# Borrowing Buddhist Insights to Empower Cognitive Science

Remya Chandran

The relevance of Buddhism to Cognitive Science has been a topic of discussion since the past three decades ever since established researchers have detected intersections between the two disciplines. But majority of such attempts have ended up being a comparative study wherein the theories in one school are explained in the language of the other or vice versa. There has been attempts to naturalize Buddhism to follow the common trend in the West starting from naturalizing epistemology. This paper is not just an attempt to engage in any of the above tasks but to explore into whether they intersect at any point without losing neither of their wisdom in the garb of the other. The possibility of a constructive dialogue between the two disciplines is looked upon with special attention being given to two specific notions: the notion of the Self and the Embodiment thesis.

Buddhism was considered as an ally of science since the 19$^{th}$ century due to its perception as a system which provided spiritual satisfaction along with scientific rationality. Though conflicting views exist on the prospects of attributing such a unified approach to both these disciplines, the past few decades have developed a further interest into exploring the relevance of Buddhism to Cognitive Science. This paper attempts to trace the theoretical roots to such an interaction with particular

focus on the notion of self in Buddhism which denies a substantial selfhood, and hence considered more scientific in nature, and also on the notion of embodied cognition in cognitive science which is often traced to Buddhist epistemology.

## The Notion of 'Self'

The Buddhist tradition is centered on its notion of no-self (*anãtman*). For them, there is no enduring self that is eternal and acts as one's ultimate identity. In short, there is nothing metaphysical that is posited which becomes aware of the experiences it has or the thoughts which it undertakes, instead the experiences themselves constitute the being and since these experiences are dynamic in nature, so is the being. The Abhidharma tradition in Buddhism with its two prominent thinkers from the 4th and 5th century CE, Asanga and Vasubhandhu, gives a detailed analysis on how mental regularities can be explained without positing any central controlling agency called Self. According to them, phenomena are nothing but fleeting elements that are causally dependent on each other and so is the person who is a changing construct that is dependent on its material and mental components. The basic object of Abhidharma is to analyze both the sentient experience and the given world into its components, thereby avoid the postulation of a unified self. These components are again fleeting entities which come and go every instant depending on their corresponding causal conditions. The Abhidharma conceives of the mind as a complex cognitive process constitutive of momentary mental states. To support the soteriological view in Buddhism, they hold that one can be aware of these mental states if he turns inward and attend to how he feels each moment. Thus, one becomes aware of his mind through his own experience rather than from any external objective reality. These mental states, according to them, arise in dependence to previous moments to form a mental stream. This mental stream is often identified with a continuing conscious experience, but Abhidharma texts reveal that this stream of mental states or consciousness is made of discrete moments which can be individuated on deeper observation and practice.

Each mental state is further analyzed into two aspects say, the primary factor of awareness (*c´itta*) which brings in the awareness of an object and the mental factor (*c´aiteika*) which qualifies this awareness. The primary factor of awareness is also called vijñãna or consciousness. It is the very process of cognizing an object. It is the bare apprehension of an object which is momentary

in nature as each awareness gets replaced by another every instant. While most Abhidhamma texts argue for six types of consciousness, including mental cognition to the awareness borne of the five senses, Asanga adds two more to the list, the store-house consciousness (*ãlaya vijnãna*) and afflictive mentation (*klista-manas*). He posits *ãlayavijnãna* as a less manifested form of consciousness distinct from the earlier six forms. This was posited to justify a continuity in one's mental life. Even though it is momentary it exists in a subliminal form in all times. It is this storehouse consciousness that the afflictive mentation mis-represent as the self. This storehouse consciousness is merely the potentialities accumulated by an individual and not a real entity that can be identified to a self. The afflictive mentation imposes a unity on the multiplicity of mental events and thereby project the illusory self.

Mental factors, on the other hand, makes known the particulars of the content of awareness. Since a mental state is constitutive of these two aspects, any awareness coincides with the evaluation of it without giving any scope for a judgement based on one's awareness of an object or event. A mental state thus involves both awareness and discernment of the object. A detailed account on this aspect will be taken up when the notion of embodiment is discussed in the following sections.

