Buddhist Logic and its Development: Some Remarks

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Abstract:
There are two major ways in which Buddhist Logic is developed. The first one is represented by Nāgārjuna-Candrakīrti tradition through the use of dialectics and the second way of development is found in the works of Diṅnāga and Dharmakīrti through the use of hetu (probans). This second way of logic has further been developed by the works of Jinendrabuddhi and Ratnakīrti. The paper is an attempt to show the historical development of epistemic logic as developed by the Buddhist philosophers and their relevance for our time.
Keywords: catuṣkoṭi, niṣedha, para-consistent logic, causal relation, identity relation, uniform concomitance, svalakṣaṇa.

1. Introduction

From the debating model of the *Kathāvatthu* (in Pàli) to the Vaitaṇḍic *prasaṅgapādāna* of Nāgārjuna-Candrakīrti tradition there is an interesting phase of the development of Buddhist Logic that later on leads to meta-logical interpretation of 'negation' which, according to some modern logicians, is very close to Para-consistent Logic of today. It is said to be a logic which is free from 'consistency-phobia.' This is one kind of development of Buddhist Logic in the early stage and the concern of this stage is more on epistemology through dialectics for refutation of counter-thesis. This may be called the stage of 'No Thesis Argument'. No effort is seen there to introduce formalism and to defend one's own position. This phase is based on the dialectics that works through four-cornered negation. However, though it does not deny the empirical validity of *pramāṇa*, it denies any claim in favour of its independence. This speculative networking of *pramāṇa* is based on uncritical acceptance of mutually conflicting ideas and on critical analysis nothing is found as absolute, independent and categorical.

Another phase of the development of Buddhist Logic starts with the works of Diṅnāga on the nature of *liṅga* or sign and the sign-signed relation. It has the interest of leading to epistemological issues as focused in *Pramāṇasamuccaya*, which provides the ground work for the development of Buddhist Epistemology in a new direction. Later on, Dharmakīrti (c. 600 – c. 660 CE) gave the master-stroke that provided the momentum through *Pramāṇa-Vārttika* and *Pramāṇa-Viniścaya*. He was considered in those works as a Sautrāntika Buddhist philosopher although in later days he contributed much in the development of Yogācāra or Vijñānavāda school of Buddhist philosophy. But Dharmakīrti's work on Logic is also very important for understanding the

epistemological blossoming in later Buddhist Epistemology. His *Nyāyabindu* (*Essence of Logic*) seems to be a condensed form of the main issues of *Pramāṇa-Vārttika*. He has also done hair-breath analysis of Reason or *Hetu* in his *Hetubindu* (*A Drop of Reason*).

However, before Diṅnāga, as said earlier, Nāgārjuna developed a kind of Meta logic in 2nd century A. D. All the three – Nāgārjuna, Diṅnāga and Dharmakīrti – were masters of different streams of Buddhist logic and they made Gautama's Nyāya logic as their *pūrvapakṣa*, the thesis for refutation. Nāgārjuna and Dharmakīrti belong to different Buddhist schools of Philosophy and they have different ontological positions too. For Nāgārjuna, everything is devoid of intrinsic nature (*niḥsvabhāva*), that is to say, everything has conditional and inter-dependent existence. But Dharmakīrti holds that a real thing is *svalakṣaṇa*, a unique particular, and even the concomitant invariable relation for inference is grounded on the intrinsic nature of the things related by it. So, it appears that both Nāgārjuna and Dharmakīrti {Dharmakīrti} influenced the development of Indian Logic in two different directions. Of course, Dharmakīrti's works have much affinity to Diṅnāga's logical thinking and this way of development of the Buddhist Epistemology contributed much to philosophy of language that works through the signifier-signified relation in Jinendrabuddhi and introduction of binary oppositions by Ratnakīrti in *Apoha-siddhi*. Of the afore-said three important logicians of the Buddhist school – viz. Nāgārjuna, Diṅnāga and Dharmakīrti – Nāgārjuna develops a logic for understanding philosophy through meta-philosophical analysis of concepts which is otherwise known as *prasaṅga* (dialectical method of contextual refutation), *prasaṅgāpādāna*, a special kind of *reductio ad absurdum* argument using simple negation (*prasajya-pratiṣedha*). This is also known as *catuṣkoṭi-niṣedha* – 'four-cornered negation' and the problem of self-referential statements is the main charge that is being raised against Nāgārjuna by his philosophical opponents. The case of Dharmakīrti is little bit different. Since the Buddhist Logic develops out of refutation of the Nyāya logic and Dharmakīrti's exercise of logic, like that of Diṅnāga, centres around 'probans' (*liṅga / hetu,* sign, reason), let us have a brief presentation of Gautama's view on inference and 'probans' (*liṅga/hetu*).

