

Buddhist Logic

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Article Summary

Buddhist philosophers have investigated the techniques and methodologies of debate and argumentation which are important aspects of Buddhist intellectual life. This was particularly the case in India, where Buddhism and Buddhist philosophy originated (see [Buddhist Philosophy, Indian § 4](#); [Epistemology, Indian Schools of § 1](#); [Knowledge, Indian Views of](#); and [Inference, Indian theories of](#)). But these investigations have also engaged philosophers in China, Japan, Korea and Tibet, and many other parts of the world that have been influenced by Buddhism and Buddhist philosophy (see [Buddhist Philosophy, Chinese](#); [Buddhist Philosophy, Japanese](#); [Buddhist Philosophy, Korean](#); and [Tibetan Philosophy](#)).

Several elements of the Buddhist tradition of philosophy are thought to be part of this investigation. There are interesting reasoning patterns discernible in the writings of Buddhist philosophers. For instance, the Mādhyamika philosopher Nāgārjuna presents arguments for the emptiness of all things in terms of *catuskoṭi* (four ‘corners’: roughly speaking, truth, false, both, neither). There are also the Indian *vāda* (debate) literature and Tibetan *bsdus grwa* (collected topics) that list techniques of debates.

The main interest here is the tradition of Buddhist philosophy, sometimes referred to as Pramāṇavāda, whose central figures are Dignāga (approx. 480–540 CE) and Dharmakīrti (6th–7th CE) (see [Dignāga](#) and [Dharmakīrti](#)). This philosophy is understood to be the Buddhist school of logic-epistemology. ‘Pramāṇavāda’ is not a doxographical term traditionally used to refer to a recognised school of Buddhist philosophy. It is a conventional term that is sometimes used in modern literature. Nevertheless, in what follows, we think of it as a tradition within Buddhist philosophy and ‘Buddhist logic’ refers to what is developed in this tradition.

Buddhist logicians have systematically analysed the kind of reasoning involved in acquiring knowledge. They hold that there are valid ways to reason that are productive of knowledge. In what follows, some of the main elements of their analyses will be described. Note, however, that, while exegetical studies of Buddhist texts are important, we must step back from them and consider what is involved in taking a Buddhist approach to logic in light of modern formal logic. This analysis will be done against the backdrop of the contemporary literature on logic and related subjects in contemporary philosophy to make sense of the logical studies by Buddhist logicians.

1. Logic

Before discussing Buddhist logic, we should be clear about what we mean by ‘logic’ and how it is understood in contemporary philosophy. The nature of logic is debatable, and there is no uncontroversial answer. However, the following brief presentation should fix the reference and serve as the basis for a comparison with Buddhist logic.

We are familiar with asking for reasons. When we make a claim or present an idea, our interlocutor often asks why a claim is correct or we think we have the right idea. When we are asked to provide reasons for our claims or ideas, we offer reasons to show we know what we are talking about. Some of the reasons we offer may not satisfy our interlocutor, while others do. Logic, at least as it is understood in philosophy, is about the reasons that make our claims or ideas *true*. Logic is concerned with the reasons that support the truth of the claim or idea that we want our interlocutor to accept.

To introduce some terminology, the reasons we give are called the *premises* and the claim or idea that we want to prove to be true based on the reasons is called the *conclusion*. Logic is concerned with the relationship between the premises and the conclusion, in particular the relationship that preserves truth between the premises and the conclusion. In other words, logic is concerned with the truth-preserving relation between the premises and the conclusion, where if all the premises are true, the conclusion must also be true.

This relation between the premises and the conclusion is usually understood to be *formal* in contemporary literature on logic. The formal conception of logic is dominant in the so-called ‘West’ (see [Logic in the 19th century](#); [Logic in the early 20th century](#)). What is involved in the formal conception is a complex question. According to the formal conception, logical relations that preserve truth from the premises to the conclusion are abstracted from our mental states or cognitions involved in inferring the conclusion based on the premises. This means that logical relations are not cognitive relations or relations between cognitive states. According to the formal conception, logic is not about our thoughts but the forms (or structure) they take or should take. The reason we give (premise) must have certain formal or structural relation the conclusion to count as a valid reason.

