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Meditation and unity of consciousness: a perspective from Buddhist epistemology

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Abstract The paper argues that empirical work on Buddhist meditation has an impact on Buddhist epistemology, in particular their account of unity of consciousness. I explain the Buddhist account of unity of consciousness and show how it relates to contemporary philosophical accounts of unity of consciousness. The contemporary accounts of unity of consciousness are closely integrated with the discussion of neural correlates of consciousness. The conclusion of the paper suggests a new direction in the search for neural correlates of state consciousness or creature consciousness.

Keywords Unity of consciousness · Buddhist model of mind · Neural correlates of consciousness

Introduction

In the last decade, the sciences of the mind research have witnessed an exponential rise in the empirical studies of Buddhist meditation. This growth of interest in Buddhist meditation has been brought about by the integration of Buddhist mindfulness mediation into mainstream medicine and science. This engagement of mind sciences with Buddhist philosophy is promising, but it must be understood that meditation practices are nested in a wider sorteriological and psychological framework in Buddhism. Recently, an issue of Contemporary Buddhism has been dedicated to understanding the interaction between contemporary science and practice of

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Buddhist mindfulness meditation and ancient meditative practices that are traditionally associated with a specific philosophical and epistemological orientation (edited by Williams and Kabat-Zinn 2011). This is timely, but we can go further. The much welcome scientific study of Buddhist meditation is likely to further our understanding of Buddhist theory of mind and epistemology, and open up new ways in which it might interact with contemporary conceptions of mind and consciousness. This paper explores one such interaction between contemporary philosophy of mind and Buddhist philosophy of mind, and how it might be informed by recent empirical studies of Buddhist meditation. In addition, it gives the reader a glimpse into the epistemological framework and theory of mind that underlies Buddhist meditation in order to clarify some misconceptions of the practice.

The Buddhist practices of meditation are primarily designed to induce desired changes in one's cognitive and emotional states to enable spiritual progress. These practices derive their importance from the central aim of Buddhist practice which is to reduce and ultimately eliminate suffering. Almost all Buddhists share the belief that mental afflictions, e.g. greed, hate, delusion, etc., are the root cause of suffering and must be annihilated to eliminate suffering. The belief that elimination of mental afflictions requires a psychological transformation which is aided by meditative practices is also shared by all Buddhists. The differences among the various Buddhist schools and traditions set in because there is a diversity of opinions among the Buddhists as to the precise nature of afflictions to be eliminated, the desired changes in one's cognitive and emotional states, and the best method for accomplishing spiritual progress. These differences follow from differences in the various conceptions of mind and mental states espoused by different traditions within Buddhism. There is, thus, no Buddhist theory of mind; rather Buddhism is a plural tradition which encompasses many different schools and theories of the mind evolving over centuries. This paper discusses some ideas from *Yogācāra*[1] Buddhist theory of mind in an attempt to show how it might help advance contemporary research into consciousness. Furthermore, this also shows that *Yogācāra* theory of mind is not just of historical but also of systematic interest; scholars of Indian thought, contemporary philosophers, and scientists stand to benefit much from an engagement.

This paper focuses on the attempts of the early Yogācāra philosophers who postulated a repository consciousness (*ālaya-vijñāna*), akin to what we might understand as a continually evolving underlying sentience that accompanies the mental stream that encompasses the entire life of an individual. Literally, '*ālaya*' means 'home', 'receptacle' or 'store', and thus *ālaya-vijñāna* is also sometimes referred to as storehouse consciousness. Some interpreters, like Schmithausen, Waldron and Powers, explain the Yogācāra notion as a subliminal mind that carries along in it seeds of karmic potentials and latent dispositions. This interpretation, however, raises serious questions for if it not a manifest awareness, how can it be said to be a form of consciousness at all? In response to this question, Dreyfus argues that the mental

[1] *Yogācāra* is an important school within the Abhidharma traditions which arose in India at the beginning of the third century BCE and which have many well-known Tibetan offshoots. Abhidharma traditions represent the first attempts in Buddhism to develop systematic, analytically rigorous and terminologically precise accounts of the content and character of experience, and a rigorous metaphysics of mind and mental states. The *Yogācāra* school emerged about the fourth century CE and is generally taken to represent the mature Abhidharma view.

processes within the purview of *ālaya-vijñāna* "… may be outside the ordinary forms of awareness, but they are not in principle removed from phenomenological enquiry. Hence, they can be thought of as being forms of awareness, rather than totally unconscious" (2011, p. 143). According to Dreyfus, the Yogācāra notion of s *ālaya-vijñāna* points to a basic level of awareness which is not typically identified as manifest awareness, but it is wrong to think of it as completely non-conscious. He argues that in the eyes of Yogācāra philosophers the separation between the conscious and the non-conscious is a matter of degree. Thus, he translates *ālaya-vijñāna* as 'basic consciousness' rather than subliminal awareness. For Dreyfus, "The basic consciousness is the baseline of consciousness, the passive level out of which more active and manifest forms of awareness arise in accordance with the implicit preferential patterns that structure emotionally and cognitively this most basic level of awareness" (2011, p. 144). For the purposes of this paper, I follow Dreyfus' interpretation of *ālaya-vijñāna* and use the term 'basic consciousness' as an adequate equivalent in English. In Section 2 below, I briefly chart the relevant Yogācāra reasons that led to the postulation of basic consciousness. This discussion of the Yogācāra texts will give us an occasion to see why this interpretation is to be preferred. It must be noted that Dreyfus' interpretation shows that the Buddhist notion of *ālaya-vijñāna* is akin to the notion of 'lived experience' in Western phenomenology and an object of interest to neurophenomenologists. In a recent article, Thompson et al. (2005) explain the notion of 'lived experience' in the following way:

> [A]ccording to phenomenology, lived experience comprises pre-reflective, pre-cognitive, and affectively valenced mental states. These states are subjectively lived through, and thus have an experiential or phenomenal character, but their contents are not thematized. These states are also necessarily states of pre-reflective self-awareness (they have first-personal givenness), otherwise they do not qualify as conscious at all. Although not explicitly accessed in focal attention, reflection, introspection, and verbal report, they are accessible in principle: they are the kind of states that can become available to attention, reflection, introspection, and verbal report. …Of particular concern to neurophenomenology is the process whereby implicit, unthematized, and intransitively lived through aspects of experience can become thematized and verbally described, and thereby made available in the form of intersubjective, first-person data for neuroscientific research on consciousness.[2]

This basic consciousness is first introduced as a theoretical posit (an unobservable construct) to explain observable phenomenon, viz. the continuity of consciousness through deep meditative states in which all conscious activity is said to have halted. To justify that this explanation in terms of basic consciousness has theoretical merit and is not just a specific solution to a specific problem, *Yogācāra* philosophers argued

[2] Neurophenomenology might seem to be the obvious research program to pursue for the project here. But I hesitate to do so since I have some concerns about the methodology. Neurophenomenology begins with the hypothesis that the conscious subject plays an unavoidable role in characterising the explanandum of consciousness through first-person descriptive reports. Neurophenomenologists acknowledge that as a first step in this programme there is a need to provide better descriptions or models of first-person data. They claim that only phenomenological methods of Husserl and his followers can provide this. But it is unclear how the method of deep phenomenology differs from careful introspection. This and other concerns about the research program have been raised in T. J. Bayne (2004).

that basic consciousness also solves the apparently unrelated problems of the continuity of *karma*, the unity of consciousness, memory, recollection, etc. Such kinds of explanations have clearly played an important role in science. Paradigmatic examples include Mendel's genetic theory originally postulated genes to explain traits inherited by offspring. However, now we know that genes can tell us about blood type, physical characteristics, genetic disorders, diseases that we may develop later in life, our ancestral lineage, lifespan, and more. Such evidence increases the initial credence we might give to the original theory. This will be the aim of Section 2. However, first in Section 1, I briefly explain the contemporary formulation of the 'unity of consciousness' problem and its significance in the search for neural correlates of consciousness. And last in Section 3, I will show that a combination *Yogācāra* notion of basic consciousness and neuroscientific research on Open Monitoring meditation may offer useful insights to further the search for a philosophically coherent account of unity of consciousness and the neural correlates of creature (or state) consciousness.

This project may sound implausible to some Buddhists since the Yogācāra (and the Abhidharma more generally) are not interested in explaining the unity of consciousness; rather, they are interested in explaining the dynamic processes of consciousness and cognition. However, the Yogācāra (and the Abhidharma more generally) philosopher aims to explain (or explain away) the phenomenal aspects of experience, e.g. how come the continuous flow of consciousness presents perceptually distinct objects in experience, how can we explain memory and recollection, etc. The diachronic unity of consciousness is explained away as an illusion, but the phenomenal synchronic unity of experiences is explained by basic consciousness (see *Proofs 2* and *6* discussed below in Section 2). This will define the scope of the problem for this paper: how can we account for the phenomenal synchronic unity of consciousness?[3]

Section 1: what is problem of unity of consciousness?

In recent years, the phenomenal synchronic unity of consciousness thesis has assumed centre stage because of its close connection with a major focus of cognitive neurosciences research: the search for neural correlates of consciousness (henceforth, NCC). Bayne spells out the unity thesis thus: Necessarily, for any conscious subject of experience (*S*) and any time (*t*), the simultaneous conscious states that *S* has at *t* will be subsumed by a single conscious state—the subject's total conscious state

[3] Given the scope of the problem, we can ignore the work of authors like Mary K. Colvin and Michael S. Gazzinga, Thomas Nagel, Susan Hurley, Sydney Shoemaker, Barry Dainton, Michael Tye, etc. They are interested in offering a generalised account of unity of consciousness which covers both the synchronic and diachronic unity. The case of diachronic continuity, however, imposes more complex constraints, and these additional constraints make it very hard, if not impossible, to give a successful account of unity that applies to both cases. Gazzinga, for example, proposes left brain 'interpreter' thesis (Gazzinga 2000), according to which the language-rich left hemisphere has an interpretive capacity that tries to find coherent explanation for events that occur in the world and for our emotional and behavioural reactions to those events. Though the 'interpreter' thesis grew out of research on split-brain patients, Gazzinga argues that the inclination to seek coherent explanations is a general human tendency. This interpreter based in the left hemisphere is the "glue that keeps our story unified and creates our sense of being as a coherent, rational agent (Gazzinga 2000, p. 1320)". Such and other generalised accounts unity of consciousness are beyond the scope of this paper.

