

Reflexivity in Buddhist Epistemology

Implications for Cooperative Cognition

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5.1 Introduction

Contemporary human life is made possible by human cooperation. Even the simple endeavour of shopping for vegetables in the market requires the complex cooperation of many humans. To produce vegetables in sufficient quantity to be commercially viable, several humans must cooperate just in the process of farming itself. The transportation of the vegetables to the market requires yet more coordination and cooperation, ranging from the task of scheduling to the proper delivery of items to specific merchants. When one further considers the vast array of cooperatively produced affordances that all this presupposes—automobiles, roads, tools, telecommunications, financing, and more—the extensive and profound degree of human cooperation required for our contemporary life is clearly undeniable. Human cooperation, however, is nothing new. On at least some accounts, the very capacity for robustly cooperative action—rooted in key features of cognition that no other primates managed to develop—is central to the evolution of humans.

In his persuasive book, *A Natural History of Human Thinking* (2014), Michael Tomasello proposes a version of this evolutionary story, and setting aside the details, one can retell it in simple terms. Tomasello's central claim is that, at some point, our earliest ancestors moved beyond the rudimentary forms of social cognition observed in the non-human primates that most resemble us now. Great apes such as chimpanzees and orangutans, for example, appear to have the capacity for many features of social cognition, including the ability to infer the intentions and likely actions that others will take based on those

intentions. Uniquely, however, our distant ancestors moved beyond the competition-based model that typifies the social cognition of these non-human primates; instead, our earliest ancestors developed the capacities for truly cooperative cognition. With these capacities, our ancestors could effectively 'outsource' some of their cognitive tasks to a wider group in which each individual was embedded. For example, when engaged in foraging for food, the vigilance required to keep each individual safe from predators and other dangers could be performed by some members of the group, while others could focus on the task of gathering food. As they gathered food, these individuals could devote more of their cognitive resources to that task, while the 'guards' could focus on safety without any concern for going hungry. Even the simple task of foraging, when performed cooperatively, could thus become highly efficient, especially in contrast to the cognitive and physical resources that each individual would otherwise need to devote to both gathering and guarding. Offspring that were talented at this type of cooperative activity were favoured in evolutionary terms, and as our ancestors evolved, they eventually developed the capacity for enhancing their cognitive connectivity through language and through the development of cultural practices that enhanced cooperation.

Whatever one might think of this evolutionary story, the end point is clear: modern humans can cooperate in highly complex and flexible ways to produce farms, markets, highways, and trucks, and they do so by developing and transmitting elaborate cultural practices and social structures that facilitate cooperative cognition. This aspect of human cognition has inspired recent and groundbreaking work in multiple disciplines. In addition to Tomasello's work, key strands of related research and interpretation emerge in the writings of many authors, including: Edwin Hutchins (Hutchins, 1996, 2008, 2010) with his work on cognitive ecology; Andy Clark and David Chalmers (Clark, 2008; Clark & Chalmers, 1998) with their notion of extended cognition; Sean Gallagher on socially distributed cognition (Gallagher, 2013); Jim Coan and colleagues (Beckes & Coan, 2011; Coan & Sbarra, 2015) with their social baseline theory; and Gerry Stahl with his work on group cognition in computer-supported cooperative work and computer-supported cooperative learning. In various ways, these authors—and many others—articulate a similar vision of the unique human capacity for thinking in a way that is distributed across multiple, embodied minds that are deeply embedded in social and cultural networks. Despite notable differences in these approaches (see Hutchins, 2010 for a discussion), one thread that runs through all these various approaches is precisely the motif of cooperation. To emphasize this common thread, and in the interest of simplicity, I will thus speak of 'cooperative cognition', with the understanding that 'distributed cognition' and the other terms mentioned here inform this discussion.

The aim of this chapter is to raise some questions about a specific feature of cooperative cognition that figures, explicitly or implicitly, in all the scholarly work mentioned above. Briefly, in order for cooperative cognition to be distributed over multiple minds, each mind must maintain—at least implicitly—a model of the cooperative network in which the individual is embedded. It seems likely that such a model is highly task-specific, such that the model dynamically shifts in relation to the array of relevant tasks and goals. Maintaining a highly detailed model would consume many cognitive resources, so it also seems likely that the model provides only enough detail to allow individuals to act effectively in the cooperative tasks at hand. The model itself is also both facilitated and constrained by the various norms, habits, and cultural practices that regulate cooperative cognition. Applying all this to the comparatively simple example of foraging for food, each individual engages in actions guided by cognitions that require a tacit understanding of their role in the group's overall task of foraging, as guided by the style of foraging developed by the group over multiple generations. To put it another way, to cooperate in such a task, each individual must at least tacitly maintain an ongoing representation of the overall cooperative network—the task-oriented 'group'—in which they are embedded.

The key question posed by this chapter emerges from the central role played by the individuals' representations of the group in which they are embedded: the 'we' in the phrase, 'We are working toward this goal together.' In particular, that representation of the 'we' of the cooperative enterprise must also involve a monitoring of the state of that 'we'. For example, are we collaborating effectively toward our goal, or are we exhibiting some dysfunction that is inhibiting cooperation? Additionally, cooperative cognition must include some means not only to monitor the state of the network that constitutes the group, but also to sometimes make that network an explicit object of cooperative cognition itself, so that it can be regulated and adjusted when needed. All this raises several questions, but perhaps the most salient question is simply this: in cooperative cognition, how does the group itself become an explicit object of cognition in a way that allows the group to regulate itself? This simple question is actually quite challenging, and my suggestion is that, drawing on a cautious analogy with cognition in an individual, some type of reflexivity may be part of the answer to this question. To clarify the challenges here and the way that some notion of reflexivity may help us to understand cooperative cognition, I will now make a foray into Buddhist epistemology and some key features of its account of cognition in individuals. At the end of this chapter, I will return to the question of cooperative cognition to see what this brief exploration of Buddhist theories might help us to see more clearly in that context.