Any attempt to discuss the no- self theory in Buddhism without considering the epistemic structure of the mental states that make up the stream of consciousness will be a grave mistake. This is discussed in the Logico- epistemological tradition in Buddhism which was started by Dignaga and further carried forward by Dharmakirti. While discussing pramanas, the main concern in epistemology, they followed the classical Buddhist line that there is no knowing self which uses pramanas in an instrumental sense to attain knowledge. For them there is no knowing subject but only knowledge which is the pramana. Valid cognition is that which is non deceptive ie, that which performs its natural function.

In exploring the mind, Dharmakirti goes ahead of what the Abhidharma school had discussed and holds that the mental state in addition to apprehending an object and its qualities is also inherently reflexive or self-aware. The mental state assumes the form of the object and it is this factor that helps us distinguish one mental episode from another. Here self -consciousness occurs in a non- dual fashion. It is not the case that the cognition of the object acts as the object for the self to become aware of itself or meta cognition /apperception as it is called in

the West. But here, the cognizing person knows that he is cognizing without the intervention of a separate episode of cognition. Hence a single mental state involves the representation of an external object in consciousness which at the same time is apprehended by itself making one aware of the mental state simultaneously.

This conception of the non- existence of an enduring, metaphysical entity called 'Self' will be welcomed by the scientific community in its face value. But this alone would be insufficient to establish a deeper connection between the two. For instance, the cognitive science account of self as a brain dependent process that operates for self -monitoring is not addressed in Buddhism. Its rejection of the Cartesian self is an outcome of various experiments and is ontologically motivated rather than by any ethical interests, whereas the prime motive of the Buddhist rejection of self is to explain their larger soteriological system which identifies any kind of attachment to a self as a source of misery to which it provides many philosophical and practical(ethical) solutions.

But the influence of the Buddhist notion of self on Cognitive Science does not simply end at the mere rejection of the Self alone. Rather, there are more nuances to it which when deeply analysed appears as contributing to the discipline of cognitive science. For instance, the psychologist Brian Lancaster (1997) uses the Abhidharma model of perception with its fleeting mental states as a solution to the binding problem in cognitive science. The binding problem can be explained as the inconsistency that prevails in explaining how the information processed by a multitude of independent modular systems get integrated into coherent representations for perception, memory, and action.

Lancaster's justification for a coherent representation without positing a coherent self is inspired by the Abhidharma analysis of cognition. Lancaster argues that perception occurs when a sensation activates a previous related memory model, and the self- model is one amongst them. This activation of the self- model is essential for contextualizing an event thereby enabling a quick recall. With every new perception, this self- model gets reinforced and amended and helps create the sense of a unified agency. Here there is no mention to an objective enduring self that receives the perceived sensations, but that which acts as a model to link or integrate the other models towards cognition. This is apparently similar to Abhidhamma's dissection of the stream of consciousness into a succession of events called c´ittas ie, paritta (object with slight intensity) to vithic´itta (object in consciousness). But it is important to note here that while

Abhidhamma tradition identifies a series of consecutive stages in its cognitive process, cognitive science depends on parallel functions. But for this deviation, the overall functional mechanism remains identical.

Hence the two traditions fall within 'constructive dialogue category' of Payne (Payne, 2002) wherein the Buddhist view inspires a cognitive model to create a new hypothesis which can be put to empirical testing without imposing everything that it advocates on to the latter.

## The Embodiment Thesis

The second point of intersection between Cognitive Science and Buddhism is with respect to the embodiment thesis. The embodied approach to cognition emerged as a criticism to the first phase in cognitive science which focused on computation. This phase held the view that cognition occurs as a result of computation over mental representations and therefore placed the brain at the centre of all cognitive processes. Upholding the cartesian model, it viewed the brain as something distinct from the body and as the sole device for any kind of logical reasoning. But with continued discussions in the scientific community and the emergence of a separate discipline called Cognitive Linguistics in the 1980's, there was a shift in this thought process and the mind was considered as an embodied entity that is situated in a particular environment. The significance of an embodied mind was further reiterated in the work *Embodied Mind* by Varela et al.(1991) which is considered a classic in the field of Cognitive Science. This second phase of cognitive science with its project of embodied cognition identifies the mind as a collection of constantly changing, emergent processes that arise within a complex system comprising the brain, the rest of the body, and the physical and social environment, and in which we find no single, abiding, and controlling self. The enactive approach in embodied cognition or embodied action holds that the living body is a self-producing and self-maintaining system that enacts or brings forth relevance, and that cognitive processes belong to the relational domain of the living body coupled to its environment. One implication of this idea is that cognition requires the exercising of capacities for skillful action and that even abstract cognitive processes are grounded on the body's sensorimotor systems, including the brain systems.