(Bayne 2010, p. 16). This instantaneous unity, according to Searle, is essential to and is part of the definition of consciousness because we cannot make sense of the qualitativeness and subjectivity of consciousness without this particular form of unity (Searle 2000, p. 562). Simply put, the unity thesis is that all conscious experiences of a subject at a given point in time are unified. As I am typing this paper on the computer, I am conscious of my feet on the ground, my fingers tapping the keyboard, words appearing on the screen, the temperature in my office, the noise in the corridor and so in. All these conscious experiences are in my consciousness in the present. Both Searle and Bayne favour a mereological definition of unity: Two states are unified if they are subsumed by a larger conscious state (or part of a unified conscious field in Searle's terms). Furthermore, both Searle and Bayne hold that the phenomenal unity thesis implies a structural constraint on theories of consciousness. In Bayne words, "[C]onsciousness is fundamentally holistic: there are no mechanisms responsible for phenomenal binding because the unity of consciousness is ensured by the very mechanisms that generate consciousness in the first place" (2010, p. 247). Searle suggests that holistic theory of consciousness is implicit in the hypothesis that we have a unified field of consciousness (2000, p. 574), whereas Bayne is more cautious and makes a plausible case against atomism (2010, see Ch. 10). Thus, atomistic theories are ruled out as contenders for NCC because they cannot account for the fact that phenomenal experiences are unified.

There are two methodological approaches to finding the NCC in the literature on neuroscience: the *content* based approach is directed at finding the neural correlates of conscious contents (faces, colours, etc.), and the *state* based approach is directed at finding the neural correlates of a creature's overall state of consciousness (being awake, dreaming, etc.). Searle argues that the content-based approach is misguided because it ignores the necessary conscious background that exists before particular conscious states of seeing a face, for example, come into being. The content-based approach can never get to consciousness itself. To do so, we need to conceive of consciousness as a unified field, a kind of basal background awareness that goes on as long as we are awake (Searle 2000, p. 573). Georges Dreyfus (2011) suggests that Searle's idea of a basal background awareness is very close to the *Yogācāra* concept of basic consciousness in the sense that both views offer it as an explanation of the phenomena of unity of consciousness. In the next section, I take this suggestion further to investigate whether this theoretical posit in *Yogācāra* philosophy can offer a new insight in the search for a unified phenomenal field and its NCC.

Other philosophers and neuroscientists, however, do not share Searle's enthusiasm for the concept of basal background awareness because his conception suggests that there is an empty field of background awareness which gets populated by particular contents. Those with a phenomenological bent dismiss such an empty field out of hand; for them pre-reflective awareness is just minimal self-consciousness in virtue of which my experiences are given to me as *mine*. For example, Gallagher and Zahavi note that, "[T]here is no pure or empty field of consciousness upon which the concrete experiences subsequently make their entry. The field of experiencing is nothing apart from the specific experiences" (Gallagher & Zahavi 2010). Others, however, are more circumspect; they do not want to rule out empty phenomenal fields as impossible, but they doubt that such a phenomenon exists (Hohwy 2009, p. 432). Even if it were to exist, Bayne argues that it does not help with the problem of finding

minimally sufficient NCCs (2007, p. 16). Bayne's scepticism rests on the fact that the "[m]ere activation of one's phenomenal field does not suffice to make one conscious, for there is nothing it is like to have a phenomenal field unless one's phenomenal field is modulated in a particular way" (2007, p. 16). Hohwy's concern about the empty conscious field stems from the worry that it does not lend itself easily to scientific investigation. He writes, "[I] doubt an utterly empty conscious field even exists (the best bet may be the kinds of states reported by master meditators); and even if it did exist it seems an excessively difficult topic to investigate …" (Hohwy 2009, p. 432). His suggestion that the best bet for an empty conscious field might be the kind of states reported by master meditators needs further clarification and is one I will take up in Section 3.

I am sympathetic to these concerns about the unified field, but I think the problem arises because of Searle's conceptualisation of the unified field as an empty conscious field. Those who favour the state-based approach in experimental neuroscience work with an alternative conceptualisation of this approach according to which the contribution of content to the overall conscious state is kept constant across conditions, whilst the overall conscious state is intervened on (e.g. vegetative state patients vs. controls). Hohwy (2009) argues that this conceptualisation has problems: it can be over-inclusive and has oddly contradictory findings (Hohwy 2009, p. 432). These methodological problems cannot be overcome and so Hohwy suggests that further progress in the search for NCC requires that something new be brought into the study of consciousness.

Such a new approach can come from the Yogācāra analysis of consciousness. At the outset, it should be clear that even though the Yogācāra concept of basic consciousness is introduced below in the context of a meditative state, it should not be confused with pure consciousness events. The notion of pure consciousness event was first introduced by Forman in the literature as a state of a subject who is awake, conscious but has no object or content for consciousness—no thoughts, emotions, sensations or awareness of any external phenomena (Forman 1986, p. 49). A pure consciousness event is typically construed as a kind of mystical consciousness which allegedly consists of an "emptying out by a subject of all experiential content and phenomenological qualities including concepts, thoughts, sense perceptions and sensuous images" (Gellman 2011). The Yogācāra notion of basic consciousness, as we shall see, should not be conceptualised as an empty field at all. Rather, it provides a new model for a unified field of consciousness that provides the cognitive backdrop to individual manifest states of awareness. This is addressed next, in the context of Abhidharma concept of mind. [4]

Section 2: the basic consciousness

The Buddhist analysis of experience reveals that what we perceive as a temporally extended, uninterrupted flow of phenomena is, in fact, a rapidly occurring sequence of causally connected events each with its particular discrete object: much the same

[4] In discussing the mind within the Abhidharma context, it is important to note that Abhidharma is a plural tradition that emerged in about the third century CE and include a large variety of Schools within this tradition. So, there is no one view that can qualify as 'the Abhidharma view of mind'. In this paper, I will be attending to a mature Abhidharma view of the mental stream or mind, namely the *Yogācāra* view which arose around the fourth century CE.