5.2 Some Methodological Caveats

Before launching into a discussion of Buddhist epistemology, two methodological issues require clarification. First, some of the material presented here, especially in relation to the key notion of reflexivity, remains an ongoing focus of research by scholars of Buddhism, and while the interpretations posed here will largely agree with the current research, I will also disagree with some current claims, most notably those by Dan Arnold (2012) and Christian Coseru (2012). The technicalities of these disagreements would lead us too far into the Buddhist epistemological weeds, so I will simply recommend that the interested reader consult their works for alternative accounts. Along these same lines, many of the sources for the discussion below have not yet been translated into any European language, and constant references to passages in Tibetan and Sanskrit texts would seem superfluous in this context. I will thus just refer briefly in the notes to the key texts.

Second, the Buddhist model discussed below applies to cognition in a single individual, and it does not address cooperative or distributed cognition; thus, the feature of particular interest in the individual—namely, reflexivity—is not theorized as an explicit aspect of cognition beyond the individual. Extending the unit of analysis beyond the individual to the social group has facilitated the previously cited work relevant to cooperative cognition, but that extension might encourage the notion that models of cognition operating beyond the level of the individual can treat these larger units of analysis (such as a family or other human grouping) as if they were just individuals on a larger scale. Social groupings, however, lack the type of connectivity found within individuals, paradigmatically illustrated by the astounding number of connections within the human brain. For this and other reasons, such as the time course of signals sent across socially mediated connections, it seems unwise to simply expand models of individual cognition and apply them to cognitions distributed across individuals. The discussion of reflexivity below is thus not meant to suggest that reflexivity at the level of the individual can simply be translated directly to the level of the group. Rather, my claim is that, by attending to certain features of reflexivity at the individual level, we may come to appreciate key aspects of cooperative cognition that might otherwise go unnoticed. These aspects of cooperative cognition, in turn, have implications for research and for the conceptualization of best practices in working groups.

5.3 Basic Buddhist Model of Cognition: the Case of Visual Recognition

To appreciate the role of reflexivity—and to use it for inciting questions about cooperative cognition—we must first explore some central features of the

relevant Buddhist model of cognition, namely, the model articulated in the work of the Buddhist philosopher Dharmakīrti, who was active during the seventh century CE in South Asia.¹ Let us consider especially the paradigmatic case of explicitly categorizing the contents of visual cognition in an act that Dharmakīrti calls visual 'recognition', but that Western philosophers will often call 'perceptual judgement' in visual perception. This type of cognition occurs when, for example, one explicitly categorizes a visual object as being 'blue' or 'yellow', or when one recognizes the object as a 'cup' or 'car'.

According to Dharmakīrti and the many Buddhist theorists who later elaborated on his theories, visual recognition is a causal process that occurs in two basic phases. In the first phase, the visual sense faculty comes into contact with an object, and with some basic attentional features in place, that contact induces a representation of the object in awareness. This representation, called the 'phenomenal form of the object' (Sanskrit, *grāhyākāra*), is initially presented as the contents of visual awareness. In the second phase, which does not necessarily occur, that phenomenal form undergoes a type of conceptual processing that constitutes an act of 'recognition', where the object is categorized as being the same kind of thing as something previously experienced.

Focusing now on the first phase when the initial phenomenal form of the visual object arises in awareness, one might be tempted to say that this phenomenal form is like a 'picture' of the object in that it is a mental representation that emerges from the interaction of the mind, the senses, and the object itself. However, if the phenomenal form of the object is a picture, it is a picture taken with a most peculiar camera, especially since the phenomenal form is not simply some kind of mirror image of the object. Rather, these phenomenal forms vary across individuals, such that no two observers have the same phenomenal form appearing in their visual awareness, even if they are looking at the same object from the same angle. And even within an individual, differences in the immediately preceding mental states—including expectations and affective states—can impact this initial presentation of the object in awareness. Likewise, this initial 'picture' or phenomenal form of the visual object is actually the causal effect of the interaction of the mind, the visual faculty and the material object. As such, this 'picture' reflects the properties of that causal process, including the causal limitations of the visual faculty. For example, according to one standard Buddhist account, visual objects are composed of infinitesimally small bits of constantly fluctuating matter, and the human visual sense cannot detect something that small. Thus, the phenomenal form of the visual object is a kind of amalgam that emerges from the interactions among those bits of matter, the conjunction of that

¹ For more details on the issues discussed here, see Dunne (2004, 2011a). For similar accounts, see Dreyfus (1997), Coseru (2012), and Ganeri (2011).

matter with the visual sense, and the various causes and conditions operative within the mind and body where the phenomenal form of the object will be presented as the phenomenal content of visual awareness. Notably, this initial phenomenal presentation of the visual object lasts for a very short period of time, perhaps less than 50 milliseconds. It can be refreshed by further visual contact with the object, but each of these ‘pictures’ will be slightly different, and each will appear only briefly.²

As noted above, the second phase of the process of visual recognition involves a type of conceptual processing that constitutes an act of ‘recognition’, and this second phase is directly relevant to the organism’s deliberate, conscious actions in relation to that visual object. In short, in order for an organism to act deliberately on the visual information, the initial phenomenal form must be processed further so as to categorize the object in a way that makes it an explicit object of action. This act of categorization essentially interprets the object as ‘the same kind of thing’ as something previously experienced. And while this categorization may involve language in humans, this recognitional process occurs even in organisms, such as pigeons, that lack the capacity for language.³ Indeed, for Dharmakīrti and his followers, this recognitional process—the action-oriented categorization of the initial visual information that appears briefly in awareness—is the way that all conscious beings organize their sensory information in a way that facilitates action in the world. Additionally, according to this model, the type of concept formation involved in an act of visual recognition can only occur in the context of an organism that is engaged in goal-oriented behaviour. Thus, to put it another way, deliberate action on the visual object only occurs if the object is categorized in a way relevant to action, and that act of categorization involves a process of concept formation that only occurs when the organism is seeking to act in a goal-oriented fashion in the world.