History of Philosophical Thought in India shows that Buddhist Logic has been developed not in isolation but in a continuous process of borrowing from the logical thought by other thinkers and later on through criticism of Nyāya philosophers. Nāgārjuna develops his logic through the point-to-point refutation of *Nyāyasūtra* of Gautama in *Vaidalyasūtra* (which is also known as *Vaidalyaprakaraṇa*). However, in this short paper I propose to discuss the issue with reference to Nāgārjuna and Dharmakīrti only and leave any detail discussion on Diṅnāga for another paper.

It is better to begin with the Nyāya view of inference, because the Nyāya view is treated as the main *pūrvapakṣa* (thesis under refutation) by all logicians belonging to the Buddhist school.

2. A Brief Account of Gautama's View

Gautama in the *Nyāyasūtra* speaks of three types of inference based on three types of *liṅga-liṅgī* relation [10, p. 64]. Vātsyāyana elaborates these with examples. The first of these is called *pūrvavat*, the second is called *śeṣavat* and the last of these is called *sāmānyatodṛṣṭa* inference. The first one of these inferences is from the cause to the effect based on the causal relation between *liṅga* and *liṅgī* (the probans, the sign and the probandum, signified). From the rising of the black cloud as cause we can infer the effect that it will rain. The second one is the inference from the effect to the cause. When we see that there is current and fullness of the river with water we infer that there was rain in the upper region of the river in question. The third one is not causal in this sense. It is based on invariable concomitance which is, whether causal or non-causal, is not determined on the basis of the particular instances of the *hetu* and the *sādhya*, but is understood at a more general level. From the perception of an object at some place which was earlier in some other place is now inferred as due to the movement of that object in question. Each of these forms of inference, according to Vātsyāyana, however, may be illustrated in two ways. We have already explained one way.

