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Buddhist Logic from a Global Perspective

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Abstract

Buddhist philosophers have developed a rich tradition of logic. Buddhist material on logic that forms the Buddhist tradition of logic, however, is hardly discussed or even known. This article presents some of that material in a manner that is accessible to contemporary logicians and philosophers of logic and sets agendas for global philosophy of logic.

1 Buddhist Logic

Buddhist philosophers have examined techniques and methodologies of debate and argumentation. They have investigated the logical principles that underlie rational argumentation and reasoning. These investigations started in India and engaged philosophers in China, Japan, Korea and Tibet. Many competing theories of logic and its relation to reasoning and rationality have been developed and studied by traditional and contemporary Buddhist scholars.[1] In the contemporary literature on logic and the philosophy of logic, however, this rich Buddhist material on logic is hardly discussed or even known. This article presents some of that

[1]For a history of logic in India including Buddhist logic, see Matilal (1999). For a history of logic and its related issues in Tibet, see Dreyfus (1997). A history of Buddhist logic in China, Japan and Korea has yet to be written as far as I know.

material in a manner that is accessible to contemporary logicians and philosophers of logic and sets agendas for global philosophy of logic.

There is a large amount of material that can be presented as part of the development of logic in Buddhist philosophical traditions. In order to provide a focus, I will be mostly concerned with the study of *anumāna* (often translated as 'inference') by two of the major Indian Buddhist logicians Dignāgā (480-540 CE) and Dharmakīrti (6th or 7th CE – dates unknown) and the tradition of philosophy, sometimes called *pramāṇavāda*, that sprung up based on their philosophy. 'Buddhist logicians' in this article refer mainly to Dignāgā, Dharmakīrti and those who follow their development of logic.

First, I will summarise the main topic that most Buddhist logicians are concerned with. In particular, I will introduce the notion of *anumāna* (inference) and present some of its characteristics. Buddhist logicians disagree about the importance of *anumāna* (inference) and what its characteristics are. However, there are some common characteristics that most of them attribute or presuppose and I will present them in a summary form. Second, I will make a remark about the methodology for engaging with Buddhist logic. I will show that, given the difference in writing style and language as well as the different questions that grabbed Buddhist logicians from contemporary philosophers/logicians, merely regurgitating the material in the way that it is presented is problematic if we are to take Buddhist logic as capable of contributing to the contemporary debates. We need to extract or abstract some ideas from the material in order to present it to a wider audience so that genuine two-way conversations become possible. Third, I will set the agendas for future research on Buddhist logic that can contribute to the global philosophy of logic.

2 *Anumāna* (Inference)

Logic in the Indian Buddhist tradition developed as part of epistemology. Buddhist logicians typically consider knowledge as a state of awareness that is warranted (*pramā*). They hold that what we are warranted to be aware of (i.e., what we know) depends on how we come to be aware of it (i.e., how we come to know it). For Buddhist logicians (against some of the non-Buddhist Indian philosophers), *pratyakśa* (perception) and *anumāna* (inference) are the only ways to come to a state of awareness that can be said to be warranted. *Pratyakśa* (perception) is an immediate contact with particulars. It is said to be free of conception and it is described causally. Conception is considered to involve universals. When we conceive of a cow, for instance, we are said to be aware of the existence of a conceptual object 'cow' which is a result of conceiving of a certain object as a cow. A perceptual state is an awareness state of a thing itself and it is a state of aware-

ness that is causally brought about by the encounter with that particular thing. On the other hand, *anumāna* (inference) is considered to involve conception. For instance, when we are aware of smoke on the mountain as a result of conceiving of the thing that wafts around as smoke, we may infer that there is fire on that mountain. When we become aware of the presence of fire on the mountain in this way and it is true that there is fire there, smoke is said to serve a valid reason and knowledge about the presence of fire is said to be brought about by inference.[2]

For the process of inferential reasoning to be productive of knowledge (or 'valid' as it is often described), inferential reasons (*hetu*) must satisfy three characteristics (*trairūpya*). First, *pakṣadharmatā*: the reason must qualify the subject (*pakṣa*). In our example about fire and smoke on a mountain, it is the mountain that is the subject and smoke (reason) must be present on that mountain. Second, *anvayavyāpti*: the reason must be present in at least one similar case (*sapakṣa*).[3] For instance, smoke must be present in a kitchen with a wood-burning stove. Third, *vyatirekavyāpti*: the reason must be absent from all dissimilar instances (*vipakṣa*). For instance, smoke must not be present in a misty lake.[4]

