which is 1-500 milliseconds. This is because longer intervals are proven to break apart the associative binding: ‘if a delay of the beep is too large, it doesn’t work and the binding gets lost’.²¹ I draw a parallel here with the concept of dynamic equilibrium and my claim that harmony and efficiency are intrinsically bound in shaping the quality of subjective agency the breaking apart of which results in the extremes of Buddhist absolutism and nihilism.²² Therefore Haggard’s concept of intentional binding potentially entails a basis of threshold not dissimilar to dynamic equilibrium. The extremes of this threshold and resulting cognitive imbalance are discussed shortly in the ‘Prospective Predicting’ section.

The interval sequence of the tone (or beep) then brings into effect Hume’s second principle of association, that of temporal ‘contiguity’.²³ I also propose that Hume’s ‘resemblance’²⁴ may also pertain to the anticipated ‘imagining’²⁵ component of hearing the beep. It is this Humean associative intentional binding that I compare with the concept of Buddhist impermanence and causal cyclicity as ‘bound’ harmony and efficiency. Both theories, in very different ways, propose there is a perceived unified agency taking place in the absence of an independent unified self. What is also common across both views is that there is some form of ‘sometimes helpful, and sometimes unhelpful’ filtering

²¹ P. Haggard, in his presentation of ‘Sense of Agency: A Neurocognitive Approach’ lecture op. cit. Referring to findings published in Chambon, P. Haggard, & N. Sidarus, ‘From action intentions to action effects: how does the sense of agency come about?’, op. cit., pp. 1-9

²² This argument has been discussed in chapter two.

²³ Blackwell Dictionary defines Humean contiguity as follows: ‘If we experience the constant conjunction of two contiguous objects, this experience will lead the mind to infer the existence of one of them from the presence of the other. This is a necessary condition for us to establish that there is a relation of cause and effect between these two objects. Hence, for Hume, contiguity is essential for our notion of causation.’ There is a continuous relation between the volunteer and the anticipated presence of the beep, which is sustained in the absence of the beep, up to 500 milliseconds after which the temporal binding is broken. N. Bunnin and J.YU. eds., *Contiguity, The Blackwell Dictionary of Western Philosophy*, (2004). http://www.blackwellreference.com/public/book?id=g9781405106795_9781405106795

²⁴ See M. Lacewing, *Hume’s Psychology: The Principles of Association, Imagination and Belief* (London: Routledge, 2010). Resemblance is primarily ‘image’ based when one image incites another image of association. In the case of the experiment, the volunteer binds the image of the clock with the image of the button/beep.

²⁵ Ibid. Hume’s imagining substitutes images for real things and furnishes the imagination with the ability to make associations. The Imagination is dynamic and plays an integral role in the temporal binding as it holds the association (of the clock/button/beep) as a constant even though the beep is irregular. Theoretically, the imagination is central to the wrong perception of the buzzer and the generation of ignorance in the sense that it prioritises the maintaining of the temporal binding process over the empirical details of the experience. See also Depraz (on Varela) in Varela, F.J., Depraz, N., ‘Imagining: Embodiment, Phenomenology and Transformation,’ in Wallace, B.A., (ed.) *Buddhism and Science, Breaking New Ground*, (New York: Columbia University Press, 2003), p 200. ‘On the one hand, there is the ongoing coupling of the cognitive agent, a permanent coping that is fundamentally mediated by sensorimotor activities. 2. On the other hand, there are the autonomous activities of the agent whose identity is based on emerging, endogenous configurations (or self-organizing patterns) of neuronal activity.’ (see Varela 1992 [1989]; Varela, Thompson, and Rosch 1991).

(ignoring) taking place. I further propose that it is this process of ignoring that fixes the (atomic) point of view of the experience of bound agency. Putting both these claims together the result is the architecture of atomic point of view discussed in chapter two. The perimeter of the atomic bound experience compares to the intentional binding of the relation between awareness of action and the effect. The breaking apart of which produces the cognitive extremes of delusion and despair. These compare with Buddhist absolutism and nihilism and are discussed in the next section.

Summary of Parallels Between Intentional Binding and Buddhism

I have shown that Haggard accepts that how the brain ‘ignores’ affects the efficacy of the intentional outcome. This view requires ignorance to be viewed as dynamic ignoring. Consistent with the shift from a fixed theory of free will to a dynamic theory of participatory agency, both neuroscience and Buddhism benefit from considering ignorance as dynamic ignoring. Another common theme is that of cognitive binding as aggregate and its continuity. Both Buddhism and Haggard consider this a dynamic regulatory process. Haggard (et al.) presents this dynamic component as prospective action selection in agency and fluency of action. Both parties therefore converge on these principles of binding and dynamic regulation as agentless agency. The methodology and goals of each differ, however both appear to be adhering to the metaphysical principles of cyclical causation^{D/O} and impermanence. These principles have been linked as a correspondence between the temporal threshold of intentional binding with the spatiotemporal of dynamic equilibrium as harmony and efficiency.

Regarding the temporal threshold of intentional binding as 1-500 milliseconds, Buddhism also offers and current neuroscience may have an interest in, the claim of advanced cognitive function and concentration that may extend this threshold. Therefore both Buddhism and neuroscience benefit from intentional binding experimentation such as discussed above. This is expanded in the conclusion.

Prospective Predicting as Prospective Action Selection in Agency

The concept of causal cyclicity^{D/O} is critical because it offers a metaphysical basis, such as harmony and efficiency, to explain what and how prospective predicting is and takes place. What I am proposing throughout is that it is cyclical causality^{D/O} that underpins the dynamic equilibrium of the ignoring (filtering) process taking place. This recall is based on the principle that ignoring requires two components: the ignorer and the ignored the relation of which bind the atomic point of view as the experience of unity^{ab}.

The Prospective Action Selection in Agency and Dynamic Equilibrium

I have proposed that Buddhist dynamic equilibrium is in alignment with Haggard (et al.'s) theory of intentional binding, both of which establish and sustain the internal/external relations from a fixed point of view. In specific Buddhist terms, I am directly aligning dynamic equilibrium to efficacious prospective selection in action of agency as a Middle Way approach. In contrast, when the atomic point of view is attached to unity^{ab} the ignoring process becomes non-efficacious and produces ignorance. What the Buddha's project achieved then was a method guaranteed to transform the ignoring process from a non-efficacious one to an efficacious one. This is achieved 'inside' metaphysical impermanence and causal cyclicity, both of which drive the whole basis of karmic forward action, which here can be limited to simply how the past historically contextualises the moment. I append to this the function of Haggard style 'fluency' and the 'feeling of flow' as the 'pointing' of the ignoring process. Fluency therefore plays an influential or participant role as shaping the process of intentional binding, the evidence of which is the incorrect 'imagining' of the beep that never occurred. This then supports the plausible view of how prospective predicting in fluency in agency can potentially produce ignorance.

Prospective Action Selection in Agency and the Continuity of Unity^{ab}

What follows is a closer look at the Haggard (et al.) 2014 experiment²⁶, commencing with how Haggard identifies the brain's agency network as working. Haggard is specifically interested in the difference in milliseconds between the two groups of volunteers. It is this fractional difference in time that shows the schizophrenic volunteers as using only retrospective action and 'normal' volunteers, as using prospective action selection in agency.

In terms of the brain physiology, the primary motor cortex as the medial front lobes perform the wanting, primes and urges, while the angular gyrus at the back of the brain conducts the failure monitoring. The underlying claim is that agency always 'shows up somewhere'. What was observed in this experiment was the 'healthy volunteers predict and influence outcomes' and therefore make prospective action selection in agency, while the schizophrenic volunteers 'do not predict at all.'

You and I make about 13-14 millisecond shift when we think we'll get the tone, even when we don't get the tone. While schizophrenic volunteers make about 12 milliseconds towards actions therefore in schizophrenia and delusion there is only the retrospective action, which is 'reconstructive'. In effect, the schizophrenic response is 'disorganised' and jumps to conclusions. Therefore healthy volunteers are demonstrating the ability to predict.²⁷

In terms of linearity, Haggard is clear that he does not believe the prospective²⁸

²⁶ V. Chambon, P. Haggard, & N. Sidarus, 'From action intentions to action effects: how does the sense of agency come about?', op. cit., pp. 1-9.

²⁷ P. Haggard, in his presentation of 'Sense of Agency: A Neurocognitive Approach' lecture op. cit.

²⁸ For a different view see M. Gazzaniga (2013). 'Additionally, neuroscientists have continued to examine when the brain carries out its work that is associated with behavior or even conscious activity itself. Ever since the classic work of Benjamin Libet, it has been believed that the neural events associated with an action occur long before one is consciously aware of even wanting to will an act. Libet stimulated the brain of an awake patient during the course of a neurosurgical procedure and found that there was a time lapse between the stimulation of the cortical surface that represents the hand and when the patient was conscious of the sensation in the hand (Libet *et al.*, 1979). In later experiments, brain activity involved in the initiation of an action (pushing a button), occurred about five hundred milliseconds *before* the action. What was surprising was that there was increasing brain activity related to the action as many as three hundred milliseconds *before* the *conscious intention* to act according to subject reports. The buildup of electrical charge within the brain that preceded what were considered conscious decisions was called *Bereitschafts potential* or more simply, the readiness potential (Libet *et al.*, 1983). Using more sophisticated fMRI techniques, John-

component of agency can bear any impact in the present moment, which he claims can only be integrated in Dennett style assimilation²⁹ for future predictions. The act of predicting falls *in* the moment, however the prediction enabling components are rooted in the *prior* moments. The prediction enabling components then resemble the concept of continuity as unity^{ab} in the form of attachment to pre-set conditioning impeding present autonomy. The claim of Buddhism is stronger, in that while it agrees on the principle of attachment, it promises autonomy following a full transformation of how one understands the conditioning process - in the present. Neuroscience here may benefit from investigating this claim, not simply from the basis of stress reduction and altered cognitive states in meditation.

Prospective Action Selection in Agency as Temporal Compression and Unity^{ab}

Next I will expand the temporal aspect of the experiment. This particular experiment is an example of increasing interest in the prospective action selection in agency, explained as follows: '[t]hat actions are perceived as shifted in time towards the outcomes that they cause'. Of further significance is that this temporal compression is absent in involuntary actions.

The emerging picture is one of a binding pressure to get ahead³⁰ of the processing tasks at hand, or at least to reduce the delay discussed earlier. I raise these points simply to once again illustrate a linear response to this apparent temporal gap, and to propose the concept of 'something getting in the way', such as unity^{ab}, of experiencing reality as it really is - that is, as unity^{ag}. Importantly, this same 'something' gets in the way of human beings getting along with one another as a collective. The Buddhist concept of craving and attachment also arises here, in that the attachment to unity^{ab} plays a distinct

Dylan Haynes (Soon *et al.*, 2008) recently showed that the outcomes of an inclination can be encoded in brain activity up to ten seconds before it enters awareness! Furthermore, the brain scan can be used to make a prediction about what the person is going to do. The implications of this result appear definitive. They suggest completes its work independent of conscious input' . M.Gazzaniga, 'Understanding Layers: From Neuroscience to Human Responsibility, Neurosciences and the Human Person: New Perspectives on Human Activities Pontifical Academy of Sciences,' *Scripta Varia* vol. 121, Vatican City (2013), p. 6. www.casinapioiv.va/content/dam/accademia/pdf/sv121/sv121-gazzaniga.pdf

²⁹ P Haggard in his presentation of 'Sense of Agency: A Neurocognitive Approach' lecture, op cit.

³⁰ This may function on the local level or as the ever present and overarching pressure of a corporeal life time.

role in the subjective nature of filtering and influence upon prospective action selection in agency.

Approaching the same problem from a Buddhist stance, the aim might be to achieve ‘immunity’ from prevailing change and to somehow resist the march of time as impermanence and cyclical causation ^{D/O}. The Buddha might also comment here that this is the very essence of attachment and that it exists at every level and aspect of the five khandhas (as a soma-neural aggregate). The Buddhist concept is that these five khandhas are inter-attached and dedicated to the functioning of unity^{ab}, which in turn creates its own subjective basis of experience. In other words, there is ‘attachment taking place’ in the absence of ‘real absolute unity’ as a ‘sense of controlling one’s own actions and, through these actions, events in the outside world’.³¹

Summary of Parallels Between Prospective Predicting and Buddhism

In this section the temporal aspect of prospective action selection in agency has been discussed. Haggard (et al.) has proposed that prospective action selection occurs within intentional binding, which falls apart at 1-500 milliseconds. Of further significance is that schizophrenic volunteers show as being unable to prospectively predict at all. These participants could only recall when they believed the beep occurred and could not predict when it would by means of detecting a pattern in the beep sequence. Patterns note, by necessity entail the metaphysical principles of harmony and efficiency. Therefore, I hypothesize this as a strong example of non-efficacious ignoring and a problem within the underpinning dynamic equilibrium as unity^{ab} and harmony and efficiency. Haggard (et al.) refers to this problem as ‘disorganised’ which I propose suggests a lack of cohesion of these entailed factors. I do not go so far as to say the Buddha’s warrants of efficacious ignoring may be effective in all cases, however what this experiment shows is non-efficacious ignoring in the extreme and the

³¹ V. Chambon, P. Haggard, & N. Sidarus, ‘From action intentions to action effects: how does the sense of agency come about?’, op. cit., p. 3.

contextual importance of the binding process. This context, I have proposed, is harmony and efficiency as efficacious ignoring.