2.1. The Alternative Way

Let us now see an alternative way. Here the word *pūrva* means 'two objects x and y were previously perceived' as invariably connected. Now "an object similar to one of these is perceived. From this is inferred an object similar to the other, though the object thus inferred is not perceived now" [10, p. 65]. In this alternative version of inference the word *Śeṣavat* stands for residual usually called in Bengali *pariśeṣa*. When all the possibilities are eliminated what remains is called *pariśeṣa*. Suppose, I am to know in which class 'sound' belongs when I know that features of being existent and non-eternal qualify it. Does it belong to the class of substance, or quality or action or universal or unique individuality? All these are possible alternatives. Now let us eliminate one after another. We cannot call it substance, because in order to be so it must have been an inherent cause and being single it cannot satisfy the condition of being substratum of quality and action as inhering in many. We cannot call it action, because subsequent sound causally arises out of it. The defining features of neither universal (*sāmānya*) nor unique individuality (*viśeṣa*) are fit to it. Now what remains only the possibility of being a quality? From this it is established that sound is a quality. About the third form of inference Vātsyāyana says that when both *liṅga* and *liṅgī* (probans and probandum) are not perceptible, the *liṅgī* is inferred from a *liṅga* which has the same feature 'with any other object'. The existence of self may be inferred from the existence of desire etc. We know that desire etc. belong to the class of quality. So it must have a locus called substance. And the self is the substratum of desire etc. Now the third one is called *sāmānyatodṛṣṭa anumāna*. Ordinary way of defining it is that it is an inference based on the *liṅga* (probans) which is neither a cause nor an effect. According to Vātsyāyana, the first way of defining the *sāmānyatodṛṣṭa anumāna* by Gautama has been discussed earlier. But a Naiyāyika like Uddyotakara says that this earlier version of *sāmānyatodṛṣṭa anumāna* is, in fact, a special case of *śeṣavat anumāna*. But the alternative way of defining *sāmānyatodṛṣṭa anumāna* by Vātsyāyana cannot be accused of this. In this case both the probans and the probandum are imperceptible. But the probandum (*liṅgī*) is cognized from a probans (*liṅga*) 'having the same nature with any other object' [9, p. 66]. Inferring the existence of the self from the existence of desire etc. is cited as an example of *sāmānyatodṛṣṭa anumāna*. The self is the substratum of desire. Desire is a quality and a quality has substance as its substratum where it resides. In *pūrvavat anumāna* the invariable relation that holds between *liṅga* and *liṅgī* is an object of direct perception. It is just contrary in the case of *sāmānyatodṛṣṭa anumāna*. According to Phaṇibhūṣaṇa, Vātsyāyana's this mode of defining *sāmānyatodṛṣṭa anumāna* is also subject to difficulties as suggested by the later Naiyāyikas like Uddyotakara and Vācaspati Miśra. Without the application of *śeṣavat anumāna* (residual inference), according to them, the very instance of inferring the existence of the self from the existence of desire etc. remains incomplete. For the sake of logical parsimony the details of argument are not discussed here.

But the later Nyāya scholars since Gaṅgeśa have given emphasis on invariable or uniform concomitance of *hetu* (probans) with *sādhya* (probandum) as the sufficient condition for defining *vyāpti*. In other words, the role of causal relation of the earlier Nyāya is now reduced to a relation of uniform or invariable concomitance. It is adequate to infer the presence of x from the presence of y *if and only if* (hence forth, *iff*) we uniformly see together x and do not see y without x. If in the presence of x always there is presence of y, it is called a case of *anvaya (tat sattve tat sattā)* and if, on the other hand, in the absence of y always there is absence of x, then it is called a case of *vyatireka (tadasattve tadasattā)*. This is, in short, the Nyāya view of inference.

3. Nāgārjuna-Candrakīrti Tradition

When we speak of the development of Buddhist Logic, we try to see how the development of logic does differ on account of difference in ontological presuppositions of the schools of Indian philosophy. But we also see difference among philosophers of the same school in broad sense. Different streams, to speak of Buddhist Logic, have been developed throughout a few centuries. Inference (*anumāna*) is considered as the foremost object of discussion in logic. A model of logically-warranted inference can be traced in the Buddhist debating manual titled *Kathāvatthu.*

Another type of the development of logical warrantee emerges out of the debate having the feature of 'refutation only' (*vitaṇḍā*). This is also a development of the philosophical method of Sañjaya, a senior contemporary of Gautama Buddha and that method is often called 'the method of eel fish' (*amarāvikṣepavāda*) [2, pp. 453-457]. This technique has been enriched by Nāgārjuna who interpreted the concept of 'negation' as a 'commitment-less-denial' (*prasajya-pratiṣedha*) to support his philosophical position called 'emptiness' in a technical sense. It may be called a system of logic having many possible values.