A final basic feature of this act of recognition concerns the ‘reportability’ of the visual event. Humans can report on their visual experience by saying, for example, ‘I just saw a water bottle there.’ For Dharmakīrti and his followers, one can make such a report only if one has engaged in the type of categorization involved in the aforementioned act of recognition. Without the type of conceptualization involved in that act of recognition, the initial ‘picture’ or phenomenal form of the object can arise briefly in phenomenal awareness, but ordinary persons, at least, will have no conscious access to it. A good

² For some speculations on the temporal dimensions involved here, see Thompson (2014). Note that this model may involve some features that are compatible with a predictive account of perception, but it does not align with a strong version of a predictive account (for more on predictive accounts, see Clark, 2013).

³ See, for example, the work on concept use in pigeons that dates back to the 1960s (e.g. Herrnstein & Loveland, 1964).

example from contemporary psychology is the notion of 'inattention blindness' (Mack & Rock, 1998). A well-known demonstration of this phenomenon involves a film of persons passing a ball between them (Simons & Chabris, 1999). When subjects watch the film, each is asked to focus on counting how many passes are made by a particular team. Following Dharmakīrti's theory, the subjects are caught up in a goal—counting the passes. While they are focused on that task, other visual information is entering their visual awareness at the first, initial level of processing discussed previously. However, if that information is not relevant to their goal, the second phase of processing that involves recognition will not occur; as a result, they will not be able to report on that goal-irrelevant visual information, even though it did enter their visual awareness at that first level of the 'picture' or phenomenal form. This theory suggests that, in order to report on goal-irrelevant visual cues, the subject would have to suspend the goal of counting the passes because another goal (such as being aware of anomalies in the visual space) overrides the counting. With all this in place, it is not surprising that, when a person in a gorilla suit wanders through the film of people passing a ball around, about 50 per cent of subjects do not report seeing the 'gorilla' in the film, even though the gorilla-suited person walked directly through the group of people passing the ball. The Invisible Gorilla Test illustrates well this aspect of Dharmakīrti's model—namely, that, even when a visual object has been presented as a phenomenal form in sensory awareness, one can report on that object (by saying, for example, 'I saw a gorilla') only if one has engaged in the goal-oriented act of conceptualization involved in visual recognition.

5.4 Intentionality, Subjectivity, and Reflexivity

Thus far, this account has focused on the process for recognizing an object in visual awareness. In the first phase of that process, a phenomenal form of the object arises in awareness due to the complex causal interactions of the material object, the visual sense faculty, and the various attentional and affective features present in the mind. Under some circumstances, that phenomenal form of the object then goes through the second phase, whereby it is characterized for the purpose of goal-oriented action by a conceptualization that 'recognizes' or categorizes the object in a way that makes it available for deliberate action. That recognition not only enables deliberate action in relation to the object; it also allows a report to be produced, as when one says, 'I see a flower.' At this point, to introduce the notion of reflexivity, another set of features in the model must be explored. These features concern not the object, but rather the subject.

According to the Dharmakīrtian model of cognition under discussion here, every moment of cognition includes not only a phenomenal form of the cognition's object, but also a phenomenal form of the subjectivity that occurs with the cognition of any object. Thus, in visual awareness, when one sees an object that one recognizes as a 'flower', the visual perception includes a sense of a cognitive subject as the apparent agent who is doing the seeing. In vision and other forms of sensory awareness, this presentation of the object in relation to a sense of subjectivity is indicated by the 'out-there-ness' (Sanskrit, *bāhyatā*) of the object. In other words, the object is presented in awareness as being 'for' a subject, such that the object seems to be 'over there' in relation to a subject who is 'in here'. This is so even though the phenomenal form of the object in visual awareness—the shapes, colours, and so on that are phenomenally presented in visual awareness—is not outside of the mind at all. As noted previously, the above qualities are the products of our visual system's interactions with material objects that are then represented phenomenally as colours, shapes, and so on. Yet even though the phenomenal content of visual awareness is not outside the mind, it is presented as being 'over there' in relation to a sense of subjectivity 'in here'. That sense of subjectivity is called, in Buddhist technical terms, the 'phenomenal form of the subject' (Sanskrit, *grāhakākāra*).

For the Buddhist epistemological tradition, this relationship between the phenomenal forms of the object and subject is a necessary feature of any mental state in which an object is presented. In other words, whenever an object is presented in awareness, it must be presented in relation to a sense of subjectivity. In the Western phenomenological tradition, this relationship between object and subject is described as 'intentionality', and as with the Buddhist epistemological tradition, Western phenomenologists see it as necessarily present in any cognition of an object.⁴

One especially striking feature of this model is that, while the phenomenal forms of the object and subject must always occur together, only the object form is presented as being 'for' the subject form that occurs with it. The subject form itself does not appear to be presented as being 'for' some other sense of subjectivity. If the phenomenal form of the subject were presented as an object for some other second-order subject, then in order for that second-order subjectivity to be presented phenomenally, it would also need to be presented for some third-order subject, and so on. In this way, an infinite regress would ensue. Instead, the phenomenal form of the subject—the sense of subjectivity that occurs in a cognition of an object—is *reflexively* presented.

⁴ For a compelling account from the Western phenomenal perspective, see Zahavi (2005) and, more recently, Zahavi and Kriegel (2015). Note, however, that for Western phenomenologists, consciousness is necessarily structured by intentionality, whereas the Buddhist tradition would maintain that there are some special cases of awareness that are 'non-dual' in that they do not present with the subject-object structure of intentionality.

A straightforward way to understand the term 'reflexive' here is that it points to the use of the reflexive pronoun *sva* in Sanskrit, where awareness of the phenomenal form of the subject is said to involve *sva-saṃvitti* (literally, 'self-awareness'). To understand the grammatical reflexivity operative here, one might consider any language with reflexive pronouns. For example, in Spanish, if I say, 'Yo hablo español' (I speak Spanish), then the verb *hablar* (to speak) is transitive, with an agent (*yo*) performing the action of speaking in relation to the grammatical object (*español*). In contrast, when one says, 'Aquí se habla español' (Spanish is spoken here), the pronoun 'se' is reflexive such that the transitive verb 'hablar' (to speak) is now rendered intransitive. There is no longer a grammatical subject or agent acting on a separate object. In the same way, the sense of subjectivity that occurs in any awareness of an object is presented reflexively, in the sense that it is self-presenting without being taken as the object of some other subjectivity. This is why it is said to involve *sva-saṃvitti*, 'self-awareness' or, in a more precise translation, 'reflexive awareness'. In short, the phenomenal form of subjectivity is presented in an intransitive fashion, without it being the object of some other subjectivity.

