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UNIVERSITY OF NORTH BENGAL

MASTER OF ARTS-PHILOSOPHY

SEMESTER-II

INDIAN LOGIC

CORE-202

BLOCK-2

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FOREWORD

The Self Learning Material (SLM) is written with the aim of providing simple and organized study content to all the learners. The SLMs are prepared on the framework of being mutually cohesive, internally consistent and structured as per the university's syllabi. It is a humble attempt to give glimpses of the various approaches and dimensions to the topic of study and to kindle the learner's interest to the subject

We have tried to put together information from various sources into this book that has been written in an engaging style with interesting and relevant examples. It introduces you to the insights of subject concepts and theories and presents them in a way that is easy to understand and comprehend.

We always believe in continuous improvement and would periodically update the content in the very interest of the learners. It may be added that despite enormous efforts and coordination, there is every possibility for some omission or inadequacy in few areas or topics, which would definitely be rectified in future.

We hope you enjoy learning from this book and the experience truly enrich your learning and help you to advance in your career and future endeavours.



INDIAN LOGIC

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8.0 OBJECTIVES

- Learn the process of anumana
- Nyaya view
- Buddhist view

8.1 INTRODUCTION

Logic is developed in classical India within the traditions of epistemology. Inference is a second knowledge source, a means whereby we can know things not immediately evident through perception. Oetke (2004) finds three

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roots to the earliest concerns with logic in India: (1) common-sense inference, (2) establishment of doctrines in the frame of scientific treatises (*śāstra*), and (3) justification of tenets in a debate. The three of these come together (though the latter two are predominant) within the epistemological traditions in an almost universal regard of inference as a knowledge source.

Seeing classical Indian logic as part of epistemology, as explaining how we know facts through the mediation of our knowledge of other facts, makes it easy to understand why both the Buddhist and Vedic schools count a valid but unsound argument as fallacious: knowledge is not generated. Classical Indian philosophers are not focused on logic per se, but rather on a psychological process whereby we come to know things indirectly, by way of a sign, *hetu* or *liṅga*, an indication of something currently beyond the range of the senses, whether at a distance spatially or temporally or of a sort (such as atoms or God or the Buddha mind) that by nature cannot be directly perceived.

The two greatest names for classical Indian logic belong to logicians of the Buddhist Yogācāra school, Dignāga (sixth century) and Dharmakīrti (early seventh century). Dignāga laid out all the possible relationships of inclusion and exclusion for the extensions of two terms called the prover or “sign,” *hetu*, and the probandum, *sādhya*, the property “to be proved.” Thereby he revealed the underpinnings of the *pramāṇa* of inference in terms of sets of particulars, which, according to Yogācāra ontology, are the only reals. Dharmakīrti classified inferences based on the ontological nature of the class-inclusion relationship that underpins all inference as a knowledge source. Earlier philosophers, both Buddhist and non-Buddhist, provide examples of everyday reasoning, several of which are abductive in character, informal reasoning to the best explanation, from sight of a swollen river, for example, says Vātsyāyana in his commentary on the inference sūtra (1.1.5) of the *Nyāya-sūtra*, to the conclusion that it has rained upstream. But there are also instances of inferences comprised of deductive, extrapolative, and sometimes properly inductive reasoning on topics of everyday life as well as

philosophy in numerous pre-Dignāga texts of several schools. It is not true, as is sometimes claimed, that no one before Dignāga had the notion of an inference-underpinning “pervasion,” *vyāpti*, of a prover property by a property to be proved. Dignāga does however get the credit for the earliest systematization, which employs three terms, a site or subject of a proposed inference (*pakṣa*, the mountain in the stock example of an inference from sight of smoke on a mountain to knowledge of fire on the mountain), the prover or prover property (*hetu*, smokiness), and the probandum (*sādhya*, fieriness).

Dignāga, it should be stressed, as a nominalist sees inference as proceeding from knowledge of particulars to other knowledge of particulars (avoiding the universals of the realists, as nicely explained by Hayes 1988 with reference to the Buddhist *apoha*, “exclusion,” theory of concepts). Dignāga formulates a threefold test for a good prover, *trairūpya-hetu*:

- A. the prover’s occurrence on the inferential subject of a proposed inference must be known to the subject S
- B. the prover’s occurrence at least once together with the probandum must be known to S
- C. no counter-case of a prover occurring without the probandum must be known to S.