For Buddhist logicians, knowledge entails truth. But they don't count the state of awareness that happens to get things right as knowledge. They take the cognitive process we undergo in acquiring knowledge to be a crucial aspect of that knowledge. The three characteristics of inferential reason (*trairūpya*) serve as the marks of the 'validity' of inferential cognitive process. But, Buddhist logicians don't distinguish a state of awareness that counts as knowledge from the cognitive process that brings about that awareness. By 'knowledge', thus, Buddhist logicians have in mind cognitive *events* rather than states. Their focus in talking about *anumāna* (inference) is, thus, *knowing* inferentially, a particular kind of cognitive event that entails truth.

Significance of this point in the backdrop of various contemporary positions has been appreciated by a small number of scholars in the context of epistemology.[5] However, there is no study of Buddhist logic that emphasises the above point and makes use of it in the context of logic.[6] In this paper, I will articulate some

[2]Two of the main primary texts are Dignāga's *Pramāṇasamuccaya* and Dharmakīrti's *Pramāṇavārttika*. English translations (at least of the relevant passages) can be found in Hattori (1968) and Tillemans (2000) respectively.

[3]This is the formulation of Dignāga. Dharmakīrti modifies this characteristic as: the reason must be present in at least one similar case and only in similar cases. See Potter (1969).

[4]The secondary literature on these three characteristics is extensive. See, for instance, Franco (1990), Katsura (1983, 1984), Oetke (1994a, 1994b), Patil (2009, 2010), Tanaka (2013), Tillemans (1999) as well as several papers in Katsura and Steinkellner (2004).

[5]See, for instance, Matilal (1986) and Ganeri (2018) in the context of not just Buddhist but broader Indian philosophical traditions and Stoltz (2007) in the context of Tibetan Buddhist tradition.

[6]The only exception I am aware of is Siderits (2003) who argues against the existence of the

of the ways contemporary logicians/philosophers can make use of the material on Buddhist logic. However, doing so requires sensibility to the methodology of engaging with Buddhist material. So, in the next section, I will raise methodological issues. I will then examine what contemporary logicians/philosophers can make of Buddhist logic.

3 Methodology

We can be fine-grained about the levels of engagement with Buddhist material. In this paper, however, I will limit myself to three levels of engagement. (I will also limit my consideration to be applicable only to scholastic or philosophical texts which make up a small proportion of material available in Buddhist tradition.) Once I present these three levels, I will then examine what to make of the Buddhist logic material.

At the first level, primary material needs to be presented. In the case of Buddhist material, this is not an easy matter. The material is written in various Buddhist languages, in particular the canonical languages: Sanskrit, Pāli, Tibetan, (Buddhist) Chinese and (Buddhist) Japanese. It is no easy task to master the language(s) let alone to understand the content of the material written in these languages. The difficulty is not only to do with languages. Sometimes, works that are referenced are now lost. At other times, the work we have access to is a copy of the original but contains mistakes. So, presenting raw material is not an easy task.

Second, once we have raw, primary material, we can provide an analysis or analyses of the material. Engaging with Buddhist material at this level involves interpretations. An analysis can be provided in order to highlight some ideas contained in the material. In so doing, however, we are bringing in the interest and concepts that we, as those who would like to make sense of the material, have. Given that the material that is of interest is considered to be philosophical, an analysis is quite often provided in terms of the concepts and terminologies used by philosophers of the past and the present. Thus, how to understand Buddhist material at this level often depends on how to understand philosophical concepts and terms.

The first level of engagement is the level at which the scholars of Buddhism, Buddhologists, operate. They are trained in the relevant language(s) in order to understand primary material in the original language(s).[7] But they almost always

study of logic in Buddhist (and broader Indian) traditions.

[7]Buddhologists are not necessarily steeped into the religious aspects of Buddhism. Their interest may be to unravel the thought behind the scholastic or philosophical texts just like some medieval scholars might work on the philosophy of Boethius or Duns Scotus or even Aquinas

annotate their translations by providing analyses of the material as a way of explaining how to understand it. In recent years, philosophers (those who work or are trained in philosophy departments) have started to engage with the Buddhist material at this second level. With their firmer grasp of the concepts and terminologies used by philosophers, they have provided sophisticated analyses of Buddhist material.[8]