Among the Buddhists, again there are two dominant trends – one developed by Madhyamaka philosophers who engage themselves more on philosophical foundation of Logic, an analysis of modality of the world of experience keeping in mind also the meta-level understanding of language. For them, if something is claimed as necessary, it must be possible, though if something is possible it is not necessarily necessary. The role of *modal operators* is more important in understanding philosophy through language, because only through these we can have an access to the actual world or the ontology of experience and accordingly we can plan our program for future in contextual consideration of the actual state of affairs. Obviously, such logic cannot allow any exclusive or absolutist claim based on pure assumption and therefore the so-called law of Excluded Middle has no appeal to this logic. Here some modern logicians have tried to see in it some elements of what is called *Para-consistent Logic* today. They call Nāgārjuna (c. 150 CE) as the forerunner of *Para-consistent Logic* [3, p. 16]. But I am not sure about such possibility. What I understand by Nāgārjuna's use of 'negation' is meant for refutation of opponents' views and it is used for criticizing every thought for leading one to thoughtlessness. It is not another thesis called the thesis of 'ineffability' beyond four-cornered negation. It is a case of simple negation where one is not compelled to accept the counter-thesis. There is exclusive division of 'is' and 'is not'. But this type of logic in its rudimentary form can be traced to Sañjaya's theory of logical escapism, *amarāvikṣepavāda* in Sanskrit and *amarāvikkhepavāda* in Pāli [7, pp. 105-109]. Sañjaya was a senior contemporary of Gautama Buddha and Suppiya was his disciple. It is said that Pyrrho, the Greek dialectician was a student of Suppiya (Supriya in Sanskrit) at Taxila [1, p. 328]. In Nāgārjuna, however, we see a developed form of 'four-fold negation' of Amarāvikṣepavādins.

Like Sañjaya-Nāgārjuna line of using 'consistency-phobia-free' logic. It is against all kinds of orthodoxy and puritanism in logic. Orthodoxy and puritanism are based on exclusive position which denies the explanation of the actual world. Actual world is beyond our absolutistic and deterministic scheme of logic. This use of logic is based on mere speculation and not on critical judgement about the actual world. In other words, there is no single set of programs or problems in the possible world. So any relational use of negation cannot explain the world of experience with its set of deterministic values. The crux of so-called inconsistency lies with the basic assumption of explaining the world with a single set of programs where both 'P' and 'not-P' cannot be accepted as theorems. But a system of Logic which is tolerant to the so-called 'inconsistency principle' can accept both 'P' and 'not-P' as they respond to two sets of individual context, *prasaṅga* in Sanskrit.

Naturally in such an approach the concept of 'negation' has a very important role. It is to be noted here that in all logical approaches the use of negation colours the school's epistemological claims and ontological positions. Different logical systems have been built up depending on different senses of use of the concept of 'negation'. In a two-valued system of logic the relation of a thesis, 'P' and its negation, i.e. 'not-P', is exclusive and thus if you negate 'P' then it is necessary to accept the counter-thesis 'not-P'. But for the user of 'pure and simple' (*prasajya-pratiṣedha*) negation there is no such necessity, because he believes in 'context-bound negation' and in such a use of negation when you negate a thesis 'P', it is possible to negate 'not-P' also. In actual world nothing is absolutely determined and fixed in our knowledge situation. The world of 'unknown' is 'larger' than the world of 'known'. Among non-exclusive and innumerable possibilities 'P' represents only one and 'not-p' one more and the sum-total of 'P' and 'not-P' does not cover the scope of 'all'. That is why, in refutation of the Nyāya claim with regard to *pramāṇa* and *prameya*, Nāgārjuna has used the Sanskrit word '*niṣedha*' (negation) and also from the refutation of doubt to the refutation of the point of defeat (*nigrahasthāna*). The word *niṣedha* is ordinarily translated into

English as 'negation'. But the word 'negation' is used as *propositional negation* called in Sanskrit *paryudāsa pratiṣedha* as well as '*simple negation*' called in Sanskrit *prasajya pratiṣedha,* ("aprādhānyaṁ vidheryatra niṣedhe pradhānatā prasajya pratiṣedho sau kriyayā saha yatra ñān/prādhānyaṁ hi videheryatra niṣedhopradhānatā/ paryyudāsa sa vijñeyo yatrottarapadena ñān//") [11, p. 298]. In the first type of negation, if we negate 'P' as false, we are compelled to admit 'Not-P' as true. But in 'pure negation' we negate something without any commitment, that is to say, without any possibility of admitting 'the counter-thesis'. Here Nāgārjuna's use of the Sanskrit word *niṣedha* is to be understood in the second sense of negation, that is to say, as 'refutation – pure and simple'. Nāgārjuna's view of four-cornered negation is important, because it is a necessary condition for understanding his philosophy. For him, the denial of the Law of Excluded Middle does not invite any contradiction.