Next I will discuss fluency of action, first as Buddhist attachment and ignoring followed by a deeper investigation of fluency within, once again, the temporal component of intentional binding. It is no surprise that this is the longest of the discussions as fluency of action, being the essence of the atomic point of view in action (as dynamic equilibrium) occurs across all themes. What is experienced is the Buddhist and neuroscience basis for the claim of agentless agency.

Fluency of Action

Fluency of Action as Buddhist Attachment and Ignoring

The next inquiry is to ascertain how agency as a power of control over continuity may operate. First, this unified^{ab}, temporally compressed form of agency appears to prioritise its own processing over observing or questioning the actual flow of events. This is described by Haggard (et al.) as a:

[...] strong sense of agency and may be associated with fluent, uncontested fluency of action, suggesting that the feeling of control is of *greater value* to the action of control than any aim of or attachment to the outcomes of the control:

The experiment used subliminal primes to test the presence of prospective activity and found that 'participants' sense of agency could not be based on (conscious) beliefs about the primes. Instead, action priming itself presumably directly influenced the subjective sense of agency. Pacherie (Pacherie, 2008; see Synofzik et al., 2008) has suggested that action selection conflict need not necessarily be conscious (Morsella et al., 2009). Such conflict may elicit the feeling 'that something is wrong', without necessarily leading to knowledge about what is wrong. Wenke et al.'s study shows that subjects can rely on this implicit feeling to make

judgments about their own control over action effects.³²

What these findings demonstrate is a deeply bound attachment and dependency on this 'implicit feeling' of rightness or wrongness of flow, and a second-ordering of all other information flow. Again, the Buddha may comment that such vestedness is a central basis of ignorance because of the over-arching lack of value of, or interest in, the flow of objective information. This paints a picture of a being that is primarily interested in its own experience *of* being in control. In doing so, he maintains his particular brand or historic³³ context of controlling, even in the face of evidently failed, undesired or contradictory outcomes. Such outcomes could again be fairly described as Buddhist 'unsatisfactoriness'³⁴. What is being described here repeatedly is a process of ignoring the basis of which is attachment. David Galin provides Buddhist complementary perspectives on process of ignoring, which he refers to as 'lumping'.

Lumping, Ignoring, Efficacious Ignoring and Non-Efficacious Ignoring.

Galin provides an interesting view of the concept of ignoring and refers to it as 'lumping' or ignoring 'some distinctions as negligible'. He applies the term 'splitting', which I propose is not dissimilar to the concept of divisionalisation and dimensionalisation discussed in chapter two. Such 'splitting' 'imposes ad hoc boundaries on what are actually 'densely interconnected systems',³⁵ which I also propose aligns with the concept of cyclical harmony and efficiency as unity^{ab}. Galin states: 'However, the lumping part of our pattern seeking, which simplifies by finding more relatedness among things (unifying), can also be corrective to the creating of isolated entities'.³⁶ He further states:

[t]his second type of approximation may be the seed of the Buddhist 'correct' view that all things are interdependent. Western perspectives of cognitive neuropsychology and adaptive evolution may add to Buddhist

³² Ibid., p 3.

³³ I have earlier aligned a historic context with the concept of Buddhist karma.

³⁴ Unsatisfactoriness is another term for suffering which is one of the Three Characteristics of Existence.

³⁵ D. Galin, 'The Concept 'Self' and 'Person' in Buddhism and in Western Psychology' in B. Alan Wallace (ed.) *Buddhism & Science: Breaking New Ground*, (Columbia University Press, 2003), p 108.

³⁶ Ibid., p 108.

understanding of the inborn view of self, and why it is so difficult to transform, and of how the 'correct' view is attained'.³⁷

What Galin is suggesting is that a process of approximation is involved in the Buddhist concept of interdependency, which I propose is based upon Buddhist cyclical causation^{D/O} and impermanence. Therefore as Galin states, 'the self is only misperceived as a fixed entity because of the distortions of the human point of view',³⁸ which I have throughout referred to as the unity^{ab} point of view. Galin draws important attention to the scientific tendency to over simplify the concept of self, be it as Dennett style robot cells or in my case, the concept of unity^{ab}, which is one of the unavoidable follies of metaphysics that the Buddha rejected³⁹. Galin prefers a less simplistic basis of defining the qualities of 'inner life'. He cites Lakoff and Johnson:

Our "inner life" includes a variety of experiences that we want to refer to:

- Conflicts between our conscious values and the values implicit in our behaviour.
- Inner dialog and inner monitoring.
- Disparities between what we know or believe about ourselves and what other people know or believe about us.
- Controlling our bodies, and ways in which they "get out of control."
- Taking an external viewpoint, imitating someone, or trying to see the world as they do.⁴⁰

Clearly Haggard (et al.) could not construct such an inclusive basis of experiment, however it is strikingly clear that such a comprehensive approach is covered by the Buddha's five foundational teachings. One surely presumes

³⁷ D. Galin, 'The Concept 'Self' and 'Person' in Buddhism and in Western Psychology' in B. Alan Wallace (ed.) *Buddhism & Science: Breaking New Ground*, (Columbia University Press, 2003), p 108.

³⁸ Ibid...p 108.

³⁹ One which I accept but has been a useful tool to work through the metaphysical concepts of free will, atomism and here, agency.

⁴⁰ Ibid., p 114. See also G. Lakoff and M. Johnson, *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*, (New York: Basic, 1999).

evidence of such should show up in the physiology in his advanced followers. Therefore, there is a clear logic in sampling individuals who have been immersed in each of these Buddha warranted efficacious practices. It may also be the case that experiments⁴¹ like the Haggard example discussed above, ‘indirectly’ value such factors as playing a role in prospective action selection in agency. This is because, what is being tracked is the ‘difference’ in time between the reactions of the two groups (healthy and schizophrenic). It may be the case that the greater the degree of noise in our inner lives, the greater or lesser degree of difference in the prospective action selection in agency. Pointing to the significance of extremes and thresholds of what we call normal behaviour both in the cognitive sense and in the moral sense. This consideration may open a door to greater levels of collaboration between science and Buddhist metaphysics in a more receptive light.

Finally Galin makes a strong point regarding entification⁴² as reification of the self. The points being made are 1) that to treat the self as ultimately ‘real’ means falling into the trap of assigning an ‘essence’ or permanent independent basis of self, however, 2) Nāgārjuna allows for two levels of experience, that of conventional and that of ultimate. Galin ascribes this ‘lumping’ and ignoring habit to the conventional level because of the slowness of moment-to-moment change in every day life. In effect, there is a lack of interest or a resistance to computing more than essential experiential data. It may be the case that deep down humans are wired to change on a ‘need to’, and not a ‘could do’ basis.⁴³ The Buddha’s foundational teachings (1-5) may then be viewed as a blueprint for the cultivation of efficacious prospective action selection in agency.

⁴¹ In particular, V. Chambon, N. Sidarus, P. Haggard, ‘From action intentions to action effects: how does the sense of agency come about?’, op. cit. pp. 1 - 9.

⁴² ‘It should be emphasized that Buddhist tradition also holds that entification in itself is useful or indispensable in the “conventional world”; it is only to the extent that we reify the entities (treat them as “real”) that attachment, selfish craving, and aggression arise, causing all suffering. [...] Hence, reification violates the basic Buddhist principle that all things are interdependent. Similarly, reification is contrary to my analysis above, which holds that all entities are conditional approximations, only heuristic segmentations of a manifold, and therefore they cannot have the unconditional nature of an essence. Unfortunately, I believe that reification (a.k.a. belief in essences) derives from still another of our foundational simplifications; we assume constancy wherever possible. It is convenient (and usually correct) to act as if most of our environment is not changing much from minute to minute. In practice, we do not actively make any such assumption; rather we just do not bother to compute new values for everything in the field. This allows us to scan our particular topic of interest in detail but cut down information processing by ignoring the background field or scanning it only for big changes. When pressed to reflect, we may give a pseudo explanation in terms of essence: “if left alone, these things stay the same”. This is not adding any new information; it is just repeating the description that the old values still worked well.’ D.Galin, ‘The Concept ‘Self’ and ‘Person’ in Buddhism and in Western Psychology’ in B. Alan Wallace (ed.) *Buddhism & Science: Breaking New Ground* (Columbia University Press, 2003), p 127 (fn. p 138).

⁴³ For general reading on this view see R.Dawkins, *The Selfish Gene*, (Oxford: Oxford University Press, 1976).

Harnessing the Prospective Component of Agency

Again, the Buddha's five foundational teachings tackle precisely these issues by dissolving the strong attachment to the control, and power, that arises from these feelings of agency. This is achieved via practices that temporally decompress experiences, thus rendering them more direct or at the very least, richer in detail.

I propose, the aim of the Buddha was to effectively harness the prospective action selection in agency to optimise participatory will. Prospective action selection in agency proposed by Chambon & Haggard (et al.) is shown to play an active role in effecting actions.^{44 45} Thus it is by developing the skills to optimise prospective action selection that greater degrees of participatory will are achieved. In doing so, the 1-500 millisecond threshold of Haggard's intentional binding may possibly be extended. Recall that Haggard states that intervals greater than 500 milliseconds break the Humean associative intentional binding of internal state to outcome. I propose that advanced Buddhist practitioners may be found who can sustain the intentional binding state beyond that period.⁴⁶ It is informative that the schizophrenic results are clearly retrospective and that the healthy ones are prospective up to 500 milliseconds. I add however, that it would be *more* informative if *two* groups were tested within the prospective range. This is a clear example of the benefits that collaboration may deliver.

Fluency of Action as the qualitative 'feeling of rightness'

Next I will discuss and expand further the Haggard (et al.) concept of fluency of action, this time from a qualitative perspective, that of the feelings of

⁴⁴ 'Crucially, reversing the normal relationship between prime-target compatibility and RTs (reaction time) did not alter subjective sense of agency. Thus, in compatible NCE (new chemical entity) trials, participants experienced stronger control despite slower response times and higher error rates, compared to incompatible NCE trials (Chambon and Haggard, 2012; see also Stenner et al., 2014). These results suggest that the feeling of control normally experienced by subjects on compatible trials does not depend on retrospectively monitoring performance, thereby strengthening the evidence for a prospective contribution of action selection fluency to sense of agency.' V. Chambon, N. Sidarus, P. Haggard, 'From action intentions to action effects: how does the sense of agency come about?', op. cit., P 4.

⁴⁵ This experiment supports a prospective basis of agency, while the Buddhist project here abstracts meaning from both the prospective evidence and the lack of predictability of outcomes. Haggard et al., (2013, 2014) were not testing the latter nor have they made a connection between the two, such as the one presented here. Haggard does comment on how fluency as feelings of rightness may engender extreme egoic behaviour. All indications are that prospective fluency of action plays a role in the emergence and cessation of ignorance, illusion and delusion.

⁴⁶ It is beyond the scope of this thesis to provide evidence that directly supports this proposal, therefore the aim of the thesis is to stimulate a call for further research.

‘rightness’ and ‘wrongness’ within the fluency. This quotation is deliberately long to directly convey the scientific detail.

Chambon & Haggard (et al.) argue that reliance on the feeling of ‘right’ fluency of action will of necessity have psycho-emotional ramifications:

Prospective signals—such as fluency signals—may indeed provide an important counterweight to re-afferent information, and hence may protect against xenopathic experiences (e.g., loss of control over one’s actions and thoughts) such as those experienced in passivity symptoms. At the same time, excessive reliance on these prospective signals may produce the opposite delusion of omnipotence, in which the mere decision to act is incorrectly assumed to produce successful action outcomes. This latter illusion appears to be common in historical despots but is interestingly absent in depressed people (Alloy and Abramson, 1979). A robust and reliable sense of agency may thus require a balanced—and probably context-dependent—mixture of both prospective and retrospective components. Future work is required to test whether other (contextual or individual) factors may influence the interplay between these two components. For example, it has been convincingly suggested that priming effects on the experience of agency depend on the level at which the agent represents her behavior (van der Weiden et al., 2010). Thus, while some people represent their own behavior at a low-level (i.e., the instrumental level: in terms of how an action is done), some others represent their behavior at a higher level (i.e., the outcome level: in terms of why an action is done). Interestingly, the former may depend more heavily on prospective cues to agency (e.g., selection fluency), whereas the latter may show excessive reliance on retrospective information—i.e., on general information about past actions and outcome-related cues.⁴⁷

⁴⁷ V. Chambon, P. Haggard, & N. Sidarus, ‘From action intentions to action effects: how does the sense of agency come about?’, *op. cit.*, p. 6.

Feeling of control and harmony and efficiency

Here I examine how these cues⁴⁸ of feeling of control are processed in relation to the principles of harmony and efficiency discussed in earlier chapters.