2. Buddhist Logic

Buddhist logicians identify inference (*anumāna*) as one of two valid means of acquiring (or sources of) knowledge (*pramāṇa*), the other being perception (*pratyakṣa*). For instance, when we see smoke on a mountain, we may infer that there is fire on the mountain. If there is indeed fire on the mountain (in other words, if it is true that fire is present on the mountain), we are said to have acquired knowledge about the smoky mountain, and inference is the means for obtaining that knowledge.

Buddhist logicians hold that, for inference to be a valid means of acquiring knowledge, the reason (*hetu*) we give to infer a conclusion must have three characteristics (*trirūpahetu*). These characteristics are: (1) The reason must be applicable to the case we are reasoning about. (2) The reason must hold in some case similar to the case in question (*sapakṣa*). (3) The reason must not hold in any case dissimilar to the case in question (*vipakṣa*). Characteristic two and three are called *vyāpti*, often translated as pervasion. They ensure that the reason has certain properties in relation to what we conclude about the case in question. For instance, in inferring

the presence of fire on a mountain from the presence of smoke on the mountain, (1) smoke must be present on the mountain, (2) smoke must be present in some similar cases such as a wood-burning stove in a kitchen (where fire is present), and (3) smoke must not be present in all dissimilar cases such as a misty lake (where fire is not present).

Buddhist logicians are, thus, concerned with the question of what counts as valid reasons just like their contemporary Western counterparts. However, there are a couple of important differences. First, Buddhist logicians are mainly concerned with cognition and how it transitions. That is, they are concerned with a series of thoughts arising one after the other in such a way that knowledge is generated as a result. Importantly, they do not recognise formal principles or rules that are independent of cognition or thought involved in making an inference. For Buddhist logicians, logical inquiries are about the nature of inferential cognition and how they generate knowledge.

To see this, consider how Buddhist logicians identify and discuss two kinds of inference. One is called inference for oneself (*svārthānumāna*). It is inference that we perform in acquiring knowledge for ourselves. Another is called inference for others (*parārthānumāna*). It is essentially a statement of inference rather than inference itself. Inference for others is an inference in the form of a statement that we present to others or interlocutors so that they can go through the inference by themselves. Buddhist logicians think that inference for oneself is primary (at least in the case of Dharmakīrti) because, unless a series of cognitions arise, we may have another thought, but, strictly speaking, we are not making an inference.

Second, for Buddhist logicians, the reason we provide is not a thought or a proposition that expresses the content of a thought, but it is a ‘thing’ we may encounter. For instance, based on seeing smoke as we hike up a mountain, we may infer that there is fire on the mountain. In this case, the smoke we see on the mountain, rather than the thought that there is smoke on the mountain, is the reason for inferring the presence of fire. In the same way, what is inferred is not a thought or a proposition; rather, what is inferred is that fire is present on the mountain.

This second difference is important as inference is existentially committing for Buddhist logicians. That is, inferential cognition has to depend on how things are. Buddhist logicians (Dignāga and Dharmakīrti at least) have the metaphysical view that only individual or distinct particulars exist. These particular objects can only be perceived. When we conceive of, for instance, a cow, we are said to be aware of a conceptual object, a ‘cow’, which results from superimposing mental constructions involving universals to categorise multiple particulars to conceptualise a particular object as a cow. Inference is considered to involve such conceptualisation.

Even though inference involves conceptualisation, it must depend on individual particulars. These particulars can satisfy human desires and needs. It is particular paracetamol pills or the molecules contained in the pills that reduce pain (or the experience of pain). However, given that all paracetamol, aspirin and ibuprofen pills reduce pain, we see them all as similar and falling under the concept ‘pain reliever’. So, while the particular fire on the mountain is a pure particular with no resemblance at all to the fire in the kitchen, it is useful to conceptualise them as things that we use to satisfy our desires or needs, such as warming ourselves ((2) of the *trirūpahetu*). The fire on the mountain is similar to the fire in the kitchen, unlike a misty lake, which is not useful in warming ourselves ((3) of the *trirūpahetu*). However, whether or not the fire on the mountain or the fire in the kitchen satisfy our desires does not depend on how they are conceived, but rather depends on the causal capacities of the fire on the mountain and the

fire in the kitchen. Thus, inference (i.e., inferential cognition) is existentially committing even if it involves conceptualisation.