4. Diṅnāga

As different from this meta-logical approach another dominant stream of Buddhist Logic was initiated by Diṅnāga who approximately flourished the 5th Century A. D. (c. 480 – c. 540 CE) and his followers. A parallel logical system to the Nyāya Logic is developed by him where both deductive and inductive ways of reasoning are presented in a novel way and that logical way has much contribution to the development of *pramāṇaśāstra*, epistemology in India. In the history of Buddhist Logic the period from c. 400 – 1100 is considered as the most creative period. Diṅnāga developed logic in two works namely *Hetucakraḍamaru* and *Nyāyamukha*. The text of these works, we are told, are not available in Sanskrit and survived only in Tibetan translation as 'gtan tshings kyi hkhor lo gtan la dbab pa'. Pandit Bodhisattva and Bhikṣu Dharmāśoka are popularly known as the Tibetan translators. *Hetucakraḍamaru* is also known as *Hetucakranirṇaya* [14, pp. 16-19]. Here Diṅnāga has three concerns – *hetu, anumeya and dṛṣṭānta* – probans, probandum and example. He dealt with in detail three distinguishing marks of hetu. He has developed three types of *liṅga*, the inferential sign which is popularly called '*trairūpya*' in Sanskrit. "There will be the presence, the absence as well as both the presence and the absence (i.e. presence in some part, while absence in another) of the *hetu* in the *anumeya* (that which is to be proved, probandum). If there be the presence of *hetu*, the conclusion will be correct, while the absence thereof will make it invalid. If there be both the presence and the absence (of the *hetu* in the *anumeya*) the conclusion will be doubtful just like an invalid one… There will be the presence, the absence as well as both (of the *hetu*) in the *sapakṣa* (that which is analogous to the *pakṣa* – *anumeya* or the object of inference). And similarly in the *vipakṣa* (that which is opposed to the *pakṣa*) there will be the presence, the absence, as well as both the presence and the absence of the *hetu*. So there will be three classes of the threefold *hetu* (i.e. nine varieties in all)" [7, pp. 16-17]. The distinguishing marks that characterize the *hetu* are as follows:

"1. It should be present in the case (object) under consideration. 2. It should be present in a similar case or a homologue. 3. It should not be present in any dissimilar case, any heterologue" [7, p. 6]. Out of epistemic interest Diṅnāga has formulated *hetucakra*, a wheel of reason with the use of two conditions, namely, *vipakṣa* and *sapakṣa*. The wheel consists of a set of nine different possibilities satisfying some conditions for a case of sound inference, but only two of them can satisfy all the three conditions necessary for a sound inference. Let us represent all these possible cases [14, pp. 19-29]. (1) *Hetu* (*probans*) is present in all the cases of both *vipakṣa* and *sapakṣa*; (2) *Hetu* (*probans*) is present in no case of *vipakṣa* but in all cases of *sapakṣa*; (3) *Hetu* (*probans*) is present in some cases *vipakṣa* and in all cases *sapakṣa*; (4) *Hetu* (*probans*) is present in all cases of *vipakṣa* is but in no case of *sapakṣa*; (5) *Hetu* (*probans*) is present in no case either of *vipakṣa* or *sapakṣa*; (6) *Hetu* (*probans*) is present in some cases of *vipakṣa* but in no case of *sapakṣa*; (7) *Hetu* (*probans*) is present in all cases of *vipakṣa* and in some cases of *sapakṣa*; (8) *Hetu* (*probans*) is present in no case of *vipakṣa* and in some cases of *sapakṣa*; (9) *Hetu* (*probans*) is present in some cases of *vipakṣa* and in some cases of *sapakṣa*.