I earlier conjectured that, in order for there to be any basis for the experience of unity^{ab}, there must be some underlying principles that enable it. I suggested corresponding relations between harmony and efficiency, which relates to an inbuilt ability to filter and compress temporal experience efficiently. The suggestion is that such relations arise as the feelings of rightness or wrongness. Therefore, for there to be a dynamic sense of unity^{ab} as an agentic self and prospective selection in agency, its basis must have at least two contextual axes. I have proposed harmony and efficiency, as they produce the characteristics of dynamic equilibrium, unity^{ab} and the experience of the atomic point of view. This contextual principle also arose in the ‘Prospective Predicting’ section.

In the case of extreme delusion discussed above, a feeling of rightness fuels the individual towards increasingly deranged retrospective type agency. Further, there is typically an accompanying urge for the attainment of an ideal or spiritual meaning, fuelled by an underlying feeling that something ‘absolutely right’ exists. These same principles, however, also offer a basis of insight into great art, mathematics and literature as well as individual aesthetic and spiritual appreciation—and, I add, yearning and craving in the Buddhist sense. I propose that it is the principle of absolute unity that arises from Buddhist cyclical causation^{D/O} and impermanence, which underpin the navigation process as feelings of rightness and wrongness. What this points to is that the concept of absolute unity is in built to the cognition process (as the five khandhas). Thus, unity^{ab}, when taken as real or meaningful produces the worst kind of egoic power. Therefore the Buddha’s project was to refute this false basis of

⁴⁸ Ibid., pp. 4-6. Haggard et al. observe the following: ‘Recent accounts of agency have highlighted that it results from the integration of various cues (Synofzik et al., 2008; Moore and Fletcher, 2012), which may emerge at different times (Farrer et al., 2013). Namely, it has been suggested that several agency cues may be weighted by their reliability in order to obtain a “Bayesian optimal” estimate of true agency (Moore and Fletcher, 2012). This view has received some support as studies have shown, for example, that changes in action-contingency affected the weighting of predictive and postdictive cues (Moore and Haggard, 2008; Wolpe et al., 2013). As outcome predictability was reduced, there was a greater reliance on post-hoc, inferential processes.’

independent self through the claim of universal impermanence.

Haggard concurs that the process of agency is complex and identifies fluency of action as playing a significant role in the continuity of the agentic self. This has led him to form a connection between fluency, expertise and confidence.

Fluency, Expertise, Confidence and Failure Tracking

Haggard, Chambon and Sidarus explain fluency, expertise and confidence as follows:

Two hypotheses can be considered to account for the use of fluency signals in daily life. Using these signals adequately could first require learning stable relations between actions (e.g., the backhand stroke) and outcomes (e.g., where the tennis ball hit the court on average after that specific backhand). Indeed, simply having a feeling of fluently knowing which action to select does not guarantee the correct action outcome. Thus, fluency-based behaviors might only develop with expertise, once the brain has shifted from supervisory control to automatic or expert control.⁴⁹

Haggard and Chambon (et al.) have a particular interest in the ‘failure tracking’ aspect of fluency. They hold the view that retrospective contribution plays a large role in establishing expertise as it provides the foundation for the prospective contribution.⁵⁰ Key to this process is the predictive aspect of intentional binding as fluency in action as association-based learning:⁵¹

Therefore, participants could not retrospectively base their control judgments on match between primes and effects alone. Rather, their

⁴⁹ See V. Chambon, P. Haggard, & N. Sidarus, ‘From action intentions to action effects: how does the sense of agency come about?’, *op. cit.*, p. 7.

⁵⁰ ‘Under the expert regime, fluency would be used as an implicit proxy for the current status (success or failure) of the action unfolding (Haggard and Chambon, 2012), and would substitute for explicit monitoring of the action-effect link through short-circuiting the process of “checking” the actual consequences of our actions.’ *Ibid.*, p 8.

⁵¹ ‘These results have several important cognitive implications. First, they suggest that the sense of agency depends strongly on processes of action selection that necessarily occur before action itself. Second, strong sense of agency may be associated with fluent, uncontested action selection. In contrast, conflict between alternative possible actions, such as that caused by incompatible subliminal priming, may reduce the feeling of control over action outcomes. Third, this prospective contribution of action selection processes to sense of agency is distinct from predicting the outcomes of action, since action outcomes were equally (un-) predictable for compatible and incompatible primes. That is, these primes did not prime effects of action as in previous studies (e.g., Wegner and Wheatley, 1999; Aarts et al., 2005; Linser and Goschke, 2007; Sato, 2009).’ *Ibid.*, p 6.

stronger experience of control when primes were compatible could only be explained by the fluency of action selection—i.e., by a signal experienced before the action was made, and the effect was displayed.⁵²

These authors further link the conditions of confidence, expertise and fluency as key markers for how agency unfolds. Although their view is concerned with the learning of a sport, the same approach may be applied to the generation of knowledge, particularly when linked to dogmatic belief structures: such as religious or political ideologies. In early Buddhist teaching terms, these factors may be central to the reasoning that the mind, and thus the brain, cannot produce reliable representations of reality. This, I propose, is because they are conflated with subjective cognitive conditioning of harmony and efficiency. An example is the instances of confidence, expertise and fluency:

Indeed, simply having a feeling of fluently knowing which action to select does not guarantee the correct action outcome. Thus, fluency-based behaviours might only develop with expertise, once the brain has shifted from supervisory control to automatic or expert control. [...]

In contrast, an alternative hypothesis would propose that we learn in our everyday lives to use fluency of action selection as a reliable cue to agency. Fluency signals may become heuristic to assess one's control over the external world, and we might even rely more on this heuristic in novel or uncertain situations. Before we know the statistical contingency between an action and its outcome in a given situation, we still have a sense of agency over what we do. Hence, we might rely on selection fluency to guide this sense of agency, until the more reliable action-outcome contingency cue is available.^{53 54}

⁵² *ibid* p 3.

⁵³ V. Chambon, P. Haggard, & N. Sidarus, 'From action intentions to action effects: how does the sense of agency come about?', *op. cit.*, p 8.

⁵⁴ *Ibid.*, p 8. 'Although the study by Sidarus et al. (2013) may provide some support for this alternative hypothesis, further research is needed to explore how the role of different agency cues may shift over time, during the learning of action-outcome relations. Similarly, high levels of expertise in complex tasks may involve the recruitment of different processes, and also affect the types of cues that inform the sense of agency (Haggard et al., 2014).'

Fluency and Dynamic Harmony and Efficiency

Fluency as a concept is also compatible with the characteristics of dynamic harmony and efficiency. The sense of fluency of action increases with the experience of both harmony and/or efficiency. However, fluency (as a right feeling sense of harmony and efficiency) has no qualitative warrant and therefore is not a reliable basis of agency. Fluency as a right feeling sense of harmony and efficiency may foster confidence and expertise that, while it may increase the feeling of unity^{ab} in an individual, may also *decrease* the awareness of *other* human beings. The Buddha's blueprint as the foundational teachings (1-5) is largely devoted to the reverse outcome: that is, increased *active* inter-connectedness between human beings and less attachment to personal unity^{ab}. He redirects *fluency of action* from the unity^{ab} of self towards personal and collective unity^{ag}. The Buddha therefore connects ignorance with a lack of awareness or understanding that unity^{ab} is impermanent in every possible way. I extrapolate from this that Buddha-defined ignorance produces the illusion of 'feelings of rightness and wrongness' in agentic power.

Further, while increased feelings of confidence in impending action endorses and satisfies the experience of being a unitary^{ab} agent they are not a totally reliable foundation from which to derive efficacious outcomes. This reading suggests that many, if not most, actions are vested in or attached (in the Buddhist sense) to servicing the experiencing or re-experiencing of the agentic self as the controlling agent. This is an example of Buddhist attachment to 'self' and the atomic point of view within which dynamic harmony and efficiency is maintained as retrospective regulation. Arguably what Haggard (et al.) has highlighted is the same strong retrospective conditioning the Buddha claims to correct. He does so, I propose, because the same retrospective principle of agency also occurs within the learning of new skills and concepts. Thus, the atomic point of view can be qualitatively re-conditioned.

Fluency as Learning and Buddhist States of Excitability and Laxity

It is understood that the brain is most active when learning, and applies less

effort in states of expertise. This is compatible with the Buddhist teachings on the states of excitability and laxity during meditation,⁵⁵ in which the attention oscillates between these two principles resulting in effort and ease, or mastery and surrender of mastery, moment-to-moment. The experienced meditator applies Galin style *lumping and ignoring* in a guided way, such that he ignores all arising feelings of fluency, especially ignoring any sensory or conceptual feelings of increased harmony as evidence of unity^{ab}. Increased feelings of efficiency and feelings of mastery are also disregarded.

It is not uncommon for meditators to report the experience of absolute unity with creation, God or the cosmos, all of which the Buddha would claim to be the workings of fluency of action as preconditioned unity^{ab}. Buddha-warranted meditation ultimately observes the arising of the feeling of unity^{ab}, which is efficaciously ignored, returning once again to a place of noiseless equilibrium. At its most granular level, meditation is the retraining of these feelings, or experience of fluency away from the identification of unity^{ab} as fluency of personal unity towards that of collective unity^{ag}.

The reduction in the level of neural activity observed during meditation possibly indicates periods of confidence and expertise as the increasing unifying feeling of mastery. However, when this is the case the meditator is required to approach each meditation as if it was the *first time* and to disregard these egoic feelings of mastery. It may also be helpful to observe the stages of meditation in terms of the oscillation between learning and mastery. This process is effective across the different forms of Buddhist meditation as concentration, analytical contemplation and mindfulness. The latter is of particular interest here with regard to participatory agency. Currently, Haggard (et al.) suggests that the feeling of fluency of action is a meta-cognitive influencer, which confirms

⁵⁵ B. Alan Wallace states: 'To realize authentic bodhichitta and going on to become a bodhisattva, many of the greatest scholars in the Buddhist tradition have taught that the mind must first be made thoroughly serviceable for spiritual practice by achieving shamatha, specifically access to the first dhyana (meditative stabilization). Although there isn't full consensus on this point, all agree that a mind heavily prone to the attentional imbalances of excitation and laxity is unfit to realize the sublime states of bodhichitta and vipashyana (contemplative insight). So at least the partial development of shamatha is essential for developing both.' B.A. Wallace, *Shamatha in the Indian Buddhist Tradition 2010*. <http://fpmt.org/mandala/archives/mandala-issues-for-2010/april/shamatha-in-the-indian-buddhist-tradition> See also excitability and laxity as 'The Five Hindrances in The Five Mental Hindrances and Their Conquest' in the *Selected Texts from the Pali Canon and the Commentaries* compiled and translated by N. Thera (1994). <http://www.accesstoinsight.org/lib/authors/nyanaponika/wheel026.html>

prospective action selection in agency. Therefore it may be that pursuing a definition of ‘participatory will’ rather than free will is more aligned with Haggard (et al.) style agency.

Summary of Parallels between Fluency of Action and Buddhism

Fluency of action offers the strongest and arguably most viable basis of alignment between Buddhism and cognitive neuroscience. Both perspectives discussed here agree there is cognitive binding taking place. While Haggard (et al.) identifies the significance of the ‘feeling of wrongness’, the Buddha emphasises the greater importance of efficacy, which such feelings of fluency alone cannot warrant. This has been seen in the example of healthy and unhealthy outcomes earlier. Recall the former uses prospective action selection while the latter uses only retrospective action selection. Both perspectives accept there is lack of guaranteed efficacy in cognition, which Galin refers to as ‘approximation’ and ‘distortion’.⁵⁶ Haggard’s (et al.) method of testing intentional binding, and with it efficacy of intentional binding, was by tracking of difference in time of response between the healthy and unhealthy groups. The results revealed a threshold of equilibrium as balanced extremes that concur with Middle Way philosophy. Theoretically, the foundational teachings (1-5) then cultivate richer cognitive detail by temporally decompressing both retrospective and prospective action selection within the intentional binding process. This is discussed further in the meditation section.

Thus, fluency as a metaphysical concept is compatible with harmony and efficiency, which as has been discussed, in itself has no warrant of efficacy. Arguably there are resonances with narcissism in that fluency serves its own purpose, which presents as an ever present blind spot. Buddhist teachings of The Eightfold Path dissolve this blind spot and redirect it from self or narcissistic-type fluency to compassionate-type fluency. Buddhism connects ignorance with the failure to understand unity^{ab} as the non-permanent self. Finally, neuroscience agrees that the brain is most active when learning which directly

⁵⁶ D. Galin, ‘The Concept ‘Self’ and ‘Person’ in Buddhism and in Western Psychology’ in B. Alan Wallace (ed.) *Buddhism & Science: Breaking New Ground*, (New York: Columbia University Press, 2003), p 108.

aligns with the Buddhist approach to meditation and Mindfulness. These practices claim to correct the problems of excitability and laxity in experience as concentration, learning and mastery. I have gone so far as to claim that meditation is the oscillation between both the states as mastery and new learning. Finally, both Haggard (et al.) and Buddhism appear to value the qualitative basis of cognitive experience and efficacious agency. Central to this is the value given to participant testimony. This being the case, the barriers of traditional Libet type binary science are being updated with dynamic concepts and methodologies such as discussed here. This concludes the discussion of intentional binding, prospective action selection and fluency of action.