5.5 Reflexive Awareness in Action

Reflexive awareness serves various roles in the Dharmakīrtian model of cognition within an individual, but two of its functions are especially relevant here.⁵ First, reflexive awareness presents an implicit model of the perceiving agent that is crucial for action in the world; and second, it allows one to become explicitly aware of emotions and other background features of one's cognitive state in a way that makes them available for regulation or other deliberate actions. Soon, I will suggest how these two features of reflexivity may shed some light on key aspects of cooperative cognition, but first, I will unpack these two functions of reflexivity in Dharmakīrti's system.

5.5.1 Reflexivity and Implicit Awareness of the Subject

As noted above, according to this style of Buddhist epistemology, any awareness with an object must simultaneously include an intransitive awareness of the subject. For example, as I am gazing at a patch of colour, a representation of that colour patch occurs in my visual awareness, and along with it occurs a

⁵ This section is based on the account of reflexive awareness (*svasaṃvitti*) articulated by Dharmakīrti and his commentators, especially Devendrabuddhi (seventh century) and Śākyabuddhi (eighth century), as found in Dharmakīrti's *Pramāṇārttika*, chapter 3, verses 194–224 and 322–540. Most of these materials have not been the focus of scholarly work, but see Dunne (2004, 2011b, 2012, 2015), Coseru (2012), and Arnold (2010, 2012).

sense that the image or phenomenal form of the colour patch in my visual awareness is being seen by a subject, a perceiver that is doing the seeing. Again, this awareness of subjectivity in visual awareness occurs 'intransitively' or 'reflexively' because the subject itself is not presented as an object for some other subject. Instead, it is simply included in the visual perception of the object.

This reflexive awareness of subjectivity occurs with any phenomenal appearance of an object, and this means that a sense of subjectivity is present even before the second phase of perception, when the object is 'recognized' in a way that makes it available to deliberate action. The clear implication here is that even in the first phase of perception, the object is already presented not just for a passive subject, but rather for a subject that is embedded in a goal-oriented context, minimally defined as obtaining affordances and avoiding dangers. By being presented as an object 'for' a goal-oriented subject, the object is contextualized by the features of the subject, including the subject's spatial and temporal location. And these features are precisely what constitute the model of the subject as an agent—or, indeed, a 'self'—engaged with the world.

One way to understand the role of reflexivity here is to consider the implications of its absence. In other words, let us suppose that the phenomenal form of the object were presented without any sense that it is the object of some subject. In that case, how would the cognitive system specify the object's location in space and time? The Dharmakīrtian interpretation is apparently that the object's spatiotemporal location can only be specified in relation to the sense of subjectivity included with the perception of the object. And this points to a key feature of reflexive awareness: it provides a spatiotemporal reference point for the object by keeping track of the subject's spatiotemporal location, but it keeps track of the subject's location implicitly. In other words, reflexive awareness intransitively presents the subject as the spatiotemporal reference point ('in here') for objects ('over there') without turning the subject itself into another object.

When the object is 'recognized' and thus becomes an explicit focus of goal-oriented action, it is perhaps even clearer that the awareness of the subject must remain implicit in this way. If I see something that I recognize as a door and then attempt to open it, my explicit focus is on the door (or perhaps the door handle). If instead, I turn my explicit focus inward toward my own subjectivity, I will lose my focus on the door until I return my focus to it. Yet without keeping track of the subject's spatiotemporal location, movement relative to the door will be impossible. The Dharmakīrtian claim is thus that, even while maintaining explicit focus on the door, an awareness of embodied subjectivity is continuously but implicitly presented as an essential feature of the cognitive context. In other words, even while fully absorbed in action

toward an object, a model of subjectivity as the agent of the action is implicitly maintained through reflexive awareness.

A short exercise can illustrate the point that is being made here. As a thought experiment, focus as intently as possible on the black dot below for five or so seconds:



A simple question that can be asked now is this: in the experience of focusing on the dot, was the dot perceived by you, or someone else? According to the account given here, even while you were fully engaged in the simple task of focusing on the dot, the sense that the dot was being seen by someone—namely, you—is included as part of the experience of looking at that dot. Indeed, the question just asked may seem almost ridiculous. That is, the visual experience of the dot ‘over there’ on the page or screen so obviously requires some sense of a subjectivity ‘in here’ that it may seem absurd to even ask, ‘Who was seeing it?’ It is precisely this sense of subjectivity—so obvious that it seems absurd to question—that is presented by reflexive awareness. In short, without any need to attend to the sense of subjectivity that occurs with any focus on an object, that sense of subjectivity is nevertheless presented as an implicit feature of the structure of object-oriented awareness.

5.5.2 Reflexivity and Explicit Awareness of Subjectivity and Its Features

The second function of reflexive awareness that may shed light on cooperative cognition is the way that reflexivity does not just provide an implicit or tacit awareness of subjectivity; instead, it also enables explicit awareness of subjectivity and the features (such as emotional states) associated with it. To understand this aspect of reflexive awareness, we must examine some additional aspects of the process of ‘recognition’ discussed above.

As noted earlier, the Dharmakīrtian cognitive model takes a particular type of cognition as paradigmatic—namely, the cognition that occurs when a sentient being has a sensory perception of an object and then, ‘recognizing’ that object, performs a deliberate action in relation to it. This theory maintains that all such cases—and, indeed, cognition in general—are embedded in the overall context of a sentient being engaging with sensory experience in terms of goal-oriented action, minimally defined as avoiding dangers and obtaining affordances. Some aspects of this theory, while important, are not fully articulated, and one such aspect is generally known as ‘salience’.