Matilal represents them in the following table and in the given table the sign '+' stands for 'all', the sign '±' stands for 'some', and the sign '−' stands for 'none' [7, p. 8].

1	2	3
+ *vipakṣa* + *sapakṣa*	- *vipakṣa* + *sapakṣa*	± *vipakṣa* + *sapakṣa*
4. + *vipakṣa* – *sapakṣa*	5. – *vipakṣa* – *sapakṣa*	6. ± *vipakṣa* – *sapakṣa*
7. + *vipakṣa* ± *sapakṣa*	8. – *vipakṣa* ± *sapakṣa*	9. ± *vipakṣa* ± *sapakṣa*

There are nine possible cases. But none other than the serial numbers 2 and 8 can satisfy the three necessary conditions for a *good reason* (sign), and the conjunction of these three necessary conditions constitutes a sufficient condition. When the reason is a *pseudo-reason*, we cannot have a sound inference. This is certainly an improvement in the development of Buddhist logic in India [7, p. 8].

There are nine possible cases in Diṅnāga's *hetucakra* (*circle of probans*) and this theory of three forms of sign is technically tied up with his theory of meaning "exclusion" (*apoha*). The word 'logic' may be used here to mean that 'a sign is the sufficient logical assurance about the correctness of the resulting inference' [7, p. 7]. Another work of Diṅnāga titled *Nyāyapraveśa* is also important to begin one's study of Diṅnāga. But for the application of his logic or inference we are to look into *Pramāṇasamuccaya*, the celebrated work on Epistemology.

According to J. M. Bocheński [4, p. 13], in two cultural spheres logic has been developed rigorously – Western cultural sphere where logic followed mathematical model and Indian cultural sphere where logic followed linguistic model – and thereby in India it gives the foundation of epistemology and the development of philosophy of language [2, p. 35]. In Indian cultural sphere again, there are two dominant varieties – one developed by the Nyāya School, which often comprises non-artificial language or clarifications of natural language with various concepts. Their use of logic is based on the assumption of two exclusive ontological categories – positive and negative (*bhāva* and *abhāva*). Their description of the world is based on 'relation as real.' Like Naïve realists of the West, they assume certain conceptual categories. On the other hand, the Buddhist philosophers have tried to develop a *modal* view of Reality and thereby they are interested in analysing the actual state of affairs. There is nothing called substance, everything is in the state of modes. Therefore, consideration of modality and context is understood here in a dialectical process of reasoning. The success of a philosophical claim depends upon the highest possible explanation it can give considering the context. Their interest lies in pragmatism.

I shall now elaborate the arguments of Dharmakīrti for the development of the Buddhist Logic by way of criticizing the position of Naiyāyika Gautama.

5. Dharmakīrti's Critique of the Nyāya View of Inference

Now let us see how Dharmakīrti refutes the Nyāya view, specially the view of early Nyāya. For Dharmakīrti, the Naiyāyikas could not give any cogent argument in favour of their theory of inference. In other words, they fail to explain the ground for admitting uniform concomitance of *hetu* and *sādhya* (*probans* and *prabandum*). If x is to be an invariable mark for y, from the presence of x we can infer the presence of y and if this is admitted then it must also be admitted that both x and y are related by their intrinsic nature [5, p. 16]. Now if x is present while y is absent then presence of x cannot be called a sufficient condition for the presence of y. For y it is an instance of deviation. But non-deviation is the necessary condition of *vyāpti* in accordance with its defining features (*lakṣaṇa*). That is why, Dharmakīrti in his *Nyāyabindu* objects that if x and y are not related by their intrinsic nature, then we are to admit that 'x deviates from y.'

According to Dharmakīrti, two conditions namely, causal relation, and identity of essence are individually necessary conditions but conjointly sufficient condition for the non-defective defining features or the *lakṣaṇa* of being a relation by intrinsic nature [11, p. 16]. For Dharmakīrti,

causal relation and identity of essence are two possible relations. Suppose, there is no necessary tie between A and B; in that case, we cannot say that A is invariably concomitant of B. This amounts to say that A is not necessarily identifying stamp of B ("tad-apratibanddhasya tadavyabhicāra-niyamābhāvāt") [5].