While the involvement of philosophers has enriched the activity of analysing Buddhist material, it is not clear that there have been many fruitful dialogues and exchanges between philosophers and Buddhologists (including those who are trained in philosophy). The problem is two-fold. First, while there may not (or may) be progress in philosophy, discussions in philosophy do move on.[9] Buddhologists are not necessarily aware of this and, thus, not aware of the latest discussions in philosophy.[10] Second, philosophers not familiar with Buddhist material have not largely been able to grasp Buddhist material. The problem is not necessarily the unwillingness of philosophers at large but the way in which Buddhist material is presented to philosophers.[11] Philosophical concepts have been applied to the analyses of Buddhist material in the hope that the contents can be grasped by philosophers. However, this is essentially a mapping exercise. It shows that Buddhist ideas and arguments can be understood in terms of a certain constellation of concepts used by philosophers.[12] This may be an important exercise for showing that ideas and arguments similar to the ones found in ('Western') philosophy literature can also be found in Buddhist material. That may be an interesting historical fact. Yet that, in itself, does not show what philosophers can do with those ideas. If anything, what has been shown through this mapping exercise is that Buddhist ideas are redundant for (contemporary) philosophers. For there to be fruitful dialogues and exchanges between philosophers and Buddhologists, thus, Buddhist ideas need to be presented in a way that can have an uptake by philosophers.

The third level of engagement with Buddhist materials is then to somewhat abstract Buddhist ideas and arguments and recontextualise them in relation to contemporary literature. At this level, we are, strictly speaking, not analysing what is in the texts. We are no longer in the territory of excavating the history of ideas and we are essentially leaving the texts behind. Rather, we are considering what we

without being overtly religious in doing so.

[8]See, for instance, Carpenter (2014), Cowherds (2011), Siderits (2007) and Westerhoff (2018).

[9]For a pessimistic view, see Chalmers (2015). For an optimistic view, see Stoljar (2017).

[10]Numerous examples can be given to show this. Given the limited space available, I refrain from mentioning them.

[11]I don't deny the claim made by Van Norden (2017) that vast majority of philosophers haven't shown any willingness to engage with 'non-Western' including Buddhist material. However, I reject any suggestion that the problem here is *only* the unwillingness of philosophers.

[12]For a similar discussion in the context of the sociology of sciences, see Law and Lin (2017). Thanks go to Luis Reyes-Galindo for the reference.

can do with the material in our own contexts. For Buddhist material to be taken up as philosophical resources outside of the history of philosophy, this is what needs to happen. If there is any hope of two-way dialogues between (contemporary) philosophers and Buddhologists, Buddhist material must be presented in a way that can contribute to the current debates in philosophy.

4 Buddhist Logic from a Global Perspective

What could be done if we were to engage in two-way dialogues? As I will show in this section, we can challenge some of the widely accepted philosophical ideas about the nature of logic from Buddhist perspectives. These challenges may be radical but fruitful in the context of understanding the nature of logic.

4.1 Psychologism

Psychologism is the view that logic *describes*, and thus is dependent on, our reasoning processes. It is largely a rejected view in contemporary literature on the philosophy of logic. It has been argued that if logic were descriptive in this way, it would be hard to conceive of its normative significance. That is, if logic is concerned with reasoning, understood as a cognitive process, it may tell us what inferences we, in fact, perform but it cannot tell us what inferences we *ought to* make. Since logic specifies the norms our reasoning practice must meet, it cannot be descriptive of reasoning processes. Thus, so it has been argued, logic must be independent of those processes.[13]

This anti-psychologistic stance is hardly contested these days.[14] For Buddhist logicians, however, the primary focus in their logical investigations are cognitive processes that constitute knowledge-producing events. Debates about what principles we should accept are conducted in that context. This comes out clearly in the debate between Bhāvivaka (500-578 CE) and Candrakīrti (7th CE – dates unknown) as appears in Candrakīrti's *Prasannapadā* I.[15] They debate about whether there are any consequences we ought to accept once we accept certain premises. Candrakīrti, with his deflationary program, denies that there are any such consequences because there is nothing that we *ought to* do. Bhāvivaka disagrees and argues that there are normative constraints that must be present in our reasoning practice if we can claim that we are rational.[16] Details of the debate do not

[13]Frege (1893), Husserl (1900).

[14]See, however, Gabbay and Woods (2008), Pelletier and Elio (2005), Pelletier, Elio and Hanson (2008), and Rott (2008) who have questioned anti-psychologism.

[15]A translation can be found in MacDonald (2015).