In general terms within cognitive science, ‘salience’ in this context refers to the way that an object emerges as significant in perceptual cognition (Itti & Koch, 2000). Although not clearly articulated by Dharmakīrti or his followers,

it seems that the Dharmakīrtian model must also presume some form of salience. The first phase of sensory perception, for example, involves the delineation of objects. Specifically, that phase presents the phenomenal form of an object, and in doing so, it has already selected an object out of a more complex visual field. Presumably, this kind of object selection involves something like salience, but for the Dharmakīrtian model, this first phase cannot involve the interpretation of the object as explicitly relevant to goal-oriented action, precisely because that type of explicit relevance relies on the 'recognition' that occurs in the second phase. Thus, for our purposes here, the term 'salience' will not refer to the process of object selection found in the first phase. Instead, salience refers to the way that an object of perception emerges as significant for goal-oriented action and is thus 'recognized' as explicitly relevant to some goal.

With this notion of salience in place, one can refine the account of the causal process involved in the paradigmatic case of seeing and recognizing an object for the purposes of goal-oriented action. In the first phase, the object is presented in consciousness as a phenomenal form that emerges from the interaction of the object, the sense faculty, and the mind. Simultaneously, a phenomenal form of the subject is presented through reflexive awareness as a phenomenological feature of perceptual awareness in a way that provides a spatiotemporal reference point for the object. Here, it is crucial to note that the phenomenal forms of the object and subject arise together because they are necessary to each other; indeed, they are simply two aspects of the same moment of consciousness. Hence, when (after a very short interval) the moment of 'recognition' occurs, it emerges from that previous moment of consciousness as a whole; that is, it emerges from the complex structure involving both the phenomenal form of the object and the phenomenal form of the subject. Because goal-oriented action generally concerns objects that are taken to be 'out there' in the world, the phenomenal form of the object usually plays the dominant role in the emergence of the moment of recognition. In other words, that object-focused recognition guides action oriented toward the object represented in the phenomenal form. Sometimes, however, the phenomenal form of the subject is the focus of recognition, and this is when an explicit awareness of subjectivity emerges.

By way of example, consider the task of repairing my bicycle tyre. Perhaps I am late for an appointment, and I need to repair the tyre quickly. This task involves a complex series of perceptions that recognize and enable me to engage with many objects relevant to my goal of fixing the tyre. And each of these acts of perceptual recognition involves my focus on the object in question, such as the spot on the tyre where the puncture occurred. Nevertheless, let us suppose that, at a certain point in this series of perceptions, I suddenly notice that I am anxious about completing the task, and that this is hampering

my progress. How does this awareness of anxiety emerge? On the Dharmakīrtian model, in my perceptions up to that point in the task, the phenomenal forms of the various objects played the primary causal role in the emergence of the series of recognitions because, given the goal or task that I was holding in mind, these various objects are most salient. But at some point, the phenomenal form of the subject gained salience because it was most relevant to accomplishing that task. Its relevance came specifically through the way that the phenomenal form of the subject presents information about not just the spatiotemporal location of the perceiving subject, but also about other features, including especially the affective features currently active in consciousness. Thus, at a certain point in the process of fixing my bicycle tyre, even though I was focused on some object (such as the spot of the puncture), the phenomenal form of the subject became so task-relevant that, instead of producing another moment of 'recognizing' an object, that moment of consciousness produced a recognition about a task-relevant affective feature within my sense of subjectivity; and thus, the recognition of a goal-obstructing 'anxiety' was produced.

This example of recognizing an affective state as anxiety highlights some crucial features of reflexive awareness. Recall that, when the phenomenal form of the object leads to a moment of recognition about an object, it enables deliberate, goal-oriented action toward that object. Likewise, when the phenomenal form of the subject leads to a recognition such as 'anxiety is occurring', it also enables deliberate, goal-oriented action. In short, by recognizing the anxiety, I now have an opportunity to regulate my affective state in a way that will enable me to fix the tyre more efficiently. In this way, my recognition of the anxiety is directed toward an object, namely, an affective feature of my sense of subjectivity. This means that, at least in relation to that affective feature, one has objectified one's own sense of subjectivity and taken that as a new object. Another way of understanding this objectification of subjectivity is that, prior to the recognition, the previous moment of awareness contained both an object pole (the phenomenal form of the object) and a subject pole (the phenomenal form of the subject). When the moment of recognizing anxiety occurred, the subject pole of that previous awareness is taken as the object of the current awareness. And in keeping with this model, the current awareness has both an object (namely, what has been recognized as 'anxiety') and a simultaneously presented sense of subjectivity. This also helps us to understand one way in which I might fail to regulate my anxiety, in that this process can continue. That is, I can become anxious about my own anxiety, and then I recognize that I am now anxious about my anxiety; continuing this type of iteration, I may spiral into a panic attack. In any case, by this point I am clearly no longer focused on the task of fixing the tyre, since I am by now

focusing entirely on my own affective states. Clearly, I will be late for my appointment!

In the way just outlined, reflexive awareness can enable an explicit awareness of the features of one's own subjectivity. This explicit awareness, however, does not depend on somehow moving from a state in which the various features of subjectivity were completely unavailable to a state in which they are now presented. Instead, from the Dharmakīrtian perspective, the various features of subjectivity are *always implicitly presented* in any moment of cognition. These features are presented as the phenomenal form of the subject through reflexive awareness, as discussed previously. Thus, on this model, if one wishes to monitor one's affective states, it is not necessary for one to somehow engage in a constant introspective turn so as to inwardly observe one's emotions and such. Instead, information about one's affective states (and other aspects of one's sense of being a perceiving subject) are constantly presented reflexively. An increased capacity for monitoring affect would thus not come from turning inward; instead, it would be developed by intensifying reflexive awareness, and also by holding in mind a task set or goal that prioritized affective monitoring. In any case, from the perspective of the Dharmakīrtian approach, affective monitoring can and does continue, even to a heightened degree, while still engaging in tasks that are focused on objects in the world (such as repairing a tyre). In contrast, if affective monitoring required an inward, introspective turn, tasks in the world would be severely inhibited, since the focus on an object in the world would constantly be interrupted by an inward focus on one's sense of subjectivity. In short, for the Dharmakīrtian model, an awareness of the subject—which might be explicitly stated as, 'How am I doing?'—is always implicitly available even when fully engaged in some demanding task in the world.