3. Buddhist Philosophy of Logic

We are now able to observe an important difference between Buddhist philosophy of logic and the formal conception of logic. Before elaborating on this, it is important to note that the difference is not something that Buddhist logicians themselves have entertained. It is an implication of their focus on cognition and existential commitment rather than something that comes directly from their texts. This implication can best be derived by contrasting the Buddhist philosophy of logic with the formal conception of logic, particularly the different natures and roles that those conceptions assign to the cognitions contained in logical reasoning.

Under formal conception, what matters in the validity of inferring that there is fire on a mountain from the premise that there is smoke is the truth-preserving relationship between the propositions that express the premises and the conclusion. So, under the formal conception, if the proposition that there is fire on the mountain is true provided that the premises are true, then the cognition of fire may be considered validly inferred from the cognition of smoke on the mountain. In such a case, the status of being a knowledge state is transferred from the cognition of the premises (premises-cognition) to the cognition of the conclusion (conclusion-cognition). What issues this transference is the formal principles that are abstracted from any aspects of the cognitions involved.

For Buddhist logicians, in contrast, because inference is understood to be existentially committing and, thus, it depends on particulars, what accounts for the knowledge status of the cognition of fire on a mountain following the cognition of smoke is the fire on the mountain. In other words, the cognition of fire following the cognition of smoke on a mountain counts as knowledge because the world is cooperating with our way of conceptualising what we think of as fire and what we think of as smoke. So, for Buddhist logicians, inference depends on what happens on the ground rather than the principles that are abstracted from and, thus, not about the world.

To briefly elaborate on this second difference between Buddhist philosophy of logic and the formal conception of logic, consider a cognition of fire following a cognition of smoke on the mountain, but the cognition of fire (conclusion-cognition) has arisen spontaneously. According to the formal conception, if it is true that there is fire on the mountain on the basis that there is smoke on the mountain, the inference counts as valid. So, if the premises-cognition (the cognition of smoke) is identified as a knowledge state, the status of being knowledge may be transferred to the conclusion-cognition.

In contrast, Buddhist logicians understand inferential cognition to be unified. An inferential cognition has an object for the person who infers. If the occurrences of the premises-cognition and the conclusion-cognition are disconnected in the way that the formal conception allows, then the conclusion-cognition may be concerned with something other than what the premises-cognition is concerned with. In that case, there is no guarantee that the inferential cognition that brings together the premises-cognition and the conclusion-cognition has an object. Therefore, for Buddhist logicians, inference is not a mere concatenation of premises-cognition and conclusion-cognition that happen to arise one after the other. For them, inferential cognitions must be unified. That is, the arising of the conclusion-cognition cannot be

accidental: the conclusion-cognition arises *because* of the premises-cognition. Thus, for Buddhist logicians, a conclusion-cognition is not one whose knowledge status is transferred from the premises-conclusion, but it is the *generation* of our knowledge.

4. Taking a Buddhist Approach to Logic

The main lesson of taking a Buddhist approach to logic is that we can challenge some of the widely accepted ideas about the nature of logic in contemporary literature from Buddhist perspectives. There are mainly two challenges, (1) against anti-psychologism and (2) against the *a priori* conception of logic.

4.1. Anti-Psychologism

Psychologism is the view that logic *describes*, and thus is dependent on, the mental states or cognition involved in our reasoning processes (see [Psychologism](#)). Since the late 19th century, this view is largely rejected in contemporary literature on the philosophy of logic. One main line of thought against psychologism is that if logic were descriptive, it would be hard to conceive its normative significance. That is, if logic is concerned with cognition, it may tell us what inferences we perform, but it cannot tell us what inferences we *ought to* make. And, if we cannot distinguish between what inferences we make and what inferences we should make, then we cannot distinguish ‘good’ from ‘bad’ inferences. Thus, it is argued that logic must be independent of cognition.