In the next section, I shift away from the experimental focus to examine some of the philosophical ramifications of Libet's theory of 'free won't'.

Re-Framing Free Will - Participatory Will

Philosophical Problems of Free Will and Libet's Free Won't

Benjamin Libet first wrote about his theory of free won't in the 1980s. He argues for the existence of a "conscious veto":

The finding that the volitional process is initiated unconsciously leads to the question: Is there then any role for conscious will in the performance of a voluntary act (Libet, 1985). The conscious will (W) does appear 150 msec before the motor act, even though it follows the onset of the cerebral action (1W) by at least 400 msec. That allows it, potentially, to affect or control the final outcome of the volitional process. An interval msec before a muscle is activated is the time for the primary motor cortex to activate the spinal motor nerve cells, and through them, the muscles. During this final 50 msec, the act goes to completion with no possibility of its being stopped by the rest of the cerebral cortex.

The conscious will could decide to allow the volitional process to go to completion, resulting in the motor act itself. Or, the conscious will could

block or "veto" the process, so that no motor act occurs.⁵⁷

Libet's position has of course evolved over the extensive course of his research. He eventually conceded that there are activities of mental phenomena he has not been successful in identifying as physical. He still maintains that they emerge from the physical brain. This invites serious objections from both determinist and libertarian camps. Neither are explored here, as the salient point of interest of free won't is whether it may be exercised prospectively. Here, Libet acknowledges that the 'mental can exhibit phenomena not evident in the neural brain that produced it':⁵⁸

The transformation from neuronal patterns to a subjective representation would appear to develop in a mental sphere that has emerged from that neuronal pattern. [...] My view of mental subjective function is that it is an emergent property of appropriate brain functions. The conscious mental cannot exist without the brain processes that give rise to it. However, having emerged from brain activities as a unique 'property' of that physical system, the mental can exhibit phenomena not evident in the neural brain that produced it.⁵⁹

From an early Buddhist perspective (herein termed 'Buddhist'), free won't decisions, regardless of the extent of their dependency, necessarily involve directing attention in such a way that it chooses this over that; and, in effect, ignoring this over that. Choosing, in every context, is arguably a form of selective ignoring.

Objections to Libet's Theory of Free Won't

Roskies argues against Libet's claims about the lack of free will on the grounds that the 1964⁶⁰ and 1973⁶¹ experiments were crude:

⁵⁷ B. Libet, 'Intentions to Act, Do we Have Free Will?' in S.M. Kosslyn (ed.) *Mind Time: The Temporal Factor in Consciousness* (Harvard: Harvard University Press, 2004), p. 138.

⁵⁸ B. Libet, 'The Delay in our Conscious Sensory Awareness', *ibid.*, p 86.

⁵⁹ B. Libet, *Intentions to Act* op. cit., pp. 86-87.

⁶⁰ See B. Libet, W. Alberts, E.W. Wright Jr., L.D. Delattre, G. Levin, & B. Feinstein, 'Production of threshold levels of conscious sensation by electrical stimulation of human somatosensory cortex,' *Journal of Neurophysiology*, vol. 27, (1964): pp. 546-578.

[...] and played 'functional havoc with the complex and highly structured functional-anatomical organisation of the cortex, activating neurons antidromically (ie. in the opposite direction as normal stimulation) and in haphazard order. Inferring something about normal processing from such an artificial method is like inferring normal features about the transportation system of a city from the movings of its inhabitants during a terrorist attack.⁶²

Roskies further argues that Libet approached his experiments on too primitive a basis and that the brain functions much more as an aggregate, extending to the dorsal cortex. Like Haggard (et al.), she suggests that there is some higher order meta-organisation integral to brain function that cannot be excluded:

[...] it is clear that information is processed in a highly organised fashion, from inputs in layer IV to other cells in both deep and superficial layers of the same cortical column, as well as via lateral connections, before synapsing on efferents in layer V. In contrast, the direct activation of cortical neurons from stimulation on the surface of the brain requires a much higher level of stimulation than does normal peripheral somatosensory activation.⁶³

Roskies makes another interesting objection as follows:

Libet has based his claim for this requirement for conscious experience upon experiments that are purely somatosensory, but it is conceivable that other modalities work differently. This possibility is made more salient when one considers that the brain has to solve a problem that arises for the somatosensory system that does not arise for other sensory systems (at least not to the same degree)—to wit, it must make temporal judgments about events that occur at radically different distances from the central processor, and because nerve conduction takes time, different

⁶¹ See B. Libet, 'Electrical stimulation of cortex in human subjects and conscious sensory aspects.' In Iggo A. (Ed.), *Handbook of sensory physiology*, (Berlin: Springer-Verlag, 1973), pp. 743-790.

⁶² A.L. Roskies, 'Why Libet Studies Don't Pose a Threat to Free Will, in *Conscious will and responsibility: a tribute to Benjamin Libet*, (eds.) W. Sinnott-Armstrong and L. Nadel, (New York: Oxford University Press, 2010), p 19 and p 12.

⁶³ H.H. Kornhuber, L. Deecke, 'Changes In The Brain Potential In Voluntary Movements And Passive Movements *In Man*: Readiness Potential And Reafferent Potential,' *Pflügers Arch*, vo. 284, (1965): pp. 1-17.

distances involve different time lags.⁶⁴

A strictly binary view of the brain has for a while been updated. However, this suggestion is pertinent to the thesis proposed here, in that the study of the brain may be better achieved by studying the body and the brain together—that is, as a soma-neural aggregate. It is not simply the brain involved in the making of a fine cup of tea. Further, electro-chemical messaging throughout the body varies from person to person and depends upon the neuronal adequacy of each. Neuronal adequacy is the minimum amount of time required to produce a neuronal response, which Libet calls a ‘time marker’. Readiness potential, or RP,⁶⁵ refers to the build up of events and time prior to conscious decision making.

Roskies offers an alternative position to Libet’s and cites Haggard (et al.) in support:

An alternative hypothesis to Libet’s is that the neural processes reflected in RP [readiness potential] are associated with the formation of intention, perhaps ultimately culminating in consciousness of intention, and not with motor activity per se. A more recent study by Haggard and Eimer pursues this possibility, but suggests that a different brain signal, the Lateralized Readiness Potential (LRP), is better correlated with the awareness of timing of motor actions.⁶⁶

The concept of the RP was updated to Lateralized Readiness Potential (LRP) by Vaughan, Costa and Ritter⁶⁷ and was extended to include the larger body, in particular regions in which muscles contract. Roskies homes in on Libet’s hypothesis of ‘some room for freedom’ as a ‘window of free won’t’ and notes a temporal discrepancy regarding the speed of voluntary actions:

Libet hypothesises that if there is room for freedom at all, it is not in the

⁶⁴ A.L. Roskies, ‘Why Libet’s Studies Don’t Pose a threat to Free Will,’ in *Conscious Will and Responsibility: A Tribute to Benjamin Libet*, op. cit. p 13.

⁶⁵ H.H. Kornhuber, L. Deecke, ‘Changes In The Brain Potential In Voluntary Movements And Passive Movements In Man: Readiness Potential And Reafferent Potentials,’ *Pflügers Arch*, vol. 284, (1965): pp. 1-17.

⁶⁶ A.L. Roskies, ‘Why Libet’s Studies Don’t Pose a threat to Free Will,’ in *Conscious Will and Responsibility: A Tribute to Benjamin Libet*, op. cit., p 16.

⁶⁷ H. Vaughan, L.D. Costa & W. Ritter, ‘Topography of the human motor potential,’ *Electroencephalography & Clinical Neurophysiology*, vol. 25, (1968): pp. 1-10.

conscious initiation of spontaneous action, but rather in the possibility of aborting an action whose neural underpinnings are already set in motion by unconscious processes. This possibility of the freedom of the veto or 'free won't', is Libet's suggestion for how to save freedom in the face of his data... He also concedes that 'in those voluntary actions that are not "spontaneous" and quickly performed, that is, in those in which conscious deliberation (of whether to act or of what alternative choice of action to take) precedes the act, that possibilities for conscious initiation and control would not be excluded by the present evidence.'⁶⁸

Approaching freedom as action 'already set in motion' is consistent with Buddhist thought which rejects the concept of independent origination of action or will. From this stance, Libet's approach is compatible. The grey area is his claim that such action, and will, arises from 'unconscious processes'. The claim of unconscious processes causing the making of a cup of tea is strongly deterministic which Libet would presumably accept. His deterministic wiggle allows the influencing of the active component of agency, which the agent is required to be aware of. Once again, what is of significance here is the temporal aspect of agency and the capacity of individuals to manipulate the speed and contemplative aspects of such agency. The ability to do so is a basis for participatory agency—and is a sufficient basis for self-transformation. Of interest to me is Roskies' view of a broader basis of measuring neurobiological activity rather than her argument that neuroscience falls short in addressing the matter of free will.

Michael Gazzaniga on the other hand, approaches the problem of complexity from a structure point of view, one that involves multiple hierarchical layers that interact with each other, which William Waldron identifies as being 'remarkably similar to the Buddhist view of no-self'⁶⁹. This statement refers specifically to the split-brain research of Gazzaniga in which he states the sense of I or self 'creates the illusion that we are in control of all our actions and

⁶⁸ A.L. Roskies, 'Why Libet's Studies Don't Pose a threat to Free Will,' in *Conscious Will and Responsibility*: op cit. p 17. Roskies cites Libet ... 1983.

⁶⁹ W.S. Waldron, 'Common Ground, Common Cause: Buddhism and Science on the Afflictions of Identity,' in B.A. Wallace (ed.) *Buddhism and Science: Breaking New Ground*, (New York: Columbia University Press, 2003b), p 180.

reasoning....⁷⁰

The action is at the interface between those layers. In one kind of vocabulary, it is where downward causation meets upward causation. In still another perspective, it is not only there but also in the space between brains that are interacting with each other. Overall, what happens at the interface of our layered hierarchical existence holds the answer to our quest for understanding mind/brain relationships. How are we to describe that? Recalling Libet and Haynes, we have to account for the role of time. I think we should say that mind/brain layers interacting has its own time course and that time course is current with the actions taking place. In short, it is the abstract interactions between the mind/brain layers that make us current in time, real and accountable to our past mental experiences. The whole business about the brain doing it before we are conscious of it becomes moot and inconsequential from the vantage point of a layered interacting system.⁷¹

Gazzaniga rejects Libet's hard determinism but accepts the significance of mental time, which recall, was the focus of Haggard (et al.'s) 'From action intentions to action effects' experiment above. Both views try to reconcile temporal linear and dynamic processes, which at first glance appear to tend towards Repetti's mega-linearity claim. Gazzaniga adopts a layered approach while Haggard (et al.) focuses upon the differentials in perceived actions such as the pressing of the button on anticipation of the beep. In emphasizing the value of testimony Haggard (et al.) knowingly or otherwise, move away from a strictly linear process approach. To my knowledge he has no alignment with Buddhism; however, his dynamic concept of 'fluency' is strongly compatible. Gazzaniga also applies the concept of 'dynamic' in his layered model and resists linear interpretations:

It is also true that viewing the brain/mind interface from this perspective reveals a certain truth: the brain is a dynamical system. Instead of

⁷⁰ M.S. Gazzaniga, *The Mind Past*, (Berkeley: University of California Press, 1984), p 151, 174f.

⁷¹ M.S. Gazzaniga, "Mental Life and Responsibility in Real Time with a Determined Brain," In *Moral Psychology, Volume 4: Free Will and Moral Responsibility*, W. Sinnott-Armstrong (ed.), (USA: The MIT Press, 2014), p 8.

working in a simple linear way where one thing produces another, it works in a dynamic way where two layers interact to produce a function. Hardware and software interact to produce the PowerPoint image. Mental states interact with neuronal states to produce conscious states. Starting the clock on what happens when, when trying to analyze the flow of events during conscious activity, doesn't start with neurons firing off, as those events might reflect little more than the brain warming up for its participation in the dynamic events. The time line starts at the moment of the interaction between layers. At the level of human experience, that would mean we are all online when we are thinking about whatever we are thinking about. Thought is not on a delay after action. It also leads to the question of whether or not mental beliefs can be in the flow of events determining ultimate action.... I think so.⁷²

Like Haggard, Gazzaniga here proposes mental beliefs play a participatory role in action selection. Hardware and software are intrinsically bound together to form as decisions and actions. The Buddhist parallel is that form, decisions and actions require the binding of cyclical causality^{D/0} and impermanence. The harmony and efficiency of which lies in the dynamic equilibrium as the sense and fluency of willing in agency. There is a case, I propose, for the concept of structural hierarchy to be superseded by an interest in tracking the dynamic nature of agency consistency as equilibrium. Haggard (et al.'s.) experiment has captured vital information regarding the threshold of fluency of action compatible with dynamic equilibrium. The step that naturally follows is an examination of the quality of the equilibrium of fluency. The qualitative value of agency is predominantly evaluated from a moral point of view in similar linear ways to the material world. Thus actions are 'good' or 'bad' or 'ignorant' or 'well intended'. Since Libet's first questioning of free will the debate for no free will has gathered ground, the defence of which is most successfully argued from the moral position. This is Roskies, Gazzaniga's and van Inwagen's view (to mention a few).