A final point about reflexive awareness of the sense of subjectivity is worth raising here. Since one's sense of subjectivity—along with its various features—is always presented to at least some degree in any moment of object-focused awareness, there is a straightforward way to create opportunities for facilitating one's recognizing (and regulating) subject side features: one may simply use a prompt. Consider this example. A friend and I are admiring a beautiful night sky on an especially clear winter's night, and we are both completely absorbed in that visual scene. When my friend asks whether I am enjoying the night sky, my awareness of the affective features of the experience are immediately available to me because they are encoded with the experience itself. In other words, the prompt does not require me to somehow experience the sky differently; the question simply invites me to notice the affective features that are already included in the experience itself.

5.6 Implications for Cooperative Cognition

5.6.1 *Some Features of Cooperative Cognition*

Before exploring some implications that the Buddhist theory of reflexivity may hold for cooperative cognition, it will be helpful to clarify what is meant by 'cooperative cognition' in this context. As noted earlier, the term 'cooperative cognition' is used here to pick out some common themes in a range of theoretical accounts that overlap significantly, while diverging in ways that are not relevant to the current discussion. All these various approaches, such as 'distributed cognition' and 'group cognition', concern the way that human minds may interact to produce cognitive events together. This perspective stands in contrast to the notion that cognition occurs just 'in the head' of individual humans. Following Tomasello (2014), the main emphasis here is on the way that this type of distributed cognition occurs paradigmatically in the context of humans cooperating in the performance of a task or achievement of a goal.

Examples of the distributed cognition that occurs when humans cooperate include tasks that can only be accomplished by multiple humans working together. In this context, Edwin Hutchins has extensively studied the form of cognition that emerges from the interactions of flight crews in airline cockpits, primarily as observed in realistic flight simulators (e.g. Hutchins, 1995; Hutchins & Klausen, 1998). The complexity of a modern airline cockpit is such that no single human could safely fly this type of airplane without assistance. Much of that assistance comes precisely in the sharing of cognitive tasks, such that tasks are performed in the interaction between humans, rather than occurring 'in the head' of a single human. In one study, Hutchins and Tove Klausen (Hutchins & Klausen, 1998) discuss the distributed cognition that occurs when managing voice communications with Air Traffic Control (ATC). These communications require not just retaining the communication in memory, but also processing that information in a way that leads to appropriate actions. Hutchins and Klausen examine a case in which the captain receives a communication for a new radio frequency. The captain's interactions with the first officer (F/O)—including just a meaningful glance—enable that information to be retained and for the appropriate actions to be taken by both the captain and the F/O. On the analysis proposed by Hutchins and Klausen, the cognitive activities required for the crew to act appropriately emerge from the interactions of the crew as they play their respective roles.

The work of a flight crew illustrates the type of cooperative, distributed cognition that emerges from a group of humans that have learned the roles that must be played to accomplish a complex task that exceeds the abilities of any single human. Cooperative cognition of this type requires a sense of 'shared intentionality' among the humans involved, such that they can

maintain a cognitive representation not only of themselves, but also of the various interlocking roles within the cooperating group (Tomasello, 2014). In the above example of the flight crew, the captain and F/O had met only two hours before their training run in the simulator, yet they were able to succeed at their cooperative task because they were highly trained in the overall procedures and the specific roles that each member of the flight crew must play. In the example noted above, when the captain does not give a required response about a radio frequency to ATC, the F/O simply glances at the captain, and when the captain's return look suggests that he cannot recall the number of the frequency, the F/O prompts him verbally (Hutchins & Klausen, 1998). This type of exchange is possible because both the captain and the F/O have a shared sense of the overall procedures and the specific roles that they must play. Thus, even while highly focused on a specific task such as acknowledging a new frequency from ATC, the crew members simultaneously hold in mind a representation of their cooperating group and their roles therein.

In the research on airline flight crews performed by Hutchins and colleagues, the extensive training of flight crews enables a rich form of intersubjectivity that connects the members through cognitive functions such as memory, attention, the interpretation of visual information, and the manipulation of controls. However, intersubjectivity, shared intentionality, and the cooperative cognition enabled thereby can also emerge in contexts that are far less scripted than an airline flight crew. Gerry Stahl (2016), for example, has examined what he calls 'group cognition'—another term for the type of distributed, cooperative cognition under discussion here—in the context of computer-supported cooperative learning. In one instance, Stahl discusses a group of three fourteen-year-old girls engaged in solving a geometry problem about triangles by using the Virtual Math Team (VMT) system. Even though the girls were interacting only remotely through the VMT's interface for texting and online visualizations, Stahl argues that they engaged in a deep form of group (i.e. cooperative) cognition. For Stahl, the type of cooperative cognition that emerges in this type of problem solving is especially marked by the feeling that the participants discover 'thoughts which I had no idea I possessed' (Stahl, 2016, p. 380; Stahl is here quoting Merleau-Ponty). Along these lines, Stahl (p. 378) says:

The analysis of the team's work concluded that the students' success was an instance of group cognition. None of the students could construct the triangle configuration themselves and the process of construction involved all three exploring, planning and carrying out the construction. Each of the three girls displays a different characteristic behavior pattern throughout their work in the 8 hour-long sessions of our study. Yet, the team is impressively collaborative. This illustrates nicely the notion of individual perspectives within intersubjective group interaction.

Stahl's example clarifies another aspect of cooperative cognition—namely, that it is marked by an intersubjectivity that enables individuals to contribute to a process whose result exceeds their own cognitive capacities. In short, cooperative cognition requires minds to be connected such that cognition is not just happening 'in one's head'.