As we saw above, Buddhist logicians’ primary focus is on cognition, particularly how to bring about cognition that can be identified as knowledge which suggests that they are committed to psychologism, although none of them would describe their views as such. However, they have never encountered anti-psychologism. So, there is no explicit Buddhist response to the anti-psychologist’s charge against psychologism. What we can do in response would have to be a reconstruction as a result of understanding the implications of what they say about inference rather than a textual analysis. Strictly speaking, we have to leave Buddhist logicians on the side and think alongside them rather than let them speak by themselves.

To distinguish what inferences we do make and those we should make, anti-psychologists would have to make sense of what inferences we should make independently of the inferences we do make. To do this, they would have to appeal to something other than the cognition involved in making inferences. Anti-psychologists, then, would have to explain how something abstracted from cognition can, nevertheless, apply to cognition. This is where Buddhist logicians would most likely interject.

For Buddhist logicians, inference is a means to acquire knowledge. In particular, it is thought to bring about specific knowledge. In the case of inferring that there is fire on a mountain based on seeing smoke, the inference is about the smoky mountain. It is hard to think that something abstracted from inference about a smoky mountain can specify how such inference should go. First, because it is not part of the cognition of smoke, formal principles do not contribute to the arising of the cognition of fire. So, it is not sufficient for bringing about knowledge about the smoky mountain. Second, the arising of the cognition of fire may result from cognising about smoke rather than the result of the cognition of fire having a certain formal relation with the

cognition of smoke. So formal principles are not necessary for bringing about knowledge about the smoky mountain.

Therefore, from a Buddhist logician's perspective, anti-psychologists place norms in the wrong place. Instead of placing them in the world that we interact with, they let them float above inference, hoping that they can oversee inferential activity. Buddhist logicians would find this way of understanding the normative dimension of inference objectionable and would challenge anti-psychologism on that basis.

4.2. *A Priori*

An important issue connected to psychologism and anti-psychologism is the alleged *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. In this sense, logic can be considered similar to arithmetic, where seeing that two cups of water becoming one (large) cup of water should not change the status of $1 + 1 = 2$.

Second, logic is sometimes thought to be *a priori* in the sense that logical principles are not generalisable from particular cognitions involved in reasoning. Particular cognitions depend on the contingency of experience, whereas logical principles are the conditions for knowledge in general and, thus, do not depend on experience. As Kant put it, logical principles are *canon* but not *organon* of the understanding in general.

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. Or, to put it in the context of reasoning, logical principles must be in place prior to valid or invalid reasoning to be identifiable. The thought is that if logical principles can tell us what valid and invalid reasonings are, they cannot be part of the reasoning that is being evaluated; they must be prior to reasoning that can be said to be valid or invalid.

Again, '*a priori*' did not enter the Buddhist lexicon, nor did the concept of *a priori* enter Buddhist philosophy. Nevertheless, we can see that Buddhist logicians would reject all three forms of *a priori*. As we saw before, when they talk about inference, Buddhist logicians are talking about cognition. Importantly, they do not recognise any principles or anything law-like abstracted from cognition but that, nevertheless, function as governing it. Hence, Buddhist logicians would reject the third form of *a priori*. This also means that there is only particular cognitions to be investigated. So, they would also reject the second form of *a priori*. Finally, if there is nothing outside of the inferential process against which inference can be evaluated, validity is something that is embedded in people's inferential cognition. If so, rejection or revision of logical principles can be triggered only by observing the processes of inferential cognition. Hence, Buddhist logicians would also reject the first form of *a priori*. Thus, they can be considered committed to rejecting all three forms of *a priori* as applied to logic.

References and Further Reading

Chi, R.S.Y. (1969) *Buddhist Formal Logic*, (ed.), London: Royal Asiatic Society of Great Britain.

(An interesting study of formalising Buddhist logic.)

Dreyfus, G.B.J. (1997) *Recognizing Reality*, Albany, NY: State University of New York Press.
(A study of the Tibetan development of various components of Buddhist logic.)