⁷² Ibid., p 10. See also M. Gazzaniga, *Who's in Charge?: Free Will and the Science of the Brain* (London: Robinson, 2013), p. 938.

Moral Perspectives

Such a qualitative perspective is compatible with the moral and ethical guidance and practices of the Buddha's Eightfold Path. These practices require efficacious ignoring as warranted by the Buddha. Buddha-warranted agency encompasses a moral code designed to empathise with the universal basis of suffering and ignorance of others. Gazzaniga provides an interesting view of social agency that I propose is remarkably similar to the Buddha's.

I believe that we neuroscientists are looking at the concept of responsibility at the wrong organizational level. Put simply, we are examining it at the level of the individual brain when perhaps responsibility is a property of social groups of many brains interacting. Mario Bunge makes the point that we neuroscientists should heed: "... we must place the thing of interest in its context instead of treating it as a solitary individual". By placing such concepts as personal responsibility in the social layer, it removes us from the quagmire of understanding how determined brain states negatively influence responsibility for our actions. Being personally responsible is a social rule of a group, not a mechanism of a single brain.⁷³

Gazzaniga confirms his stance on moral responsibility irrespective of how hard or soft the determinism is. He does so entirely on the basis of membership of the group and the necessity of interacting with it. He does not agree however, that there is any temporal gap of significance at play in participatory agency⁷⁴ that removes this obligation. In stating this I assume he employs a threshold basis of agency that supports an individual being able to make prospective action selection in agency such as those described in the Haggard (et al.) section. Recall Haggard (et al.) states that a temporal gap does play a role in intentional binding which hinders the judgement potential of the schizophrenic. My

⁷³ M.S. Gazzaniga, 'Mental Life and Responsibility in Real Time with a Determined Brain,' In *Moral Psychology, Volume 4: Free Will and Moral Responsibility*, W. Sinnott-Armstrong (ed.), (Cambridge MA: The MIT Press, 2014), pp. 10-11.

⁷⁴ Our "freedom" is to be found in developing more options for our computing brains to choose between. As we move through time and space we are constantly generating new thoughts, ideas, and beliefs. All of these mental states provide a rich array of possible actions for us. The couch potato simply does not have the same array as the explorer. Just as Daniel Dennett suggests, even though we live in a determined world, new experience provides the window into more choices and that is what freedom truly means.

assumption of the Gazzaniga position is that the concept of intentional binding may indicate more about the quality of the internal state than it does about the degree of determinism. That said, I hold that Gazzaniga and Haggard and the five foundational teachings of the Buddha share common ground in identifying this grey area. The perspectives are loosely complementary and converge especially in the area of social behaviour and moral responsibility. Gazzaniga, while not representing the Buddhist view, provides a participatory account of social membership.

Roskies is also interested in the importance of morality, in particular, the ramifications of Libet's claim on morality and responsibility. She takes a different view from Gazzaniga and holds that:

[...] the higher-level motor plan is more central to free action, and that this plan is not itself just a combination of simple motor movements, but something established *prior* to and affecting the release or generation of its more simple components.⁷⁵

These 'levels' may correspond with Gazzaniga's concept of layers but there is not room here to explore this further. What I hope is clear, is the extreme of determinism provokes the extreme response of the moral position, neither of which succeed in explaining why humans behave as they do. Each polemic perspective 'adds' valuable insight to this question, in the same way that the concept of cyclical causation^{D/O} and metaphysical impermanence can be separately understood. However it is through understanding their 'active boundness' that offers insights to the nature of agency. The Buddha, I propose laid out all the essential elements for understanding matter, mind and agency in such a way. In doing so he had no need to claim 'free will' or pitch morality against determinism, hard or soft. Morality, along with the practices of efficacious ignoring, provides the qualitative warrant that is absent in temporally bound agency. The claims of absolute determinism and free will then are consistent with Buddhist framed fatalism and nihilism, the concepts of which Buddhism is opposed. The aim then of this study throughout has been to show

⁷⁵ A.L. Roskies, 'Why Libet's Studies Don't Pose a threat to Free Will,' *Conscious Will and Responsibility*, op cit., p 19.

the heuristic value of Buddhist metaphysics of impermanence, as a means to understanding the nature of agency as processes of filtering and ignoring.

To complete this study of ignorance, I now turn to Buddhist mindfulness and meditation. I continue to place an emphasis on the temporal factors discussed above, regardless of the differing views held by Haggard (et al.) and Gazzaniga. I propose that the process of engaging in Mindfulness and meditation directly interacts with the internal experience of time. If this were correct, it would follow that this temporal factor is a significant aspect of the illusory aspect of unity^{ab} and has implications for participatory agency.

Expanding Intentional Binding through Efficacious Ignoring

I have already proposed the basis of dynamic equilibrium as what forms and sustains the associative threshold of unity^{ab} agency: as the experience of absolute unity of the agentic self. Further, I have proposed that Galin-like lumping and ignoring is compatible with application of efficacious and non-efficacious ignoring. Also, that the concept of ignoring is central to the ease (harmony) and efficiency of the cross-referencing process. I will now apply these concepts to the practice of meditation with the aim of demonstrating it as a method of efficacious ignoring designed to accelerate the transformation of the feeling of unity^{ab}.

Mindfulness Meditation and the Experience of Time

This short section relies primarily on the work of Marc Wittmann and Stefan Schmidt in *Mindfulness Meditation and the Experience of Time*.⁷⁶ Wittmann and Schmidt propose that meditation produces the experience of slowing and expanding the experience of time. This is compatible with my view that in order to transform unity^{ab} into unity^{ag}, the binding principles of subjective harmony and efficiency in unity^{ab} must be ignored and temporarily, but not permanently,

⁷⁶ M Wittmann, & S. Schmidt, M. Wittmann, & S. Schmidt, *Mindfulness Meditation and the Experience of Time*, op. cit.

broken apart.⁷⁷ Once they are broken apart the meditator no longer experiences in the same bound way. The result is an increased capacity for the kind of social unity^{ag} discussed by Gazzaniga. Such social unity^{ag} is of paramount focus in the Buddha's five foundational teachings. Wittmann and Schmidt state:

In mindfulness meditation a practitioner focuses on the experience of the embodied self at the present moment. Being mindful in everyday life is equivalent to being conscious of one's body states and feelings, of oneself at this particular moment in time. Because the feeling of time is created through attending to the embodied self at the present moment, being exceptionally mindful slows down the passage of time. Moreover, subjective time slows down in retrospect because greater awareness of one's experiences leads to enriched memory contents, which in turn expands subjective duration. An increased focus on an experienced self at the present moment slows down the subjective passage of time - now and in retrospect.⁷⁸

Here, because the mindfulness process is one of efficacious ignoring, the qualitative aspect of the attention is increased as the quantitative aspect decreases. This, I propose, is why the Buddha guides the novice to maintain the correct balance of excitement and laxity, without which meditation would have no qualitative or efficacious basis: it would simply be relaxation. This may factor in the claim that mindfulness meditation increases the quality of the memory function: further, it is not just a case of remembering more, but remembering both qualitatively and effectively. This claim alone is a good reason to conduct further agency experiments, such as those interested in intentional binding to include a group of expert meditators.

Remembering and Predicting as Efficacious Ignoring

Of further interest to Wittmann and Schmidt are the concepts of remembering

⁷⁷ It is presumed that only the Arahant functions as constantly transcending binding harmony and efficiency while the novice frequent this state through the practice of meditation. Recall the Haggard (et al.) case of schizophrenia where I claim the hazard of breaking apart harmony and efficiency (absolutism and nihilism). The line must be fine and may correlate to the cautioning of unsupervised kundalini practices.

⁷⁸ M Wittmann, & S. Schmidt, *Mindfulness Meditation and the Experience of Time*, op. cit., p. 206.

and memory. They state:

The ancient Pali word for mindfulness *sati* has also the meaning of ‘to remember’ [...], and this is interpreted by the fact that full attention to the present moment will facilitate memory function. As has indeed been shown, working memory capacity is enhanced in individuals who regularly meditate; meditators recall more learned items after a certain time span during which distractor items are interfering [....] These attention and memory effects of meditative practice have consequences for subjective time.⁷⁹

This next quote focuses again upon the improved quality of the working memory based upon the Buddhist guidance in how to efficaciously ignore. In doing so old filters are dropped and new Buddha-warranted ones are adopted. Wittmann and Schmidt also propose that because more detail is stored, more detail can be recalled, therefore the concept of non-efficacious ignoring relates to less or incorrect storing.

Since individuals trained in mindfulness meditation techniques are more strongly aware of sensory events and they process and store more items in working memory, their retrospective judgement of past duration will likely lead to the impression of longer duration and a slowing down of subjective time. Being more strongly aware of what is happening now causes more experienced changes to be stored in memory which in turn leads to a relative expansion of retrospective duration.⁸⁰

Here, Wittmann and Schmidt also make associations between the body, emotions and time in that subjective time is created when one is aware of bodily experiences, emotions and memories. I would like to approach this claim from an alternative position: that, in order to experience agency at all, the principle of unity^{ab} must be in constant play. I would include in this the activity of sleep

⁷⁹ M. Wittmann, & S. Schmidt, *Mindfulness Meditation and the Experience of Time*, op. cit., p. 202.

⁸⁰ Ibid...p 202.

and dreaming, though in a subconscious way.⁸¹

Continuous consciousness across all states of wake and sleep suggests a constancy of activity that is consistent with the Buddha's concept of bound impermanence with cyclical causality^{D/O}, if interpreted as dynamic. The agent is therefore constantly active in maintaining its unity^{ab} basis. I repeat my view that the whole enterprise of the unity^{ab} agent is arguably to fix or momentarily make static, this prevailing impermanence and cyclical causation^{D/O}. Once again, one could say that the whole project of unity^{ab} resists both extremes of (Buddhist defined) fatalism and annihilation. We therefore have a picture of universal impermanence that is intrinsically dynamic and patterned (harmony and efficiency) and gives rise to the experience of unified consciousness in the form of the agentic self (unity^{ab}). The agentic self is entirely dependent on universal conditioned impermanence (by cyclical causation^{D/O}) and consists of the temporal experience of realizing and remembering itself, moment-to-moment, as a unified agentic self (unity^{ab}).

In effect, it is remembering its own bound aggregate basis as unity^{ab}. It does so by monitoring the levels of harmony and efficiency as the feeling of fluency. Such continuous cross-referencing binds and rebinds the dynamic aggregate basis of a moment-to-moment, stabilised unity^{ab}. Further, cross-referencing arises as the readiness for retrospective and prospective basis of fluency of action.

What I propose then, is that there is a direct theoretical relation between the ignoring process, the remembering process and the prospective predicting process. The better the quality of ignoring the better the quality of remembering and predicting. Remembering and predicting are aligned with Haggard (et al.s) idea of retrospective and prospective action selection in agency.

This is possibly a useful way to re-frame the unique integrated position of the Buddha in alignment with the neuroscientific positions discussed in this thesis:

⁸¹ Evan Thompson who is aligned with the Upanishad view, asserts that consciousness prevails as awareness across all four states: waking, dreaming, sleep and pure awareness. An exploration of each of these states is beyond the scope of this project, but the concept of continuously remembering as awareness across all four states as both mental memories and biological remembering of its own interconnected unity^{ab} are applied here. E. Thompson, *Waking, Dreaming, Being: Self and Consciousness in Neuroscience, Meditation, and Philosophy* (New York: Columbia University Press, 2015).

- 1) Bound universal impermanence and cyclical causation ^{D/O} gives rise to unity^{ab} agency (as ignoring/remembering/predicting machines).
- 2) Ignoring/remembering/predicting machines can improve themselves through the remembering function by means of efficacious training of the ignoring function.
- 3) Time and ignoring/remembering/predicting are therefore intrinsically bound.
- 4) The Buddha's warranted methodology targets temporal remembering and predicting by means of the practices of efficacious ignoring.

Remembering and predicting are also intrinsically bound because each event of remembering produces new information and states that are essential to the prospective predicting process. This claim brings the project full circle, tracking backwards through the Haggard (et al.) perspectives of 'intentional binding', 'prospective prediction' as selection of action in agency and 'fluency of action'. These neuroscientists are understandably wary of grand claims such as those of Buddhist science. This project does not make a definitive 'like for like' alignment but points to the qualitative value in exploring the 'bound' agency and its temporal threshold as intentional binding (1-500 milliseconds).