way a rapidly projected sequence of juxtaposed discrete images is perceived as a movie. In parallel to their account of experience, the Abhidharma traditions model the mind as a causally interdependent series of manifest and unmanifest cognitive events in a no-self mode.[5] A key thesis of Abhidharma philosophy of mind is that experience is constituted by psychologically primitive processes that lie below the level of intentionality. They hold that there are five universal factors that accompany every conscious mental state, namely, contact (*sparśa*), attention (*manasikāra*), feeling (*vedanā*), ideation (*sa jñā*) and volition (*cetanā*). Ganeri explains the interplay of these states in the constitution of experience succinctly:

> The great elegance and attraction of the [Abhidharma] theory lies in the fact that simultaneously it recognises the irreducibility of the phenomenal character of experience, it admits the joint contribution of sensation and conceptualisation in the constitution of experience, it acknowledges that experience is, as it were, saturated with affect, that appraisal is built into the fabric of experience, it maintains that every experience has, as a basic ingredient, a capacity or tendency to combine in various ways with various others, and it makes the attention intrinsic to experience (Ganeri 2012, p. 127).

The canonical Abhidharma account of mind reduces it to fundamental atoms constituted by six kinds of awareness or consciousness (*vijñānas*). Five of these correspond to the five sense organs (sight, touch, hearing, smell and taste) and the sixth is a mental cognition (*mano-vijñāna*). This picture of consciousness is counterintuitive to many ordinary facts of experience, e.g. phenomenal unity of experiences, sense of self, the feeling of continuity, etc. In addition, there are also the systematic and exegetical contexts within the Abhidharma philosophy of consciousness which demand the postulation of *something more* than these six kinds of consciousness: for example, a connecting link between conscious awarenesses before and after deep meditation, wherein all manifest conscious states are supposed to have come to a halt; the phenomenon of memory and recollection; the issue of *karman* and its fruition, etc. (Schmithausen 1987, pp. 4–6). The ancient *Yogācāra* philosophers introduced basic consciousness in response to these limitations. These theoretical reasons for the introduction of basic consciousness are listed in the *Proof portion* of the *Yogācārabhūmi*.[6]

Asaṅga, the noted Yogācāra philosopher and author—or at least the compiler—of *Yogācārabhūmi*[7], expanded the list of original six conscious states by adding two more kinds of consciousness to it: the basic or storehouse consciousness (*ālaya-vijñāna*) and afflictive mentation or ego-consciousness (*kliś a-manas*). The first is a, constant and neutral, baseline consciousness that serves as a repository of all basic habits, tendencies and *karmic* latencies accumulated by the individual, providing some degree of continuity to mental states. The second can be thought of as an innate

[5] The no-self theory is the cornerstone of Buddhist philosophy.

[6] Schmithausen (1987, pp. 3–6) lists 14 systematic and six exegetical reasons as having a decisive impact on the introduction of basic consciousness.

[7] *Yogācārabhūmi* is recognised as the authoritative text for the Yogācāra tradition, but it was not written by a single author. It is a compiled collection of works written over the centuries. The later sections of *Yogācārabhūmi* were written after the *Sa dhinirmocana Sūtra*. This explains why the discussion of *ālaya-vijñāna* in this section has the *Sūtra* material sandwiched the material from the earlier and the later sections of the *Yogācārabhūmi*.

sense of self arising from the apprehension of basic consciousness as being a self (Dreyfus and Thompson 2007, p. 112). This self, however, is not an ontological reality for Buddhists: it is merely a conceptual fabrication resulting from the (mis)apprehension of basic consciousness.

Not all Buddhist philosophers are enthusiastic about these two new kinds of consciousness, especially the basic consciousness that seems to allow a backdoor entry to the idea of a continuing self. One critic describes it as a 'conceptual monstrosity' in the Buddhist scheme (Conze 1973, p. 133). But there are others who characterise basic consciousness as "[t]he most comprehensive and systematic of the many innovative ideas proffered within the intellectual milieu of fourth–sixth centuries CE Buddhist India" (Waldron 2003, p. 92).

According to Schmithausen (1987, pp. 12, 18) the term '*ālaya-vijñāna*' is introduced in what he calls the 'initial passage' in the Basic Section of the *Yogācārabhūmi*. In the initial passage basic consciousness is described as a kind of unmanifest consciousness that persists within the material sense-faculties during the highest meditative state ('*nirodha samāpatti*', literally translated as the 'attainment of extinction', signifying the extinction of perception and feeling). Basic consciousness contains within it the seeds of the forthcoming manifest conscious states that are bound to arise after a person's emergence from deep meditation. This highest meditative state is characterised by temporary suspension of all consciousness and mental activity, but at the same time it is distinguished from death in that the life-force is not exhausted, the vital heat is not extinguished, the faculties are unimpaired and some consciousness (*citta*) is retained in the body. The early Ābhidharmikas struggled to explain this seeming contradiction in the characterisation of *nirodha samāpatti*. The *Yogācāra* resolve this difficulty through the postulation of this new kind of consciousness, the basic consciousness, distinguished from the six manifest cognitive awarenesses ('*prav ti-vijñānas*'—the ordinary perceptions and mental cognition) excluded in the highest meditative state.