Dunne, J. (2004) *Foundations of Dharmakīrti's Philosophy*, Boston: Wisdom Publications.
(A comprehensible introduction to Dharmakīrti's philosophy.)

Eltschinger, V. (2010) 'Dharmakīrti', *Revue Internationale de Philosophie* 64: 397–440.
(A discussion of Dharmakīrti's philosophy.)

Hattori, M. (1968) *Dignāga, On Perception*, Cambridge, MA: Harvard University Press.
(A good introduction to Dignāga's philosophy and a translation of some parts of his *Pramāṇasamuccaya*.)

Hayes, R. (1988) *Dignāga on the Interpretation of Signs*, Dordrecht: Kluwer Academic.
(A study of Dignāga's logic.)

Katsura, S. and E. Steinkellner (eds.) (2004) *The Role of the Example (Dṛṣṭānta) in Classical Indian Logic*, Vienna: Arberitskreis für Tibetische ind Buddhistische Studien, Universität Wien.
(Discussions of the use of examples in Buddhist and Indian logic.)

Kusch, M. (1995) *Psychologism*, London: Routledge.
(A comprehensible study of psychologism and anti-psychologism.)

MacFarlane, J. (2002) 'Frege, Kant, and the Logic in Logicism', *The Philosophical Review* 111: 25–65.
(A rigorous examination of the formal nature of logic.)

Matilal, B.K. (1999) *The Character of Logic in India*, J. Ganeri and H. Tiwari (eds.), New Delhi: Oxford University Press.
(An introduction to Indian logic including Buddhist logic.)

Oetke, C. (1994) *Studies on the Doctrine of Trairūpya*, Vienna: Arbeitskreis für Tibetische und Buddhistische Studien, Universität Wien.
(An examination of *trairūpya* (or *trirūpahetu*.)

Patil, P. (2009) *Against a Hindu God: Buddhist Philosophy of Religion in India*, New York: Columbia University Press.
(A discussion of the later development of Buddhist logic in India in the context of the debates about the existence of God (Īśvara).)

Priest, G. (2010) 'The Logic of the *Catuṣkoṭi*', *Comparative Philosophy* 1: 24–54.
(A study of formalising the *catuṣkoṭi*.)

Resnik, M. (1997) *Mathematics as a Science of Patterns*, Oxford: Clarendon Press.
(An articulation of the *a priori* view of logic that logical principles must be prior to the development and testing of theories.)

Tanaka, K. (2013) ‘Buddhist Philosophy of Logic’, *Blackwell Companion to Buddhist Philosophy*, S. Emmanuel (ed.), Chichester: Wiley-Blackwell, 320–330.
(An introduction to the Buddhist Philosophy of Logic.)

Tanaka, K. (2021) ‘Buddhist Logic from a Global Perspective’, *Global Epistemologies and Philosophies of Science*, D. Ludwig, I. Koskinen, Z. Mncube, L. Poliseli, L. Reyes-Galindo (eds.), London: Routledge, 274–285.
(Sets the agendas for future research on Buddhist logic that can contribute to the global philosophy of logic.)

Tillemans, T. (1999) *Scripture, Logic, Language*, Somerville: Wisdom Publications.
(Authoritative discussions of various elements of Buddhist logic.)

Tillemans, T. (2000) *Dharmakīrti’s Pramāṇavārttika*, Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
(A translation of Dharmakīrti’s *Pramāṇavārttika* IV.)

Tillemans, T. (2023) ‘Tibetan Development of Buddhist Logic’, *A Handbook of Logical Thought in China*, L. Fenrong, J. Seligman, Z. Jincheng (eds.), Dordrecht: Springer.
(A comprehensive study of the Tibetan development of Buddhist logic.)

Tillemans, T. (forthcoming) ‘Tibetan Debate Traditions (*bsdus grwa*)’, *Brill’s Encyclopedia of Buddhism* (Volume Three), Leiden: Brill.
(A discussion of Tibetan *bsdus grwa* (collected topics).)

Young, J.M. (1992) (trans.) *Lectures on Logic*, Cambridge: Cambridge University Press.
(Translations of Kant’s lectures on logic where he articulates the formal, *a priori* conception of logic.)