Conclusion: The Parallels in Buddhist Ignorance and Neuroscience

I have throughout presented a case for provisional common ground around the concept of cognitive binding as a dynamic regulatory process. I set up this argument by selecting just three of Haggard's (et al.) themes, namely intentional binding, prospective prediction and fluency of action. Intentional binding performs the binding or cognitive fixing of the internal state to the external objectives, within which retrospective and prospective action selection of agency takes place. How they take place involves fluency of action as the consistency and equilibrium of the cognitive unity^{ab}. Of prime importance is the temporal component of action selection, which Haggard concisely demonstrates in the clock/beep prediction experiment. Intentional binding bears a temporal threshold of 1-500 milliseconds after which the binding of the attention breaks

apart. This breaking apart has been aligned to the extreme positions of absolutism and nihilism, which Buddhism holds, is in contradiction with bound cyclical causation^{D/O} and impermanence. In doing so, I have hopefully demonstrated the fallibility of a linear and subsequent atomic approach to understanding the dynamic nature of cognitive agency and its efficacy. This is in accordance with Haggard (et al.'s) concept of fluency of action that I have linked to both dynamic equilibrium and ignoring as efficacious and non-efficacious. Such is in alignment with the Buddha's claim of ignorance as the root of all unsatisfactoriness. Further, such is in alignment with the Buddha's claim of the inherent capacity to transform non-efficacious ignoring as agency to that of efficacious ignoring.

It was noted in the Haggard (et al.) experiment, discussed above, that schizophrenic volunteers only made retrospective decisions while non-schizophrenic, or 'healthy' participants only made prospective decisions. Outside the conditions of the experiment it is understood that healthy people utilize both retrospective and prospective cues to action. This was shown in the examples of learning, remembering and ultimately, ignoring. The conclusion of this chapter then, is that the qualitative aspects of agency, while being dependent upon participant testimony, confirm a case for a theory of participatory will and agency. Such an approach avoids the extremes of hard determinism and its counterpart, hard libertarianism that advocates moral reasoning as the evidence of free will. With these extremes heuristically understood, a compatible basis is established for the alignment of cognitive neuroscience and Buddhist thinkers to further explore the tentative parallels suggested here. I am neither a Buddhist nor a scientist. My philosophical aim at the start of this project was to show that the subject of ignorance might be better approached from a dynamic point of view. As the project progressed it became increasingly evident to me that the problem of free will could be approached in the same way, which the Haggard (et al.) material seemed to support. This intellectual journey will be summarized in the following conclusion.

Conclusion

Participatory will has been defined as the common sense enabling principle that produces the cognitive appearance of consistency and stability despite impermanence in nature and mind. Throughout this thesis, I have shown that participatory will conceptually entails the four theories of determinism, indeterminism, compatibilism and incompatibilism laid out by Repetti in chapter one.

Participatory will throughout has been presented as part of an active and dynamic process that is stabilised so that it *appears to flow* as coherent unity. I have further claimed that participatory will is dependent upon a) dynamic equilibrium, which in turn is dependent upon b) harmony and efficiency, which in turn is dependent upon c) Buddhist coherent impermanence, which in turn is dependent upon d) Buddhist impermanence and Buddhist cyclical causation as dependent origination. This is the chain of dependency of participatory will that justifies the Buddha's claim of neither absolutist 'free will' nor absolutist 'fatalism'.

The view, I have proposed, on the face of it appears to be compatibilist, however it does not defeat the counter and contra arguments of determinism, indeterminism and incompatibilism as per the Repetti framework. This is because the spectrum of positions derives entirely from the unity^{ab} atomic point of view of the agent. Buddhist metaphysical atomism as discussed in chapter two, incorporates all four theories. This is because in order to render the conceptual atom, one or more axis or spatiotemporal aspects of cognition must be fixed together. I have called these the characteristics of harmony and efficiency.

The basis of this claim is that where there is fixing there is determinism, and in the case of cognition, a degree of agency or cognitive determinism that enables agency to occur at all. Therefore where there is strong ignorance as non-efficacious ignoring taking place, it could be argued that one is non-efficacious.

Alternatively, since one may alter one's ignoring efforts by means of the spatiotemporal cognitive apparatus, one intrinsically possesses a capacity of agency and conceivably, willing. I propose many of the commentators on free will discussed in chapter one would accept this claim. However, this very much opens the door to incompatibilist views because it only takes the acceptance of the principle of willing to threaten the claim of determinism.

I have proposed that all four claims are conceptually correct if viewed as a spectrum upon which the needle of agency as choosing floats, only resting, when synthetically fixed by means of the atomic point of view. The entire argument for free will then rests upon the quality of the synthetic fixing of the spatiotemporal cognition as the atomic point of view (unity^{ab}). It is my conclusion then that the debates on free will largely apply to the synthetic process of ignoring and its (non-epistemic) noun form, ignorance. This claim is consistent with the Buddhist view that there is a direct relation between how one is cognizant of something always requires ignoring other things, and subsequently the generation of ignorance and suffering. What we are left with *appears* then to be an overall compatibilist position because it allows for cognitive agency, be it as both efficacious and non-efficacious ignoring, irrespective of material causation (dualism or not).

From a Buddhist stance, the important component of this statement is the dynamic basis of efficacy and not the debates on material causation. This is because it follows that when (absolutist) agency is non-efficacious, ignorance is produced and this position is incompatible with any concept of free will. It is therefore a contradiction in terms to say that we are free to be ignorant. It is this argument that shows that the compatibilist claim only works if cognitive agency is conditioned in such a way that the ignoring process is always efficacious, which I have shown not to be the case. However, it cannot be ignored that where there is conditioning of any kind, there is determinism. This resonates with Dennett's overall claim that we want determinism. I add that the Buddha would state that we want determinism, but only the best kind, the efficacious kind. The conclusion is then that there can only be one version of freedom, and that is the kind where the determinist features of agency produce

ignorance-free agency and will. This is the claim and methodology of the Buddha.

What I have argued for is that the Buddha had little interest in the debates on free will because he presumably considered them to be addressing the wrong questions. The right ones being, immediately: ‘what do we do with the common sense agency that we have?’ and long term: ‘how do we transform non-efficacious ignoring into efficacious ignoring?’ The aim then is to couple these questions and answers together.

I then proposed that this approach to agency is in alignment with Haggard (et al.’s) concepts of intentional binding, fluency of agency and prospective action selection in agency. Haggard (et al.) also proposes that the free will question is a wrong one and considers the question of agency to offer more answers. This is because the free will question is from every angle viciously circular: 1) how can we be free to be ignorant? And 2) if we can convert non-efficacious ignoring into efficacious ignoring, how can we be wholly determined? To my knowledge, there is no theory of absolutist free will or determinism that avoids these problems, not even compatibilism. To this end, with regard to free will, these red herrings are valuable heuristic theories that are necessary to engage in order to move beyond the atomic point of view and absolutist unity.

Regarding the cognitive neuroscience section of this thesis, I believe I have shown that there is a strong case for the inclusion of a Buddhist warranted or ‘super healthy’ baseline in agency experiments. In making a distinction between schizophrenic volunteers and healthy volunteers, Haggard presumably suggests that the former are contextually ‘unhealthy’ therefore there is plausibly a role for ‘super healthy’ volunteers. Within the ‘From action intentions to action effects’ experiment it was proposed that (‘unhealthy’) schizophrenic volunteers only use retrospective actions while the latter ‘healthy’ volunteers only use prospective actions. Were relevant experiments to be carried out with experienced Buddhist meditators, I propose what follows is what the findings would likely be: 1) I propose that a ‘super healthy’ group such as a ‘Buddhist warranted’ group would potentially increase the prospective action component beyond the 500 milliseconds threshold, 2) I further propose the potential of

increasing the quality of the retrospective component as learning and remembering.

Such type of experiments then would not only include ‘unhealthy’¹ groups such as those of schizophrenia, but also include a ‘super healthy’ group, such as trained meditators. Such a super group would have ideally reached a stage of proficiency in meditation and ethical life practices such as those accredited within Buddhism. This would provide three legitimate benchmarks, those with a known perception or reasoning hindering condition, those with an average or normal perception or reasoning condition, and those with a (warranted) refined or re-conditioned superior perception or reasoning condition. It seems often to be the case that practitioners of meditation are generally observed during meditation rather than when they are in action. Presumably a central motivation for having a meditation practice at all is to improve the quality of one’s judgements, actions and capacity to effectively predict such as discussed here. This is not a case of setting out to prove an elitist claim of meditation, but rather to test the Buddhist claim of improved perception and reasoning. This would be in the context of simple tasks that involve intentional binding: because of the shared emphasis upon the qualitative inner state. Finally, the inclusion of a super group provides another benchmark for the measuring of temporal difference in volunteer actions.

One of my key conclusions therefore is that Haggard (et al.) has illuminated an ideal basis for testing the foundation claim of the Buddha, that there is suffering, and that there is a solution to suffering. The solution is the cessation of ignorance generation by means of attachment to all forms of absolutist unity, particularly the self and the ego.

Another key conclusion is the value in testing the efficacy of The Eightfold Path using experiments that measure intentional binding thresholds. My interpretation of what the Buddha taught: is how to minimise the generation of ignorance within the synthetic cognitive fixing process, and ultimately to eliminate the historic conditioning influences. In effect, he both transforms the historic

¹ Haggard’s term ‘unhealthy’ used in Brazil, 2015. Ibid.

conditioning and the present atomic point of view. In doing so, the degree of participatory agency or will, shifts from strong ignorance generation and a determinist position, to ignorance-free agency, which is a participatory will position. How this is achieved is primarily through the Eightfold Path.

What the Buddha's Eightfold Path then achieves, is first the cultivation and development of 'healthy' baselines in people, enabling them to optimise their agency as spatiotemporal cognition. The Eightfold Path shows how to advance these competencies to a 'super healthy' level that I propose equates to being able to expand the intentional binding temporal threshold beyond 500 milliseconds. This of course is speculative for the purpose of inviting the neuroscience community to perceive the Buddhist offering in a distinctly useful benchmark way. I propose that the extension of the 500 milliseconds threshold accords with the 'concentration' component of the Eightfold Path: that is right effort, right mindfulness and right concentration. These strategies incorporate the practices of meditation and mindfulness in all actions. The Buddha's Eightfold Path is his blueprint for attaining this 'super healthy' standard, which once again note does not mean people do not contract terminal illnesses or have hereditary conditions. This term is only applied in relation to Haggard (et al.'s) usage of the term 'healthy' to mean ordinary mental competencies.

The Eightfold Path is commonly divided into three distinct groups, the first is concentration, the second is moral and the third is wisdom. During this first and I propose, foundational stage of Buddha warranted participatory will, it is now an easy step to understanding the role of ignoring. Ignoring, recall, is rooted in the atomic point of view and fixes on select detail. The concentration component of the Eightfold Path then methodically un-fixes the ignoring practice that is attached to the sustained fluency of action as unity^{ab}. This Buddhist view of attachment and illusory self is what I have aligned with Haggard (et al.'s) notion of 'fluency of action'. These practices do not only cultivate mental concentration, they also re-point the ignoring operation. Therefore, it would be of interest to both the Buddhist and science community to test this 'super healthy' claim in action.

The second component of the Eightfold Path is that of wisdom as right understanding and right aspiration. These apply particularly to the intellectual grasping of the metaphysics of Buddhist impermanence and cyclical causation as Dependent Origination. This is no small task and one that requires sustained thinking power that one assumes is dependent upon the quality of the concentration component. Both go hand in hand in decoupling the conditioned ignoring practice through breaking apart the harmony and efficiency aspects of dynamic equilibrium. This also, involves fathoming ones way out of the red-herring mazes the Buddha provides in his teachings. On every level these are challenging mental gymnastics that both show up in and transform the plasticity of the brain. Just as the contemplation of the four theories of free will play a helpful role in the quest of ignorance, free will and agency. This I propose is why the Buddha rejected the singular pursuit of metaphysics and philosophical speculation and insisted on a holistic common sense approach of concentration, morality *and wisdom*.

Finally, the third component of the Eightfold Path is that of morality which incorporates right speech, right action and right livelihood. This component is recognised as the importance of collective equanimity and real social coherence. Recall Gazzaniga's claim that it is in the social domain that healthy people are responsible for their actions. It is my understanding that the commentators of chapter one share this view. A dynamic approach as participatory will also avoids the extreme positions of hard determinism as fatalism and the libertarian response of moral freedom. In going head to head these positions speak of different, and I argue, unrelated things. Repetti's view on linearity however, avoids this problem and provided the ideal platform to deepen the investigation of absolutism as the atomic point of view and unity^{ab}.

Each of these stages and components of the Eightfold Path depend upon the transformation of the ignoring apparatus. In doing so wrong habitual ignoring is replaced with right habitual ignoring. The former produces ignorance and the latter produces ignorance-free participatory will and agency. As the entire process is dynamic, however at any given moment an individual may perceive

the experience to correspond with the theories of determinism, indeterminism, compatibilism and incompatibilism.

Repetti's project has demonstrated the value of such analysis. I, in my turn, have sought to demonstrate the value of introducing secondary conditions of dynamic harmony and efficiency into the analysis. I did this in full awareness that the Buddha did not discuss such conditions or other forces in the presentation of his teachings, presumably because we are free to analyse the extremes of absolutism and nihilism as we please. In doing so, one arrives at a full understanding of the problems of extremes because neither can exist within a bound aggregate model such as that of cyclical causation^{D/O} and impermanence. Therefore this has been a project about the nature of such aggregate binding and flow and the logic of why the Buddha taught the Middle Way.

It is my conclusion then, that the notion of participatory will is consistent with the Buddha's dynamic approach to aggregation as flow. Participatory will is also compatible with Haggard's rejection of the term 'free' and preference of 'agency'.