The term embodied in embodied action highlights two positions; one that cognition depends on the kinds of experience that come by virtue of having a body

and second that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological and cultural context. This approach to cognition was among the central insights in the analysis undertaken by the phenomenologist, Merleau Ponty. He says, "The properties of the object and the intentions of the subject . . . are not only intermingled; they also constitute a new whole… all the stimulations which the organism receives have in turn been possible only by its preceding movements which have culminated in exposing the receptor organ to external influences, one could also say that *behavior is the first cause of all the stimulations".*(1963)

Reiterating this experientialist approach to cognition, the cognitive linguists, George Lakoff and Mark Johnson points out that meaningful conceptual structures arise from two sources: (a) from the structured nature of bodily and social experience and (b) from our innate capacity to imaginatively project from certain well-structured aspects of bodily and interactional experience to abstract conceptual structure.

In other words categorisation is nothing but an innate capacity to project the similarity in judgements onto the experiential objects. From this analysis it so appears that the embodied cognitivists fall within the Buddhist notion of cognition wherein conceptualisation is a mere nominalistic phenomenon which cannot be looked upon as determining ones cognitive enterprise. For instance, Dharmakirti articulated the apoha theory within his commitment to a causal and descriptive model of embodied cognition and the minimalist approach that this commitment brings to concepts. The literal meaning of the term apoha is exclusion or differentiation ie, a particular thing is excluded or differentiated from others. This implies that a term cow, instead of indicating any universal feature called 'cowness', functions by excluding those things that are not cows. The Buddhist theory of momentariness does not allow objects to have any enduring properties and hence deny the possibility of universals. Universal being a conceptually apprehended property belonging to a group of similar entities, it is beyond the scope of the Buddhist theory of momentariness wherein the reality of a particular entity is specific to the moment of its apprehension.

For Dharmakirti, only causally efficient things are ultimately real. The causal efficacy of an ultimately real thing consists in its ability to causally interact with the senses in such a way that a phenomenal form of the thing is created in the next moment of consciousness. Indeed, it is this production of a phenomenal

form through contact with a sensory object that comprises what Dharmakirti calls "perception" (pratyakṣa). Hence any object of perception must be ultimately real as only a causally efficient thing can participate in the causal process that leads to the creation of a perceptual phenomenal form. One reason for Dharmakirti to deny the reality of universals is its lack of causal efficacy. Causal efficacy requires change and this change is incompatible with universals. Another more common sensical a reason is that unlike particular entities, universals are incapable of producing an effect. For instance, the concept fire is incapable of producing any heat unlike an actual case of fire.

Even though Dharmakirti denies the ultimate reality of concepts, he must still account for how the world functions on concepts derived from the non- conceptual perception of objects. He uses the apoha theory to explain how concepts provide useful information without any ontological commitment to the existence of universals. The question remains as to how a particular concept is applied to a certain set of similar objects in the absence of any real universal? Dharmakirti's explanation would be that one constructs a sameness for a class of objects on the basis of their difference from other objects. This construction depends on the sameness in their unique causal capacity or telic function. The sameness that applies to all fires for instance, is infact the exclusion of all other things that do not satisfy the desired telic function. Since the notion of similarity is derived from their causal characteristics, it succeeds in overcoming the erroneous notion of a concept derived from a set of unique entities as it is undertaken in the realist schools.

In order to account for the cognition of an object as a previously known thing, Dharmakirti suggests that in case of a recognition, the phenomenal form which is generated by the interaction of the senses with an object activates an imprint such that in a subsequent moment of consciousness this phenomenal form based on the exclusion criteria forms a class of entities. This phenomenal form is distinct from a concept as it is the effect of a perceptual process and hence particular in nature. Being the effect of certain unique particulars it serves as the basis for excluding all other phenomenal forms produced by other particulars. But the question arises as to how can two mental particulars be same as it would contradict the original statement that phenomenal forms are unique effects of particular objects. To make this clear Dharmakirti adds that the cognitions—i.e., the cognitions with phenomenal forms related through causality to their objects—are not what account