5.6.2 *Implications from Dharmakīrtian Reflexivity*

As sketched above, key features of cooperative cognition resonate with the Dharmakīrtian account of reflexivity, and the Dharmakīrtian account thus implies possible areas for research and for best practices in enhancing cooperative cognition within a group. The first implication concerns the capacity for each individual to hold in cognition a representation of the group while the group is focused on a task. The Dharmakīrtian account maintains that, in the case of the individual, reflexive awareness implicitly presents the sense of subjectivity with every object-oriented cognition. The sense of subjectivity is presented as a structural feature of cognition in such an obvious fashion that, as noted earlier, it seems almost absurd to ask, 'Who is reading this now?' Likewise, it would seem that cooperative cognition requires a similar form of implicit awareness that presents the group to each individual without disrupting the group's focus on the task at hand. A research agenda focused on a group's implicit representation of itself follows from this implication of the Dharmakīrtian model.

A second implication concerns the self-awareness of the group that must be in place when the group requires self-regulation, as might happen when a conflict in the group is inhibiting its accomplishment of the task at hand. This situation resembles the example given above when I, in the process of changing my bicycle tyre, become aware of a level of anxiety that is inhibiting my work on the tyre. As noted earlier, the awareness of my anxiety emerges from the ongoing, background presentation of my affective state that is provided by reflexive awareness. In a similar way, even while fully engaged in a cooperative task, the members of a group may become aware of something about the group itself that must be adjusted so as to succeed at their goal. How do members of the group shift their focus from their cooperative work to the group itself in this way? In other words, how do they explicitly ask and answer the question, 'How are we doing?' One obvious option is that some person is tasked with handling these issues for the group; this person monitors the group and makes interventions when necessary. But the Dharmakīrtian model of reflexive awareness sketched above might suggest an entirely different interpretation that would especially apply when the group does not have any top-down supervision, as in the case of a Self-Managing Work Team (SMWT).

In the Dharmakīrtian model, there is no separate part of the mind (or brain) that stands apart from one's experiences of the world and monitors one's subjectivity to make interventions when required. Instead, the reflexivity inherent in one's focus on a task allows one to become aware at appropriate times of subjective features and regulate them as needed. This can happen in a way that allows one to maintain one's overall task; there is no need for some prolonged introspection or outside intervention. Likewise, in the context of cooperative cognition, is something like reflexivity operative? That is, perhaps the members of a cooperatively engaged group not only represent the group implicitly to themselves, but they also implicitly monitor themselves through a similar background awareness. When some dysfunction becomes salient, it emerges as an explicit object for the group's attention so that the dysfunction can be addressed and regulated. Here, the self-managing capacities of SMWTs may be enhanced by considering how team members become aware of a group's dysfunction even while in the midst of a task.

Another key implication of the Dharmakīrtian approach concerns precisely the capacity for self-monitoring and the problem of what I will call the 'illusion of the objectified subject'. As noted above, on the Dharmakīrtian model, reflexivity is what allows the phenomenal form of the subject—the sense of subjectivity in an experience with an object—to lead to a moment of 'recognition' whereby one knows, for example, that anxiety is occurring. This moment allows one to act deliberately on that information so as to regulate the anxiety, but it also comes with a danger. That is, in the moment of recognizing a feature of the subject pole in an experience, one effectively objectifies the subject pole. And as with any experience of an object, that experience also comes with a sense of subjectivity. Thus, it may seem that, by knowing one's objectified subjectivity, one is now knowing one's subjectivity, but this is just an illusion. Instead, one is just knowing a conceptualized version of a previous moment of one's subjectivity, and one is doing so from the standpoint of one's actual subjectivity. A continued pondering of this objectified sense of subjectivity will not give one any additional information about one's actual subjectivity. And of course, by pondering one's objectified subjectivity in this way ('I am anxious!'), the task at hand (e.g. changing the bicycle tyre) will be neglected. Instead, to inquire further into one's state of subjectivity, one must drop the conceptualized 'recognition' of an objectified subjectivity and once again allow reflexivity to do its work by making implicit features of subjectivity become explicitly apparent. In this way, a deep inquiry into the state of one's subjectivity requires an oscillation between the implicit awareness provided by reflexivity and the explicit awareness that occurs with a moment of recognition.

In the context of cooperative cognition, one implication of this aspect of the Dharmakīrtian model is that attempts to understand and regulate a cooperative group's dysfunction may fail if those attempts are focused entirely

on the group itself. If something like a Dharmakīrtian model of reflexive awareness applies to cooperative groups, then at some point the group's dysfunction moves from being implicit to becoming explicit, just as my feeling of anxiety while changing the bicycle tyre moved from the reflexively presented background of my awareness to the foreground. In this way, when the group's dysfunction becomes an explicit focus, the group is no longer on its task; instead, it is focused on the group itself and its own dysfunction. Perhaps more importantly, the group's focus on itself involves the same illusion above: when an individual introspects and takes her subjectivity as an object, she is just engaging with a conceptualization of her subjectivity. And while this conceptualization can be useful, it is misleading because it is not one's actual subjectivity. This is so because subjectivity is by nature not an object; it is the standpoint from which objects are known. Likewise, when a group becomes aware of itself, perhaps due to some group-level dysfunction, it can be useful to engage in a kind of 'group introspection', through which the members of the group focus on the group itself. But if the Dharmakīrtian model is applicable here, then the group that is represented as an object for this 'group introspection' is not the actual group at all. Instead, the actual group is the cooperative network of individuals who are now engaged in the cooperative task of examining themselves as a group. Among the many implications here is especially the limited utility of exercises or workshops focused on the collaborative group itself. If the group itself is an explicit object in these activities—as in, 'let's talk about our department'—then the outcome will just be an enhanced conceptualization of the group, but not an enhanced awareness of the group itself.⁶

A parallel implication here is that one would need to acknowledge that the objectified model of the group—the notion of the group that becomes explicit when members become directly concerned with the group itself—is only a heuristic. That is, as with the aforementioned illusion of the objectified subject, the group member's objectified notion of the group could not actually be the model that they hold in mind when they are working cooperatively together. If they were holding an objectified model of the group in mind while working together, then the only object that they could be working on would be the group itself. Instead, the members of the group must hold an implicit model of the group in mind while engaged in cooperative, task-oriented cognition. It is this implicit model of the group that impedes progress toward the group's goal when it becomes dysfunctional, so it is also this implicit model that must occasionally become explicit for the purposes of regulating the group. Again, the implicit model is constantly presented to

⁶ For the limitations of this type of approach when 'group reflexivity' is understood to involve objectification of the group itself, see Moreland and McMinn (2010).

each member of the group through something like reflexivity, and it is precisely this type of reflexivity that would provide explicit knowledge of the group when needed.