A final point to make is that we can regard Buddhist attachment as the inherent need to avoid, deny or minimise the effects of impermanence. This is achieved through fortifying the ignoring process as fluency of action, irrespective of the quality of outcome. For many it feels right or *better to feel in control and be wrong than to feel out of control and be right*. This corresponds with the Buddhist ego self that is attached in its own continuance: a by-product of which is separation of identity that fuels the potential for alienation. Such illusory separation and alienation form part of the Buddha's claim that 'everything is suffering'. However, there is, as is consistent throughout the Buddha's teachings, a red herring twist. This is: that the conceptual alienation can only exist between 'truly' separated selves, therefore if there really is no separated self, there can be no *true* separation or alienation. This is just another way of stating that Buddhist suffering refers to the ignorance of no self and not the problem of real alienation per se, otherwise there would be no potential to resolve problems relating to alienation. Therefore the Buddha's claim that there

is suffering, and there is a solution to suffering, relies upon the principle of separation of identity and alienation as being illusory. Otherwise, his claim would be that suffering exists and cannot be escaped or resolved. The Buddha does not deny that we look, feel and operate like individual selves. He rather claims that how and why we do so is incorrectly understood. The theoretical framework of current neuroscience provides us with important conceptual tools with which to give new relevance to the early Buddhist understanding of these matter.

Appendices

Glossary

Bibliography

Early Buddhist Texts

Abhidhamma: Mahathera, N., *A Comprehensive Manual of Abhidhamma: the philosophical psychology of Buddhism*, trans. edited and revised by Bhikkhu Bodhi, (Kandy: Buddhist Publication Society, 1999).

Abhidhamma: Wijeratne, R.P. and Gethin, R., *Summary of the Topics of Abhidhamma (Abhidhammatthasangaha by Anuruddha) and Exposition of the Topics of Abhidhamma (Abhidhammatthavibhavini) by Sumangala being a commentary to Anuruddha's Summary of the Topics of Abhidhamma*, (Oxford: Pali Text Society, 2002).

Anatta-lakkhana Sutta: *The Discourse on the Not-self Characteristic*, SN 22:59, S iii 66, i 901, translated by Bhikkhu, T., *Access to Insight* (1993), <http://www.accesstoinsight.org/tipitaka/sn/sn22/sn22.059.than.html>.

Anguttara Nikāya: *The Book of the Gradual Sayings*, translation by Woodward, F. L., & Hare, E. M., 5 volumes, (Bristol: Pali Text Society, 1932-6.)

Anguttara Nikāya: Warren, H. C., *Buddhism in Translations*, Harvard Oriental Series, 3, 6th edition (Cambridge, MA: Harvard University Press, 1915). This text is a translation of Anguttara Nikāya, Dhammapada, iii, 134.

Dīgha Nikāya: *The Long Discourses of the Buddha: A Translation of the Dīgha Nikāya*, translation by Walshe, M., (Boston: Wisdom Publications, 1987.)

'Five piles of bricks: the khandhas as burden and path,' *Access to Insight*, (2002). Translation by Bhikkhu, T., Available from: <<http://www.accesstoinsight.org/lib/authors/thanissaro/khandha.html>>.

Kaccayanagotta Sutta: To Kaccayana Gotta (on 'Right View') SN 12.15 PTS: S ii 16 CDB i 544, translated by Bhikkhu T., *Access to Insight* (1997), Alternative translation: Walshe, M. O., (2007) <http://www.accesstoinsight.org/tipitaka/sn/sn12/sn12.015.wlsh.html>.

Majjhima Nikāya: *The Middle Length Discourses of the Buddha: A Translation of the Majjhima Nikaya*, translation by Nanamoli, B., and Bodhi, B., (Boston: Wisdom Publications, 1995.)

Majjhima-Nikāya, iii.248-53: in 'Further Dialogues of the Buddha,' II, translated by Lord Chalmers, *Sacred Books of the Buddhists*, VI (London: Oxford University Press, 1927).

Mūlamadhyamakakārikā: Garfield, J. L., *The Fundamental Wisdom of the Middle Way*, (Oxford: Oxford University Press, 1995).

Neyyatha Sutta: 'A Meaning to be Inferred' (AN 2.25), translated from the Pali by Bhikkhu, T., *Access to Insight* (2010), "AN 2.2512. <http://www.accesstoinight.org/tipitaka/an/an02/an02.025.than.html>.

Paticca-Samuppāda: Dependent Origination, (Second Lecture under the Dona Alphina Ratnayaka Trust, University College, Colombo (1938), in 'Fundamentals of Buddhism Four Lectures, (2005)'. Mahathera, N., *The Wheel Publication*, No. 394/396, (Sri Lanka: Buddhist Publication Society, 1994).

Samyutta Nikāya, Ireland, J.D., *Collected Wheel Publications, Volume VIII*, No.s, 105-115, (Sri Lanka: Buddhist Publication Society, 2010).

Samyutta Nikāya: *Perception of Impermanence*. SN 22.102 in WH 107-109, Samyutta Nikāya: An Anthology (Part I), Ireland, J.D., *Access to Insight*, (2006).
<http://www.accesstoinight.org/lib/authors/ireland/wheel107.html>

Samyutta Nikāya: *The Connected Discourses of the Buddha*, translation by Bodhi, B., (Boston: Wisdom Publications, 2000.)

The Five Mental Hindrances and Their Conquest: 'Selected Texts from the Pali Canon and the Commentaries' compiled and translated by Nyanaponika, T., *Access to Insight*, (1994).
<http://www.accesstoinight.org/lib/authors/nyanaponika/wheel026.html>

The Sutta Pitaka: Bodhi, B., *Connected Discourses of the Buddha* (Somerville, Mass.: Wisdom Publications, 2000).

Vajracchedikā Prajñāpāramitā Sūtra: *A New English Translation of the Sanskrit Text Based on Two Manuscripts from Greater Gandhara*, translation by Harrison, P., forthcoming in Braarvig, J., (ed.), *Manuscripts in the Schoyen Collection VII: Buddhist Manuscripts*, vol. 3 (Oslo: Hermes Publishing, 2006).

General Bibliography

Balsys, B., 'The "Self" or "Non-self"', in *A Treatise on Mind*, vol. 1: *Buddhism* (Australia: Universal Dharma Publications, 2016).

Barnes, J., *The Presocratic Philosophers*, 2nd edition, (London and New York, 1982), quote from Aristotle's *De generatione et corruptione*, trans. an comm. Williams, C.J.F., (DGC) (London: Routledge, 1982).

Bareau, A., 'The Notion Of Time In Early Buddhism', *East and West*, vol. 7, no. 4, (1957): pp. 353-364.

Bayne, T., 'Libet And The Case For Free Will Scepticism', DRAFT, in *Free Will and Modern Science*, (ed.) Swinburne, R., (Oxford: Oxford University Press, 2012), pp. 25-46.

Beane, W.C., 'Buddhist Causality and Compassion', *Religious Studies*, vol. 10, no. 4, (1974): pp. 441-456.

Berzin, A., *The two truths in Vaibhāṣika and Sautrāntika*, (March 2001; revised September 2002 and July 2006), http://www.berzinarchives.com/web/en/archives/sutra/level5_analysis_mind_reality/truths/2_truths_vaibhashika_sautrantika.html.

Bunnin N., and YU. J., (eds.), *Contiguity, The Blackwell Dictionary of Western Philosophy*, Blackwell Reference Online. 01 July 2016 <http://www.blackwellreference.com/public/book.html?id=g9781405106795_9781405106795>.

Burley, M., 'Karma and Rebirth in the Stream of Thought and Life', *Philosophy East and West*, vol. 64, no. 4, (2014): pp. 965-982.

Carrithers, M., *The Buddha*, (Oxford: Oxford University Press, 1983).

Chambon V., Sidarus N., Haggard, P., 'From Action Intentions To Action Effects: How Does The Sense Of Agency Come About?' *Frontiers in Human Neuroscience* (2014): pp. 1- 9. doi: 10.3389/fnhum.2014.00320.

Chatterjee, A., 'Naturalism in Classical Indian philosophy', *The Stanford Encyclopaedia of Philosophy* (2014), (ed.) Zalta, E.N., Available from: <http://plato.stanford.edu/archives/fall2014/entries/naturalism-india/>.

Chivers, T, Neuroscience, Free Will And Determinism: 'I'm Just A Machine', Patrick Haggard, *The Telegraph*, Oct 12, 2010. <http://www.telegraph.co.uk/news/science/8058541/Neuroscience-free-will-and-determinism-I-m-just-a-machine.html>

Coseru, C., 'Mind in Indian Buddhist Philosophy,' *The Stanford Encyclopaedia of Philosophy* (2012), Zalta, E. N., (ed.), URL = <<http://plato.stanford.edu/archives/win2012/entries/mind-indian-buddhism/>>.

Dalai Lama XIV Bstan-'dzin-rgya-mtsho, G. Newland, *From Here to Enlightenment: An Introduction to Tsong-kha-pa's Classic Text* (Boston, Boston & London: Snow Lion, 2012).

Dawkins, R., *The Selfish Gene*, (Oxford: Oxford University Press, 1976).

Dennett, D. C., *Elbow Room: The Varieties of Free Will Worth Wanting* (Oxford: Clarendon, 1984).

Dennett, D. C., *Freedom Evolves*, (New York: Viking Penguin, 2004).

Descartes, R., *Discourse on Method, Optics, Geometry, and Meteorology*, translated by Oscamp, P.J., (Revised ed.). (Indianapolis: Hackett Publishing, 2001).

Duerlinger, J., *Indian Buddhist Theories of Persons: Vasubandhu's Refutation of the Theory of a Self* (London: Routledge, 2003).

Deguchi, Y., Garfield, J.L., Priest, G., 'The Way of the Dialetheist: Contradictions in Buddhism,' *Philosophy East and West*, vol. 58, no. 3, 2008: pp. 395 - 402.

Doidge, N., *The Brain that Changes Itself*, (New York: Penguin, 2008).

Eraly, A., *The First Spring: The Golden Age of India*, (New Dehli, Viking: 2011).

Federman, A., 'What Kind of Free Will Did the Buddha Teach?' *Philosophy East and West*, vol. 60 no. 1, (2010): pp. 1-19.

Flanagan O., *The Bodhisattva's Brain*, Cambridge MA: MIT Publishing, 2011).

Frankfurt, H., 'Alternate Possibilities and Moral Responsibility,' *Journal of Philosophy*, vol. 66, no. 23 (1969): pp. 829-839.

Frankfurt, H., 'Freedom of the Will and the Concept of the Person,' *Journal of Philosophy*, vol. 68 (1971): pp. 5-20.

Galin, D., 'The Concept 'Self' and 'Person' in Buddhism and in Western Psychology' in B. Alan Wallace (ed.) *Buddhism & Science: Breaking New Ground* (Columbia University Press, 2003).

Garfield, J. L., *Engaging Buddhism: Why it Matters to Philosophy*, (Oxford: Oxford University Press, 2015).

Gethin, R., 'The five khandhas: their treatment in the Nikayas and early Abhidhamma', in Williams, P., (ed.) *Buddhism: Abhidharma and Madhyamaka, Volume 4*, (Oxford: Routledge, 2005).

Gazzaniga, M.S., 'Mental Life and Responsibility in Real Time with a Determined Brain,' *In Moral Psychology, Volume 4: Free Will and Moral Responsibility*, Sinnott-Armstrong, W.(ed.), (Cambridge MA: The MIT Press, 2014).

Gazzaniga, M.S., 'Understanding Layers: From Neuroscience to Human Responsibility, Neurosciences and the Human Person: New Perspectives on Human Activities Pontifical Academy of Sciences,' *Scripta Varia*, vol. 121, Vatican City (2013): pp. 1 - 14.
www.casinapioiv.va/content/dam/accademia/pdf/sv121/sv121-gazzaniga.pdf.

Gazzaniga, M.S., *The Mind Past*, (Berkeley: University of California Press, 1984).

Gier, N., and Kjellberg, P., 'Buddhism and Freedom of the Will: Pali and Mahayanist Responses,' in *Freedom and Determinism: Topics in Contemporary Philosophy* (eds.), Campbell, J.K., O'Rourke, M., Shier, D., (Cambridge, MA: MIT Press, 2004).

Gombrich, R., *What the Buddha Thought*, (London: Equinox Publishing Ltd, 2009)

Groarke, L.A., Tindale, C.W., *Good Reasoning Matters!: A Constructive Approach to Critical Thinking*, (Oxford: Oxford University Press, 2004).

Haggard, P., 'Comments on Philosophical Views about the Nature of Conscious Sensory Experience, D. Papineau, Professor of Philosophy, King's College London,' *The Human Mind Conference*, (London, 2014).

Haggard, P., in his presentation of 'Sense of Agency: A Neurocognitive Approach' lecture at *the XVIII Colóquio de Filosofia Unisinos*, Brazil (2015).

Haggard, P., 'What are Intentions?' in *Conscious will and responsibility: a tribute to Benjamin Libet*, (eds.) Sinnott-Armstrong W. and Nadel. L., (New York: Oxford University Press, 2010).