[16]For this analysis of the debate, see Tillemans (2016). The context of the debate is *prasaṅga* which is a variation of *reductio* rather than *trairūpya*, however.

concern us here. One thing to highlight is that, in the process of arguing for his position, Bhāvivaka tries to show that contraposition must be accepted as 'valid'. He argues for this not by demonstrating the structure of truth (*aka* Frege) but by investigating what inferences we do perform and accept. He thus advocates a form of psychologism.

5 *A Priori*

Once we question anti-psychologism, another important issue becomes salient. That is the *a priori* nature of logic. There are several ways in which logic is thought to be *a priori*. First, logic is thought to be *a priori* in the sense that our experiences do not invalidate logical principles. This notion of apriority has been challenged in the context of quantum mechanics where the behaviour of some particles does not seem to obey the principles of classical logic.[17] However, many of these challengers have come to the view that logic is ultimately *a priori*.[18] And it is hard to see anyone who would argue that an observation of someone or even a large number of people reasoning invalidly should trigger a rejection or revision of logical principles.

Second, logic is sometimes thought to be *a priori* in the sense that logical principles are not derivable from any particular cognition involved in reasoning. This is the view that Kant argued for. He assumed that logical rules are those 'without which no use of the understanding would be possible at all' (*Jäsche Logic*: 12).[19] For him, this means that logical rules are the conditions for the possibility of understanding as such: without logical rules, understanding *in general* is impossible. Kant infers from this that logical rules are *necessary* rules for the understanding. In particular, they do not depend on any particular cognition. That is, they do not depend on the contingency of experience. Thus, for Kant, logical principles are *canon* but not *organon* of understanding.

Third, logic is sometimes thought to be *a priori* in the sense that logical principles must be in place for the development and testing of theories, whether empirical or otherwise, to take place. Resnik (1997) argues that logical principles function as the mechanism to generate and manipulate empirical data but they are insulated from any empirical refutation and confirmation.[20] Frege thought of logic

[17] See Bueno & Colyvan (2004), Putnam (1979), Quine (1953).

[18] See Shapiro (2000) in the case of Quine, Putnam (1994) in the case of Putnam. Bueno & Colyvan (2004) may be the only ones who hold quantum mechanics to be a counter-example to the *a priori* nature of logic.

[19] A translation can be found in Young (1992).

[20] Resnik's view echos the neo-Kantian view of Friedman (1997, 2000, 2001) who argues that there must be *a priori* principles that make the development and testing of empirical theories possible.

to be *a priori* in a similar manner. For him, logical principles are the standard in terms of which judgements about the validity of one's reasoning can be made.[21] For logical principles to be such a standard, however, they would have to be in place before they can be applicable to the evaluation of reasoning. So logical principles must be *a priori* for them to set the standard for reasoning.

Buddhist logicians can be understood as rejecting all three forms of *a priori*. As we saw before, they do not distinguish a state of awareness that counts as knowledge from the cognitive process that brings about that state. For them, when one can be said to have knowledge, they are thereby justified. Justification is not an extra ingredient that must be added for a state of awareness to count as knowledge.[22] So there is nothing that could be in place before it is applied to the evaluation of the inferential process that brings it about. Hence, Buddhist logicians can be understood as rejecting the third form of *a priori*. But this also means that there is nothing that can be articulated without analysing particular knowledge events. So, they also reject the second form of *a priori*. Finally, if there is nothing outside of the inferential process against which inferential processes can be evaluated, 'validity' is something that is embedded in people's inferential knowing. If so, rejection or revision of logical principles can be triggered only by the observation of the processes of inferential knowing events. Hence, Buddhist logicians can also be understood as rejecting the first form of *a priori*. Thus, they can be seen as rejecting all three forms of *a priori* as applied to logic.

6 Normative Externalism

Once anti-psychologism and the *a priori* nature of logic are challenged, a few other issues become salient. For the rest of the paper, I will discuss two such issues: normative externalism and non-systematicity.

First normative externalism. Logic is often thought to be normative in the sense that it provides norms for thought or reasoning.[23] This common view has been challenged by Harman (1986). He argues that logic as a science of entailment is a separate subject matter from reasoning. In order to meet Harman's challenge, MacFarlane (2004) proposes *bridge principles* that connect facts about logical validity with norms for reasoning so that logic can be shown to be normative. He argues that if a bridge principle can be formulated, logic can be shown to be normative. A bridge principle has the following form:

If $P_1, ..., P_n \models Q$ then $\Phi(P_1, ..., P_n, Q)$

[21] See MacFarlane (2002).