The initial passage mentioned above introduces basic consciousness as being present in the material sense-faculties, situating it, therefore, in the body. The *Yogācāra*, however, must go beyond this initial characterisation if indeed they have to succeed in transforming the notion of "[t]he Seeds of mind lying hidden in corporeal matter [the earlier *Sautāntrika* view] to a new form of mind proper" (Schmithausen 1987, p. 30). Basic consciousness, as introduced in the initial passage of *Yogācārabhūmi*, does not qualify as consciousness by any Abhidharma standards, according to which the characteristic feature of consciousness is its ability to cognize objects (*vijñāna* literally is 'that which makes known'). Vasubandhu (*Abhidharmakosa*, I: 30) categorically defines consciousness as "the discrete cognition [of objects]". Furthermore, the Ābhidharmikas also maintained that every mental state is the result of, and accompanied by, five mental factos (contact, feeling, ideation, volition and attention) mentioned above. This seems to be in conflict with the initial passage of *Yogācārabhūmi* that introduces basic consciousness for the explicit purpose of mental continuity through the highest levels of meditative states, which are expressly stated to be without attention or affect. Yogācāra philosophers address these concerns in the *Sa dhinirmocana Sūtra* and later sections of *Yogācārabhūmi*.

In the *Saṃdhinirmocana Sūtra* (V) basic consciousness is introduced as the "mind with all the seeds". Ordinary perceptions (e.g. seeing, hearing, etc.) depend on basic consciousness in that it provides the substratum for the sense faculties and also fuels them (Waldron 2003, p. 95). The *Sūtra* further indicates that basic consciousness is, in turn, fuelled or seeded by the objects of ordinary perceptions and reflection. There is, therefore, a two-way dynamic between basic consciousness and ordinary perceptions: basic consciousness insofar as it contains seeds or predispositions produces conscious states (sometimes in association with sense faculties and their objects) say, of seeing a mango, which, in turn, accumulate further seeds, say, desire for a mango, into it. Thus, the *Sūtra* presents a dynamic model of the mind, wherein conscious perceptions and other mental dispositions are tied together in a continuous feedback cycle (Waldron 2003, pp. 96–97). There are two points that need to be emphasised in the development of the concept *Sūtra* (V). First, it is postulated as consciousness encompassing the entire life of an individual entering the mother's womb at the time of conception and leaving the body at death. Thus, it continues not just through the highest meditative states where there is no manifest mental activity but also through other so-called unconscious states like deep sleep, swoon, moments before death, and perhaps even the minimally conscious and vegetative states. And, second, basic consciousness is connected to our sense of embodiment and described as pervading the entire body, rather than being present just in the sense faculties as originally hypothesised in the initial passage. This is not just to suggest that basic consciousness is housed in the body in which the seeds (simply dispositions) of forthcoming mental states lie dormant during highest meditative states and other unconscious states. Rather, the point is that there is subtle awareness of one's embodied existence. Dreyfus (2011) suggests that mental states within the scope of basic consciousness can be thought of as forms of hidden awareness, rather than totally unconscious states. Dreyfus makes the point by using an example. When one is walking, one has an implicit awareness of one's body, even though it is passive and inchoate. But if one loses balance and starts falling, suddenly one is explicitly aware of one's own body as falling and tries to regain one's balance. Before this time, one is not completely unaware of one's body. Rather, as Dreyfus puts it, "I had a subliminal awareness that encompassed my whole body, a sense of its aliveness, its occupation of a certain space, its movements, its relation to its immediate environment, etc. It is out of this dim, and yet patterned, space of awareness that my falling is apprehended. I am surprised because I had a sense that my body was on firm ground and yet I am suddenly falling. This is when my sense of the body emerges from a subliminal level of awareness in sharp focus. This background awareness, which is described by some phenomenologists as *operative orientation*, seems to be not unlike the Yogācāra idea of a basic consciousness, a subliminal and yet structured space of awareness that contains all the predispositions, and provides the cognitive backdrop to more manifest forms of awareness" (Dreyfus 2011, pp. 144–145). Dreyfus recommends that the right way to think about Buddhist notions of consciousness is in terms of degrees of awareness or consciousness rather than the simple conscious/unconscious distinction. The sense of embodied existence is beyond the ken of ordinary awareness, but it is not beyond awareness in not so ordinary circumstances.

The *Saṃdhinirmocana Sūtra* also addresses the question about the object of basic consciousness. According the *Sūtra* (VIII 37.1) basic consciousness arises "… subtle

external objects: it arises as a perception of an indiscernible, stable surrounding world" (Waldron 2008, p. 120).[8] In other words, basic consciousness is a continuing background awareness of one's immediate environment. This not only provides a much needed object for basic consciousness to qualify as a consciousness but also marks a major departure from the traditional Buddhist model of conscious awareness, according to which ordinary perceptions occur sequentially depending on nothing more than the contact between the sense faculty and its object. Since the awareness of the surrounding world is always present, it must occur simultaneously with other ordinary perceptions which, as we have noted above, in turn, depend on and are supported by basic consciousness. Once this 'single awareness at each moment' requirement was abandoned, the *Yogācāra*s accepted multiple awarenesses, and indeed that all six kinds of manifest awarenesses could be simultaneously present.