- Hamilton, S., *Early Buddhism: A New Approach* (London: Curzon Press, 2000).
- Hamilton, S., *Indian Philosophy: A Very Short Introduction* (Oxford: Oxford University Press, 2001).
- Hanson, R., and Mendius. R., *The Buddha's Brain: The Practical Neuroscience of Happiness, Love and Wisdom*, (Oakland, CA: New Harbinger, 2009).
- Harrison, V., *Eastern Philosophy*, (Oxford: Routledge, 2013).
- Harvey, P., 'Freedom of the Will in Light of Theravada Teachings,' *Journal of Buddhist Ethics*, vol. 14, (2007): pp. 34 - 98.
- Heiman, A., Bumbacher S.P., 'The Influence of Chinese Buddhism in the Snga-Dar Period' in *The Spread of Buddhism*, (eds.) Heiman, A., Bumbacher, S.P., (Boston: Brill Publishing, 2007).
- Holder J., *Early Buddhist Discourses*, (Indianapolis: Hackett Publishing Company Inc., 2006).
- Hume, D., 'An Enquiry of Human Understanding,' a Project Gutenberg eBook. *Enquiries Concerning The Human Understanding, And Concerning The Principles Of Morals*, By David Hume. Reprinted From The Posthumous Edition Of 1777. Second Edition, (1902).
<http://www.gutenberg.org/dirs/etext06/8echu10h.htm>.
- Hume, D., *A Treatise of Human Nature* (1888), (ed.) Selby-Bigge, L. A., 2nd ed. revised by Nidditch, P. H. (Oxford: Clarendon Press, 1975).
- Huntington, J.C., and Bangdel, D., *The Circle of Bliss: Buddhist Meditational Art* (Ohio: Serindia Publications, 2003).
- Kabat-Zinn, J., *Wherever You Go, There You Are: Mindfulness Meditation In Everyday Life*, (New York: Hyperion, 1994).
- Kalupahana, D.J., 'The Notion Of Suffering In Early Buddhism Compared With Some Reflections Of Early Wittgenstein', *Philosophy East and West*, vol. 27, no. 4, (1977): pp. 423-431.
- Kane, R., *A Contemporary Introduction to Free Will*, (New York: Oxford University Press, 2005).
- King, R., *Early Vedanta and Buddhism*, (New York: State University Press, 1995).
- King S.B., 'An Engaged Buddhist Response to John Rawls's "The Law of Peoples"', *The Journal of Religious Ethics*, vol. 34, no. 4, (2006): pp. 637-661.
- Kohn, L., *Meditation Works in the Daoist, Buddhist, and Hindu Traditions*, (Florida: Three Pines, US, 2008).
- Konstan, D., "Epicurus", *The Stanford Encyclopaedia of Philosophy* (Summer 2014 Edition), Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/sum2014/entries/epicurus/>>.
- Kornhuber, H.H., Deecke, L., 'Changes In The Brain Potential In Voluntary Movements And Passive Movements In Man: Readiness Potential And Reafferent Potentials,' *Pflügers Arch*, vol. 284, (1965): pp. 1-17.

Lacewing, M., *Hume's Psychology: The Principles of Association, Imagination and Belief* (London: Routledge, 2010).

Lakeoff, G., Johnson, M., *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*, (New York: Basic, 1999).

Libet, B. Gleason, C.A, Wright, E.W., Pearl, D.K., (1983). 'Time of Conscious Intention to Act in Relation to Onset of Cerebral Activity (Readiness-Potential) - The Unconscious Initiation of a Freely Voluntary Act.' *Brain*, vol. 106 (1984): pp. 623-642.

Libet, B., 'Electrical Stimulation Of Cortex In Human Subjects And Conscious Sensory Aspects.' In Iggo A. (ed.), *Handbook of sensory physiology*, (Berlin: Springer-Verlag, 1973), pp. 743-790.

Libet, B., 'Intentions to Act, Do we Have Free Will?' in Kosslyn S.M., (ed.) *Mind Time: The Temporal Factor in Consciousness* (Harvard: Harvard University Press, 2004).

Libet, B., 'Unconscious Cerebral Initiative And The Role Of Conscious Will In Voluntary Action', *Behaviour and Brain Sciences*, vol. 8, (1985): pp. 529-66.

Libet, B., Alberts, W., Wright Jr., E.W., Delattre, L.D., Levin, G., & Feinstein, B., 'Production Of Threshold Levels Of Conscious Sensation By Electrical Stimulation Of Human Somatosensory Cortex,' *Journal of Neurophysiology*, vol. 27, (1964): pp. 546-578.

Libet, B., Wright Jr., E.W., Elwood, W., Feinstein, B., Pearl, D.K., 'Subjective Referral of the Timing for a Conscious Sensory Experience - A Functional Role for the Somatosensory Specific Projection System in Man.' *Brain*, vol. no. 102, (1979): pp. 193-224.

Little, T.D., Snyder, C.R., Wehmeyer, M., 'The Agentic Self: On The Nature And Origins Of Personal Agency Across The Lifespan,' in *Handbook of personality development*, Mroczek, D., & Little, T.D., (eds.), (Mahwah, NJ: LEA, 2006): pp. 61-80.

Loy, D., *Awareness Bound and Unbound* (Albany NY: SUNY Press, 2009).

Mackenzie Brown C., 'The Design Argument In Classical Hindu Thought,' *International Journal of Hindu Studies*, vol. 12, no. 2, (2008): pp. 103-151.

Mansfield, V & HH Dalai Lama., *Tibetan Buddhism And Modern Physics: Toward A Union Of Love And Knowledge* (1st edition), (U.S: Templeton Foundation Press, 2008).

Marx, K., 'The Difference Between the Democritean and Epicurean Philosophy of Nature' (1841); Published in *Marx-Engels Collected Works* Volume 1, (Moscow: Progress Publishers, 1902).

McEvelley, T., The Spinal Serpent. RES: *Anthropology and Aesthetics*, vol. 24, (1993): pp. 67-77.

Miyamoto, S., 'Freedom, independence, and peace in Buddhism', *Philosophy East and West*, vol. 2, no. 3, (1952): pp. 208-225.

Morris W.E., and Brown, C.R., 'David Hume,' *The Stanford Encyclopaedia of Philosophy* (Spring 2016 Edition), Zalta, N.E., (ed.), URL = <<http://plato.stanford.edu/archives/spr2016/entries/hume/>>.

- Nananada B.K., *Concept and reality in Early Buddhist thought*, (Sri Lanka: Dharma Grantha Mudrana Bharaya, 2012). Nicolelis, M 2011, *Beyond boundaries: the new neuroscience of connecting brains with machines—and how it will change our lives*, Times Books, New York.
- Parfit, D., *Reasons and Persons*, (Oxford: Oxford University Press, 1984).
- Payutto, P., *Dependent Origination*, (Bangkok: Buddhadhamma Foundation, 1994).
- Pitkin, A., 'Scandalous Ethics: Infinite Presence with Suffering,' Thompson, E., (ed.), *Between Ourselves: Second-person Issues in the Study of Consciousness*, (Charlottesville: Imprint Academic, 2001).
- Prakashan, P., 'Other Religions', in *World Encyclopaedia of Interfaith Studies* (Delhi: Text Book Promotion Society of India, 2009).
- Priest, G., 'Beyond True and False,' *Aeon*, 5 May 2014, <https://aeon.co/essays/the-logic-of-buddhist-philosophy-goes-beyond-simple-truth>.
- Radhakrishnan, S., & Moore, C., *A Sourcebook in Indian philosophy* (Princeton: Princeton University Press, 1957).
- Rahula, W., *What the Buddha Taught*, (Woking: Unwin Brothers Ltd, 1972).
- Repetti, R., 'Buddhist Reductionism and Free Will: Paleo-compatibilism,' *Journal of Buddhist Ethics*, vol. 19 (2012): pp. 33 - 95.
- Repetti, R., Buddhist 'Hard Determinism: No Self, No Free Will, No Responsibility,' *Journal of Buddhist Ethics*, vol. 19 (2012): pp. 130-197.
- Repetti, R., 'Earlier Buddhist Theories of Free Will: Compatibilism,' *Journal of Buddhist Ethics*, vol. 17 (2010): pp. 279 - 310.
- Repetti, R., 'Recent Buddhist Theories of Free Will: Compatibilism, Incompatibilism, and Beyond,' *Journal of Buddhist Ethics*, vol. 21 (2014): pp. 279 - 352.
- Ronkin, N., 'Abhidharma,' *The Stanford Encyclopaedia of Philosophy* (2014), Zalta, N.E. (ed.), URL = <<http://plato.stanford.edu/archives/fall2014/entries/abhidharma/>>.
- Ronkin, N., *Early Buddhist Metaphysics: The Making Of A Philosophical Tradition*, (London Routledge Curzon, 2005).
- Roskies, A.L., 'Why Libet Studies Don't Pose a Threat to Free Will, in *Conscious will and responsibility: a tribute to Benjamin Libet*, (eds.) Sinnott-Armstrong W., and Nadel, L., (New York: Oxford University Press, 2010).
- Royal Society of Art Lecture, *The Anatomy of an Action: self and responsibility after neuroscience* by Haggard, P., (2012) (video file), Available <https://www.thersa.org/discover/videos/event-videos/2010/01/the-anatomy-of-an-action/> [12.2.2014].

- Schumann, H.S., *Buddhism: An Outline Of Its Teachings*, Translated By Feuerstein, G., (London, Rider, 1973).
- Schuur, F., & Haggard, P., 'What Are Self-Generated Actions?' *Consciousness and Cognition*, vol. 20, no. 4, (2011): pp. 1697-1704.
- Siderits, M., 'Buddhist Reductionism,' *Philosophy East and West*, vol. 47, no. 4 (Oct., 1997): pp. 455-478.
- Siderits, M., "Buddha", *The Stanford Encyclopaedia of Philosophy* (2015), Zalta, N.E., (ed.), URL = <<http://plato.stanford.edu/archives/spr2015/entries/buddha/>>
- Sjoerd Hasper, P., 'The Foundations of Pre-Socratic Atomism,' in Sedley, D., (ed.), *Oxford Studies in Ancient Philosophy* (Oxford: Oxford University Press, 1999).
- Smith, C.U.M., & Whitaker, H., (eds.), *Brain, Mind And Consciousness In The History Of Neuroscience*, (New York: Springer, 2014).
- Thomas, E., *The Life Of The Buddha As Legend And History*, (New York: Alfred A Knopf, 1972).
- Thompson, D.L., *Selfhood: Memes, Language, and Narrative* (London: Continuum International Publishing Group, 2009).
- Thompson, E., *Waking, Dreaming, Being: Self and Consciousness in Neuroscience, Meditation, and Philosophy* (New York: Columbia University Press, 2015).
- Thurman, R., *The Jewel Tree Of Tibet: The Enlightenment Engine Of Tibetan Buddhism*, (New York: Free Press/Simon & Schuster, 2005).
- The Oxford Handbook of World Philosophy. Oxford Handbooks Online. (2015).
<http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780195328998.001.0001/oxfordhb-9780195328998>.
- Van Inwagen, P., 'Free Will Remains a Mystery: The Eighth Philosophical Perspectives Lecture.' *Philosophical Perspectives*, vol. 14 (2000): pp. 1-19.
- van Inwagen, P., 'Dennett on `Could Have Done Otherwise`', *The Journal of Philosophy* (1994), vol. 81, no.10, Eighty-First Annual Meeting American Philosophical Association, Eastern Division (Oct., 1984): pp: 553-565.
- van Inwagen, P., *An Essay on Free Will* (Oxford: Clarendon Press, 1983).
- van Inwagen, P., *Material Beings* (New York: Cornell Press, 1990).
- Varela, F.J., Depraz, N., 'Imagining: Embodiment, Phenomenology and Transformation,' in Wallace, B. A., (ed.), *Buddhism and Science, Breaking New Ground*, (New York: Columbia University Press, 2003).
- Vaughan, H., Costa L.D., & Ritter, W., 'Topography of the human motor potential,' *Electroencephalography & Clinical Neurophysiology*, vol. 25, (1968): pp. 1-10.

Waldron, W.S., 'Common Ground, Common Cause: Buddhism and Science on the Afflictions of Identity,' in Wallace B.A. (ed.) *Buddhism and Science: Breaking New Ground*, (New York: Columbia University Press, 2003b).

Wallace, B.A., *Shamatha in the Indian Buddhist Tradition* (2010). <http://fpmt.org/mandala/archives/mandala-issues-for-2010/april/shamatha-in-the-indian-buddhist-tradition>.

Warder, A. K., *Indian Buddhism* (Delhi: Motilal Banarsidass Publishers, 2000).

Walter, H., *From Libertarian Illusion To A Concept Of Natural Autonomy* (2nd ed.), Cambridge MA: MIT Press, 2009).

Williams, P., *Mahāyāna Buddhism: The Doctrinal Foundations*, 2nd Edition (London: Routledge, 2009).

Wittmann, M., & Schmidt, S., 'Mindfulness Meditation and the Experience of Time' in *Meditation - Neuroscientific Approaches and Philosophical Implications*, (eds.) Schmidt S., & Walach, H., (Switzerland: Springer International Publishing, 2014).

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