A final implication of the Dharmakīrtian notion of reflexive awareness concerns the enhancement of reflexivity itself. In terms of an individual, if the implicit awareness of subjectivity provided by reflexivity is somehow not up to this task, it cannot be enhanced by turning inward or introspecting, since this will simply provide more objectification of the subject. Instead, the Dharmakīrtian approach would recommend the use of contemplative techniques that enhance reflexive awareness, along with a task set or goal that prioritizes awareness of subjectivity. In this way, one is more likely to become genuinely aware of the subjective features of experience because the phenomenal form of the subject is both stronger (through enhanced reflexivity) and becomes salient more often (due to the modified task set). Various meditative techniques, such as those found in some mindfulness traditions, directly target the enhancement of reflexivity in this way (Lutz et al., 2015).

In the context of an individual, enhanced reflexivity gives one a stronger 'signal', so to speak, from the subjective side of an experience, and this thus provides greater opportunities for becoming aware of emotions, expectations, and other features that may require regulation. If something like the Dharmakīrtian notion of reflexivity in individuals also occurs in collaborative groups, then it too would underlie a group's capacity to regulate itself. But how might this type of intransitive 'group reflexivity'⁷ be enhanced? Clearly, a notion of group reflexivity inspired by the Dharmakīrtian account would have something to do with the intersubjective connectivity that the members of the group experience. To some extent, mindfulness and similar contemplative practices that are used to enhance reflexivity in individuals may also be useful for enhancing this type of intersubjective connectivity in groups, inasmuch as these practices can enhance empathy and perspective taking (Dahl et al., 2015). Other strategies focus not so much on explicit training, but on the norms, environment, and styles of interaction that an organization can seek to cultivate in groups. In work that remains fresh even in relation to more recent research documented by Widmer et al. (2009), Vanessa Druskat and

⁷ It is important to note that the term 'group reflexivity' here is used to suggest that, as in the case of individual cognition, some form of implicit, intransitive awareness of the group is operative in cooperative cognition. This notion of 'group reflexivity' stands in contrast to the same term when used to refer to a group process of deliberately reflecting on the group. This latter usage should properly be called 'group reflection', since it engages with an objectified notion of the group and does not explicitly draw on the form of reflexivity discussed here. Although the term 'group reflexivity' occurs in the research literature in the latter sense of a group's overt reflection about itself, I have chosen to use the same term here in part so as to contest the notion that 'reflexivity' simply means overt reflection on the group. For a review of the literature on 'group reflexivity' in its usage as group reflection, see Widmer et al. (2009).

colleagues (Druskat & Pescosolido, 2002; Druskat & Wolff, 2001) have pointed to a number of best practices in SMWTs that could be construed as enhancing the type of group reflexivity under discussion here. Two of these practices are especially relevant. The first is 'heedful relating'. Drawing on the work of Weick and Roberts (1993), Druskat and Pescosolido note that heedful relating is not about behaviour per se; rather, it concerns the way that one interacts with one's team. Specifically, such interactions are 'attentive, purposeful, conscientious and considerate' (Druskat & Pescosolido, 2002, p. 293). For Druskat and Pescosolido, the group representation that this encourages is one that emphasizes team-member interdependence—a quality that would clearly enhance intersubjective connection and group reflexivity. Along these same lines, Druskat and Wolff (2001) argue that the most effective SMWTs involve mutual trust among members, a sense of group identity, and a sense of group efficacy. Their claim is that all three features are rooted in the affective or emotional aspects of a group's interactions, and thus for Druskat and Wolff, Emotional Intelligence (EI) is a key component of team effectiveness. Given the central role played by reflexivity in the awareness and regulation of emotions in individuals, it seems highly likely that reflexivity in groups, if it exists at all, is at least in part a matter of a group's EI. Norms, environments, and practices that enhance EI—and social connectivity in general—would thus likely enhance a group's reflexivity, and vice versa.

5.7 Conclusion

Some form of reflexive awareness in individuals is well established not only in Dharmakīrtian Buddhist epistemology, but also in the Western phenomenological tradition. While still a target of criticism and a matter of debate, theories of individual reflexivity at least have a long and distinguished history. Group reflexivity, however, is a new and speculative idea that, while implied by theories of cooperative or distributed cognition, has not yet been fully addressed by the formulators of these theories. This chapter suggests a way forward toward formulating a theory of intransitive reflexive awareness in groups, but numerous questions and potential criticisms are necessarily not addressed. A key issue—and one that may be empirically tractable—concerns the modes of connectivity that occur in cooperative, distributed cognition. In the case of a single individual, neuronal connections in the brain and afferent/efferent connections with the body provide a dense array of connectivity to support cognition and sensory-motor functionality, and from a Dharmakīrtian perspective, that dense connectivity would likely be the basis for reflexivity itself. But when cognition moves beyond not only the head, but also the skin, how do individuals connect in a way that can support

cooperative, distributed cognition and the 'group reflexivity' that it seems to require? Language obviously plays a central role in providing connectivity, as do facial expressions, physical postures, clothing, and other fairly overt forms of interactive expression. Might there be more? Perhaps physiological synchrony (Konvalinka et al., 2011), or even pheromones (Weller, 1998) play a role? The notion of group reflexivity as an intransitive, background awareness raises not only these, but many more questions. They seem worth exploring.

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