Let us now see the development of the debate between Nyāya scholars and Dharmakīrti. For the former, there is no necessity to say here that h and s are universally tied up. But for Dharmakīrti, h and s are related universally and this is a necessary relation. It does not amount to say that all inferences admitted by the Nyāya are unsound – *"kārya- kāraṇa-bhāvād-vā svabhāvād- vā-niyāmakāt avinā-bhāva-niyamo'darśanān na, darśanāt"* [6]. Let us take an example. Suppose x is endowed with a particular taste say y, since x is endowed with a particular color called z. Here x stands for the *āśraya*, locus, y is the *liṅgī*, the probandum and z is the *liṅga*, the probans. The concomitance is of the form: for anything x if x has z then x has y. Now we cannot say that z and y are causally related. We cannot also say that there is the relation of essential identity between the two. This does not mean the unsoundness of this inference. Dharmakīrti only shows that both y and z are co-effects of x [3, p. 17]. Let us now see how it is explained by Dharmakīrti. About essential identity Dharmakīrti says that such a relation holds between a genus and a species, and "even between a genus and a member of the genus"(*rūpādināpi hi rasādder-avinābhāvo na svataḥ kintu svakāraṇāvyabhicāradvāraka iti tatkāraṇotpattirevāvinābhāvanibandhanam*) [5].

It may be noted that according to Diṅnāga, there are two types of inference for one's own understanding (*svārthānumāna*) and for 'others' understanding (*parārthānumāna*). The issues concerning epistemology and psychology apart from logic are the primary concern of the first one and the issues concerning 'demonstration' or evidence in the process of language use in order to convince others is the primary concern of the second.

The first is grounded on the intrinsic nature (*svabhāva*) of the *liṅga* (probans) and the second is based on the *liṅga* (probans) which is causally connected to 'the property to be confirmed (*tad-utpatti*) [3, p. 18] In addition to these two types of inference Dharmakīrti deals with another type of inference in the *Nyāya-bindu* which 'shows that some property is not present in the given locus' (*anupalabdhi*) [16, p. 109]. As an example of the third type of inference we may say that because no book is apprehended (*anupalabdha*) upon this table now, there is no book upon the table in question. This type of inference is a development upon the earlier types conceived by Diṅnāga and Matilal praised it as 'more useful' [3, 18].

It is often argued that 'This is a tree, since this is a *siṁśapā*. Here 'this' is the locus, being a tree is the *liṅgī* or *sādhya*, and the *liṅga* or *hetu* is *siṁśapā*. Now 'being a tree' is the *viśeṣaṇa* (adjective) of the genus (*jāti*) and 'being a *siṁśapā* is the *viśeṣaṇa* of the species of the tree. 'Tree' is a class say, 'Y' and under this class *siṁśapā* is a species or sub-class. X cannot belong to *siṁśapā* species if it does not belong to the class of tree, Y. In this sense there exists a necessity of the relation of identity between X and Y. But question arises: How a Nyāya philosopher would view this version of inference proposed by Dharmakīrti?

Here a Nyāya philosopher would argue that 'This is a *siṁśapā*, since it is a tree'. Here 'this' is the locus, *pakṣa*, and 'being a *siṁśapā* is the *liṅgī* or *sādhya*, and 'being this tree' is the *liṅga, hetu* (probans). For a Nyāya philosopher, this 'tree-ness' is *viśeṣaṇa* and this is also the *svarūpa*, the very nature of this tree. Here Dharmakīrti would also say that 'being a *siṁśapā* 'tree-ness' is the *svabhāva* of not only of this tree but of all *siṁśapā* tree' [3, p. 18] and we cannot ignore, according to Dharmakīrti, the essential identity of all *siṁśapā*-s and trees, a relation that necessarily holds between species and a genus.