In the later developments of *Yogācārabhūmi*, in the *Proof Portion* and the *Prav tti Portion* of its *Ālaya* Treatise, basic consciousness is posited as perceiving two objects: one outward and the other inward. In the *Proof Portion*, ordinary perceptions are stated to be inevitably accompanied by a perception of one's immediate environment and also by a continuous perception of one's own body (the basis of personal existence or the sense of 'I'). In the *Prav tti Portion*, the notion of 'basis of personal existence' is cashed out in terms of background awareness of more than just the material body; it also includes the awareness of the predispositions (cognitive and affective conditionings persisting from the past). In fact, in this portion of the text the perception of the surrounding world is secondary: a by-product of the primary consciousness of the body. This is illustrated in an analogy of the flame (of a lamp) which arises inwardly on the basis of wick (body) and fat (predispositions) to illuminate its own basis, but also at the same time illuminates the surrounding external space. Similarly, basic consciousness reflexively illuminates its own basis (body and predispositions) and the surrounding world. The suggestion that the body is the primary object of basic consciousness seems natural if we think back to the idea suggested in *Sūtra* (V) that the material body and the predispositions are appropriated by, and sustain the development of, basic consciousness.

Basic consciousness is said to arise with its own characteristic objects—the internal and the surrounding environment—as well as omnipresent mental factors (attention, appraisal, etc.), much like ordinary perceptions. The *Prav tti Portion* explains that basic consciousness is accompanied by an indifferent affect; feelings which are neither painful nor pleasant. However, other factors like attention are said to be 'undiscerned' or imperceptible 'even for the wise' (Waldron 2003, p. 109). A particularly illuminating analogy is offered in the texts: just as a glow-worm flying by the day, though not lacking in luminosity, is yet not visible because of the light of the sun, so also the omnipresent mental factors accompany basic consciousness and even though may not present themselves distinctly, they are, nevertheless, always present. This suggests that it is erroneous to interpret basic consciousness as the unconscious mind and draw parallels with Freudian and Jungian psychology (Jiang 2004). For this

[8] The *Sūtra* in the original reads "*asa vidita-sthira-bhājana-vijñapti*". The term '*asa vidita*' is translated by Waldron as 'indiscernible', but it also translated as unrecognisable, imperceptible or as difficult to perceive. The point is that there is continuous (stable) perception of the surrounding world. And since it is always there, it is often missed. So it is ordinarily indiscernible and thus difficult to perceive, but in special circumstances as in OM meditation, it can be perceived.

reason, I favour the interpretation by Dreyfus (2011), who suggests that mental states within the scope of basic consciousness can be thought of as forms of background awareness, rather than totally unconscious states.

The *Proof Portion* lists six proofs which are basically concerned with two sets of problems: (a) the problem of explaining the immediate succession of divergent states of mind (e.g. equanimity followed by anger) and (b) the simultaneous occurrence of various ordinary perceptions and mental processes. I will focus on the second set since it is directly related to unity of consciousness issues in contemporary philosophy of mind. *Proof 3* claims that if ordinary perceptions (e.g. seeing blue) and concomitant mental awareness (e.g. 'that is blue') do not arise simultaneously, the latter would lack the clarity (and vividness) that is present in immediate awareness. The marked difference in the phenomenology of immediate perceptions and memory experiences could not be explained unless the visual sensation of blue and resulting mental awareness, 'that is blue' occur simultaneously, rather than successively. The claim about clarity (of mental awareness) is explained by simultaneity of awareness (the sensation of blue and the awareness that 'that is blue'). But why does simultaneity of ordinary awareness require the postulation of a distinct form of basic consciousness? The answer becomes obvious if we combine this argument in *Proof 3* with insights from *Proofs 2* and *6* which cite the example of phenomenally unified multi-sensory experiences. Our ordinary experience involves simultaneous awareness of many objects at the same time: seeing a steaming hot cup of coffee, smelling the aroma of the coffee, lifting the cup in one's hands and sensing the warmth on their skin, desiring to drink the coffee, etc. These perceptions and cognitive awarenesses arise in dependence on diverse sense faculties, their appropriate objects and attention. The phenomenological sense that there is a single subject simultaneously undergoing clear, though different, experiences at the same time cannot be explained without postulating a form of consciousness that underlies and supports these multiple experiences. And, insofar as basic consciousness appropriates the entire body and underlies and supports the sense faculties, it provides the common substratum and thus the source of phenomenal unity. The text argues that phenomenal synchronic unity of experiences cannot be explained without postulating basic consciousness.

This completes my explication of the early *Yogācāra* concept of basic consciousness and its relation to the body, self-awareness and other manifest cognitive awarenesses. It should be clear, however, that in dealing with this topic I have no pretension of providing an exhaustive account of basic consciousness or a complete account of the process of evolution of this concept in Abhidharma literature. To sum up, basic consciousness can be thought of as a background awareness of one's own body including the predispositions (cognitive and emotional predispositions from the past). Such awareness is always present in the backdrop of every explicit conscious awareness. As Dreyfus puts it, "[T]he basic consciousness is the baseline of consciousness, the passive level out of which the more active and manifest forms of awareness arise in accordance with the implicit preferential patterns that structure emotionally and cognitively this most basic level of awareness" (Dreyfus 2011, p. 144). Basic consciousness is, like everything else in the Ābhidharmic universe, a series of moments; it continues as a homogenous perception as its object is always present and does not change. This is the reason why it goes unnoticed.

Recall that basic consciousness is best thought of as background awareness—subtle but indistinct perception—of cognitive and emotional factors and bodily states that modulate the phenomenal field. These factors play a role in the generation of ordinary conscious awarenesses and thus meet Bayne's criteria that the unity of consciousness is ensured by the processes that generate consciousness in the first place. A mere description of this kind is unlikely to satisfy a philosopher with a scientific bent of mind—that there is such a conscious field modulated by a subject's bodily states and cognitive and emotional dispositions from the past is far from a notion that can be investigated scientifically. However, recent research in neuroscience of meditation suggests ways to scientifically delineate basic consciousness.