[22] See Stoltz (2007) who brings out this aspect of Buddhist logic from a Tibetan perspective.

[23] See, for instance, Kant's *Jäsche Logic*.

'where the antecedent states a 'fact' about logical consequence and the consequent takes the form of a normative claim featuring the agent's attitudes towards the propositions in question' (Steinberger (2016): 389).[24] Thus, a bridge principle bridges 'the *logical* concept of entailment and the *epistemological* concepts of inference and belief' (Steinberger (2016): 390).

Steingerber (2016) shows that no plausible bridge principle can be formulated.[25] I won't rehearse his reasons for the impossibility of formulating bridge principles. I note, however, that Buddhist logicians, at least the earlier ones such as Dignāga and Dharmakīrti, would not account for the normative status of logical principles underling argumentation and reasoning by connecting logical facts with norms for reasoning. The form of bridge principles suggests that, for an account of entailment to be normative, it must be *internalised* in one's epistemic attitudes that play a normative role in inferential practice. Thus, a bridge principle is predicated on the idea that accepting an account of entailment is to live up to the standard that it sets for our inferential practice. Following Weatherson (2019), I call this internalisation of entailment in inferences *normative internalism*. I think it is fair to say that normative internalism is commonly accepted or presupposed in literature on logic and its related fields.

In contrast, some (though not all) Buddhist logicians, in particular Dharmakīrti, hold that it is the external world that sets the standard for our inferences. They are, thus, *normative externalists* (again to use the terminology of Weatherson (2019)). For them, however, the external world is not something that can be internalised in our epistemic life. Buddhist logicians (and Buddhists generally) are sceptical about our 'inner life' which is seen as a construction with the use of conceptualisation given that they think of conceptualisation as involving universals which are thought not to occupy reality. They hold that it would have to be the external world to which we must be responsive in theorising about how we ought to reason.[26] Our inner life is far from something that can set a standard for our inferential practices or any of our conduct; in fact, it is to be corrected. Thus, Buddhist logicians can be understood as rejecting normative internalism and advocating normative externalism.

[24]MacFarlane (2004) formulates it slightly differently. According to him, a bridge principle has the following form: If $A, B \models C$ then (normative claim about believing A, B, and C) (p. 6). MacFarlane's formulation does not guarantee that it is logical facts that are connected with norms for reasoning as A and B do not necessarily express logical facts. I have, thus, used Steinberger's formulation.

[25]MacFarlane seems to have also abandoned the project of showing the normative status of logic via bridge principles.

[26]I take it that this is one aspect of Dharmakīrti's notion of *svabhāvapratibandha* (natural relation). For a discussion of *svabhāvapratibandha*, see, for instance, Dunne (2004).

7 Non-Systematicity

One thing we notice when we start studying Buddhist logic is the absence of mathematics. Logic in Buddhist (and, generally, Indian) traditions did not develop with mathematics. What exactly mathematics does to logic is perhaps a moot question. One thing to note is that it makes logic somewhat systematic. Given the lack of mathematics, examining Buddhist logic, thus, gives us an opportunity to consider how systematic logic should or should not be.

Consider the deflationary program of Candrakīrti. For him, all there is in search of truth are the beliefs and opinions of people on the street. By extension, all there is in search of validity are people's beliefs and opinions. Then it is possible to think that a logical form and its instances could come apart. It is possible that people judge the validity (or invalidity) of a logical form differently from the validity (or invalidity) of its instances. If someone wishes to show that some logical form is invalid, they cannot simply provide a counter-example. They would need to demonstrate that people on the street do not judge that logical form as valid. In this way, it is possible to develop a view of logic that does not treat logical forms systematically.[27]

8 Conclusion

If we examine Buddhist logic not from an internal perspective (internal to Buddhist tradition) but from a broader, somewhat global, perspective, what can be found? We can find resources that can be used to challenge views of the nature of logic according to which logic is anti-psychologistic, *a priori*, internally normative and/or systematic. Careful study of the reasons offered by Buddhist logicians against these views help to shed critical light on the orthodox presuppositions about the nature of logic. Given that logic is largely conceived of as anti-psychologistic, *a priori*, internally normative and systematic in contemporary literature, the result of this investigation is significant. If the views of Buddhist logicians can be shown to be reasonable, it will seriously challenge the contemporary orthodoxy; if these views are shown to lack coherence, it will provide resources for considering why logic must be understood according to the contemporary orthodoxy. Results of investigating Buddhist logic from a global perspective is, thus, significant.

[27] See Tanaka (2019).

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