Here the Nyāya philosopher differs from Dharmakīrti. For him, the word *svarūpa* stands for 'own nature of a thing'. Dharmakīrti makes a difference between something as it is, and that thing as it is known. This may indirectly inspire the later Nyāya philosophers to develop a very important concept called '*avacchedaka*', the distinguisher. The Nyāya philosophers have given emphasis on the importance of the law of universal concomitance between prabans (*hetu*) and prabandum (*sādhya*) whereas the Buddhist philosophers have given emphasis on the importance of prabans

(*hetu*) in their respective theories of *anumāna* (inference). In other words, the Nyāya view is *vyàpti-centric* whereas the Buddhist view is *hetu-centric*.

6. Concluding Remarks

However, it is interesting to see how this development of logic differs because of difference in ontological presuppositions. Accordingly, we see difference among philosophers of the same school in broad sense. Though both Nāgārjuna and Dharmakīrti belong to Buddhist School of Philosophy, they differ in their ontological positions. For Nāgārjuna, everything is devoid of intrinsic nature (*niḥsvabhāva*). Nāgārjuna's dialectics (*prasaṅga*) as a method of de-conditioning might be a distant precursor of Derrida's method of 'Deconstruction' which functions through a sense of 'defference' (i.e. a peculiar combination of 'differ' and 'deffer'). Never the less, Dharmakīrti holds that a real thing has *svalakṣaṇa* and even the concomitant invariable relation for inference is grounded on the intrinsic nature of the things related by it. Both Nāgārjuna and Dharmakīrti influenced the development of Indian Logic in two different directions [3, p. 18]. For the Nyāya, the main focus is on the notion of universal concomitance (*liṅga-liṅgī-saṁbandha*) for the ancient school and *vyāpti-saṁbandha* for the new school of the Nyāya philosophy). But for the Buddhists, especially for Diṅnāga and Dharmakīrti, it is the nature and role of reason, probans, *hetu* that occupies the central position in their epistemic logic and this has immense influence in understanding language and meaning in the writings of Jinendrabuddhi (8th Century A.D) and Ratnakīrti (10th Century A.D). In his *Mahāvaiyākaraṇa-kārikā-vivaraṇa-pañjikā* Jinendrabuddhi refers to Diṅnāga's *Pramāṇasamuccaya* and says that a word becomes meaningful only with comparison and recognizing a difference and therefore only by positive or negative description by itself is not enough to be understood. Binary opposition of affirmation and negation works together in understanding the meaning of a word. Language does not create meaning of any object; rather the chief concern of language is to uncover the meaning of object. When I say 'human being' to uncover its meaning I want to mean that since human being is not a tree, not a hill, not a river, not a cow, so I want to mean by human being by using the word 'human being'; here it works through a comparative process of 'acceptance-rejection'. Any word in order to be meaningful presupposes it's opposite, negative word and therefore any claim of universality regarding the meaning of a word is subject to doubt. So from the analysis of reason, *hetu* there is a gradual development of Buddhist epistemic logic to philosophy of language which is expressed in the use of signifier-signified-relation. This might remind us Ferdinand de Saussure's Semiology. We know that Th. Stcherbatsky's two volumes of *Buddhist Logic* were published in 1930. There might be a possibility of looking at this work by the 20th century French thinkers.

The contribution of Buddhist epistemological logic to the arena 'Semiology' is yet to be explored. Th Stcherbatsky in his *Buddhist Logic* (volume 2) has devoted a substantial portion in Appendix IV to Jinendrabuddhi [13, pp. 384 – 400]. And Sign = signifier-signified relation, according to Jinendrabuddhi, is not universal, not permanent but 'context-bound'. The relation between signifier and language is not a necessary universal relation as there is universal necessary relation between a creeper (*latā*) and its leaf (*patra*). Analysis of this kind of development in Buddhist Logic from Diṅnāga to Jinendrabuddhi deserves another full paper. May I leave that excursion for another such occasion?

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