Section 3: scientific investigation of basic consciousness

In Section 2, I argued that *ālaya-vijñāna* or basic consciousness can be thought of as background awareness of cognitive and emotional factors and bodily states that modulate the phenomenal field. The question I want to address in this section is: Can basic consciousness or be investigated scientifically? Buddhist scholars and neuroscientists have made joint efforts to find an operational definition of Open Monitoring meditative practices, sometimes also called mindfulness meditation for the scientific investigation: Open Monitoring meditation is the non-reactive monitoring of the stream of experience, primarily as a means to recognise the nature of cognitive and emotional patterns that work automatically behind the scenes to interpret sensory data (Lutz, Dunne, & Davidson 2007; Lutz et al. 2008). A scientific study of these factors may be a useful first step for exploring the Buddhist idea of *ālaya-vijñāna* or basic consciousness. It must, however, be noted at the outset that the primary aim of the scientific studies of meditation is to study the positive effects of meditation on mental health and well-being. Nevertheless, the theoretical underpinnings of the Open Monitoring style meditation suggest that it might be instrumental in delineating basic consciousness or the unified field of consciousness.

OM meditation practice, like all other forms of meditation, begins with Focused Attention (FA) training to calm the mind and reduce distractions. In the transition from the FA to the OM state, the 'effortful' selection of an object as the primary focus is gradually replaced by the 'effortless' sustaining of an awareness without any explicit focus. However, OM meditation should not be understood to be objectless meditation, it is not contemplation of an empty field. The idea is to cultivate awareness of the subjective character of experience and for that to happen one must be having experiences. A central aim of OM practices is to gain a clear reflexive awareness of the usually implicit features of one's mental life: a sense of body, the emotional tone, and the active cognitive schema. The awareness of these implicit features enables one to transform one's cognitive and emotional habits resulting in a decrease in the forms of reactivity that create mental distress (Lutz et al. 2008, p. 164). OM meditation is thought to enhance meta-cognitive monitoring coupled with an increase in the awareness of automatic cognitive and emotional interpretations, thereby providing opportunities for cognitive flexibility and reappraisal resulting in enduring changes in mental function, i.e. the developments of certain traits. For example, intensive practice of OM meditation can be expected to reduce the

propensity to 'get stuck' on a target object and indulge in elaborate stimulus processing and conceptual activity (Bishop et al. 2004; Chambers et al. 2009; Slagter et al. 2011).

It must be noted that although the primary aim of the empirical studies of meditation is to study the positive effects of meditation on mental health and well-being, given the theoretical underpinnings of the OM style meditation, some of the studies might be relevant for delineating basic consciousness. Basic consciousness can be thought of as presenting a new conception of a unified phenomenal field insofar as it is the repository of bodily representations and cognitive and emotional patterns as the background factors that modulate the phenomenal field. OM meditative states are aimed at gaining a clear awareness of the cognitive and emotional factors that implicitly influence every conscious experience. These factors, together with bodily representations, are precisely the primary objects of basic consciousness. Thus, OM meditation can be instrumental in honing in onto the objects of basic consciousness.

There is no scientific theory of meditation yet; the science of OM meditation, in particular, is still in its infancy. However, it is an active area of research which aims to address some of the following questions: which neural regions and circuits are involved in OM meditation?, can we train the brain to be more Mindful?, can we regulate our emotional and cognitive responses in OM?, and, what are the Neural Correlates of OM Meditation? Below, I briefly sketch the tentative answers to these questions given in the neuroscience literature. The answers to first and the last question on this list are particularly relevant to our investigation.

OM meditation involves heightened awareness of the subjective features of an experience at a given moment, such as its emotional tone. It is expected that OM meditation engages processes involved in interoception (perception of internal bodily responses). These processes rely on homeostatic meta-representations in the anterior insula, somatosensory cortex and anterior cingulate cortices (Craig 2009). In a recent study, Farb et al. (2007) found that participants who attended an 8-week OM-style meditation course showed greater activity in this neural circuitry during a monitoring state compared with a group of controls. In another study, a group of participants that had undergone mindfulness training showed greater activation of the right insula when being presented with sad movie clips (Farb et al. 2010). Another study by Grant et al. (2011) using fMRI and a thermal pain paradigm showed that practitioners of Zen and mindfulness meditation, in contrast to controls, reduce activity in executive, evaluative and emotion areas during pain (prefrontal cortex, amygdala and hippocampus); meditators with the most experience showed the largest activation reductions. Also, simultaneously, meditators more robustly activated primary pain processing regions (anterior cingulate cortex, thalamus and insula). These results suggest a functional decoupling of the cognitive-evaluative and sensory-discriminative dimensions of pain, possibly allowing practitioners to view painful stimuli more neutrally.

The second question—Can we train the brain to be more Mindful?—is of particular interest to neuroscientists concerned with understanding the phenomenon of neuroplasticity. OM style of meditation is associated with changes in brain's physical structure and cognitive functions both during meditation and during performance of tasks that do not require meditation. A group of scientists at Harvard has shown that

brain regions—the prefrontal cortex and right anterior insula—associated with attention, interoception and sensory processing are thicker in meditation participants than matched controls (Lazar et al. 2005). Between-group differences in prefrontal cortical thickness were most pronounced in older participants, suggesting that meditation might offset age-related cortical thinning. Another cross-sectional study comparing grey-matter morphometry of the brains of experienced meditators and controls showed that meditators had greater grey-matter concentration in the right anterior insula (Hölzel et al. 2008). More recently, Luders and his team have shown that OM-style meditation results in larger gyrification within the left precentral gyrus, right fusiform gyrus, right cuneus, as well as in the left and right anterior dorsal insula, which represent the global significance maximum (Luders et al. 2012).

Regarding the third question, OM-style meditation also encourages cognitive and emotional flexibility by disengaging from elaborate processing of emotionally charged data. Following participation in a mindfulness-based stress reduction course, social anxiety patients presented with negative self-beliefs showed a quicker decrease of activation in the amygdala as compared to earlier pre-course responses (Goldin and Gross 2010). Slagter et al. (2007) found that OM meditation results in a decrease in elaborate stimulus processing (the propensity to 'get stuck' on an object) in a longitudinal study measuring the performance of practitioners in attentional blink task. Attentional blink phenomenon illustrates that the information processing capacity of the brain is limited: when two targets T1 and T2, embedded in a rapid stream of events, are presented in close temporal proximity, the second target is not often seen; the blink is a result of competition between T1 and T2 for limited attentional resources. The study found that after 3 months of intensive OM meditation there was a reduction in the brain resource allocation to T1 which was associated with improved detection of T2. These results provide support for the idea that one effect of intensive training in OM meditation results in the development of efficient mechanisms to enable cognitive flexibility in response to task demands. The researchers also anticipate a similar improvement in the capacity to disengage from aversive emotional stimuli to enable greater emotional flexibility.

Regarding the last question—on the neural correlates of meditation, various studies show that the left fronto-parietal areas are selectively active in mindfulness-based meditation and thus are plausibly involved in conscious access to sensory and mental contents arising in the present moment. Furthermore, the evidence of the involvement of the left fronto-parietal areas in OM meditation is consistent with models emphasising a differentiation between consciousness and attention processes (Raffone et al. 2007). Specifically, in the case of OM meditation they add "it suggests that the form of reflective awareness in the present moment in mindfulness-based meditation (*Vipassana*) may be regarded as higher-order access consciousness of perceptual and thought contents, also including the metacognitive awareness of mental operations subserving the emergence of those contents" (Raffone et al. 2007, p. 244) . The mental operations subserving the emergence are exactly the cognitive and emotional factors that provide the background for perceptual and thought contents. In addition, Raffone et al. note that they found de-activation in the medial–orbitofrontal cortex [the region involved in encoding of reward (hedonic) values] in mindfulness meditation which can be related to unselective open

acceptance of arising mental content. The point is that such control of emotional factors requires access to these factors in the first place. My suggestion is that OM meditation practice can provide such access to expert meditators. Recently, Manna et al. (2010) have shown that expert meditators control cognitive engagement in conscious processing of sensory-related thought and emotion contents by massive self-regulation of fronto-parietal and insular areas in the left hemisphere. Their study also suggests that a functional reorganization of brain activity patterns for focused attention and cognitive monitoring takes place with mental practice, and that meditation-related neuroplasticity is crucially associated with a functional reorganization of activity patterns in prefrontal cortex and in the insula. In the discussion of OM meditation states, they specifically add, "Our evidence suggests that the monks might control cognitive engagement and 'broadcasting' in brain networks for conscious access to sensory-related, thought and emotion contents, by massive self-regulation of fronto-parietal and insular areas in the left hemisphere, in a meditation state-dependent fashion" (Manna et al. 2010, p. 54).

The above discussion suggests that there is greater activation and long-term change in the anterior insular cortex (AIC) and the prefrontal cortex in meditators compared to controls. There is ample evidence in the neuroscience literature to suggest that conscious perception is systematically associated with surges of activity in the prefrontal cortex (Dehaene et al. 2006). The AIC has been considered as a hub for autonomic, affective and cognitive integration (Damasio 2006/1994). In a recent review, Craig has argued that the AIC is involved in the meta-representation of interoception in the brain. This, in turn, points to the AIC's involvement in all subjective feelings which indicate a fundamental role for the AIC in conscious awareness, as well as its potential as a neural correlate for consciousness (Craig 2009). This brief survey of the neuroscientific literature shows that OM-style meditation is correlated with increased activation and long-term changes of the prefrontal cortex and anterior insular cortex. Thus, it is likely that these areas of the brain support the awareness of the basic consciousness or awareness of cognitive and emotional factors and bodily states that are in the background of every conscious awareness. In line with Craig's suggestion, I believe it is worth investigating further whether the insula and prefrontal cortex are potential candidates for the neural correlates of a unified, though modulated, phenomenal field.

To sum up, the Buddhist explanation for unity of consciousness in terms of basic consciousness meets the structural constraints on a theory of consciousness and the neuroscientific studies of OM meditation show that such a notion can be investigated scientifically. Basic consciousness explains unity of consciousness and functions as a background condition of conscious content. It explains what *it is like* to be a conscious subject in terms of being a repository of cognitive and emotional patterns that modulate the phenomenal field. Since basic consciousness is delineated in OM-style meditation which is correlated with activation of the insula and prefrontal cortex, I propose that the latter are likely potential candidates for creature or state consciousness, as opposed to content consciousness. In addition to this hypothesis, the paper offers an argument to refute the belief held by some neuroscientists and philosophers that the deepest states of Buddhist meditation involve contemplation of an empty field.

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