Uddyotakara in his *Nyāya-sūtra* commentary incorporates Dignāga’s ideas to formalize many of Vātsyāyana’s informal inferences. The Nyāya philosopher owes almost everything to his Buddhist adversaries, as opposed to his Nyāya predecessors, but he does criticize and alter what he sees as the certification conditions of inference as a knowledge source, combining Dignāga’s second and third tests into a single requirement, knowledge of pervasion. He also adds a third condition, the subject’s having to “reflect” and put the information together, so to say:

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1. *pakṣa-dharmatā*: the prover has to be known to S as qualifying the inferential subject
2. *vyāpti-smaraṇa*: the prover's being pervaded by the probandum has to be remembered by S
3. *liṅga-parāmarśa*: S must connect by reflection the pervasion with the inferential subject.

The upshot of the addition may be interpreted as the recognition that knowledge is not closed under deduction considered in abstraction from the psychological process of “reflection.” But through that process, epistemic warrant—or “certainty,” *niścaya*—passes from premises to conclusion, and we act unhesitatingly, for example, to put a fire on yonder mountain out.

Things are yet more complicated. Inferential knowledge is defeasible, or, more precisely stated, what a subject takes to be inferential knowledge may turn out to be pseudo, non-genuine, a false cognition imitating a true one, or even in Gettier-style cases an accidentally true cognition masquerading as one genuinely inference-born. Knowledge has a social dimension. Not only would awareness of a counterexample be a defeater, but also if someone were to present a counter inference to a conclusion opposed to ours, no longer would we have inferential knowledge. Awareness of any of several kinds of “blocker” of “reflection” can undermine the generalization on which such reflection depends. There are potential preventers of inferential awareness, “defeaters,” *bādhaka*, leading to belief relinquishment by someone who has hitherto not noticed a counterexample or the like and who has thus drawn a conclusion erroneously.

However, one should not think that the epistemologists' inference is non-monotonic, as established by Taber (2004) against Oetke (1996) in particular. The paradigm logical form embedded in a good inference is monotonic. New information is irrelevant to the validity of the pattern itself, although it may well be relevant to a subject's justification for acceptance of the premises. Examples of inferences in classical texts often seem non-

monotonic because fallibility attaches to the premises. Such fallibility of course passes to the conclusion, too.

Targeting the relationship of pervasion in Uddyotakara's second condition, *vyāpti-smaraṇa*, which appears to be the ontological underpinning of Dignāga's conditions (2) and (3), Dharmakīrti divides inferences into three kinds:

- *sva-bhāva* (self-nature: "It's a tree because it's a *śiṃśapā* oak")
- *tad-utpatti* (causality: "Fire is there because smoke is there")
- *anupalabdhi* (non-perception: "There is no pot here because none is perceived").

Yogācāra holds that with the first type of inference the underpinning pervasion is "internal" (*antar-vyāpti*). We may think of this as an internal relation between concepts and thus as similar to the *a priori* of Western philosophy. But it is actually a technical point about whether the term that picks out the inferential subject or subjects—think of the *pakṣa* as a set—closes it off from being included in the inductive base of the generalization (or extrapolation, according to Ganeri 2001b) that gives us knowledge of a pervasion relationship. Mīmāṃsā and Nyāya rule out this kind of inference as begging the question: we want to know whether the inferential subject possesses the probandum property and so to cite that subject itself, even a part of it, runs counter to the very purpose of inference.

Later Nyāya divides inferences not according to the ontology of pervasion (which is mapped onto the Nyāya-Vaiśeṣika ontology and causal theory, sometimes not very successfully) but rather by the way a pervasion is known:

- *anvaya-vyatireka* ("positive and negative"): inferences based on positive and negative correlations where both are available, i.e., cases where, for example, smokiness and fieriness have been known to occur together, kitchen hearths, campfires, etc., like (it is claimed) yonder smoky

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mountain where being-fiery is to be proved, taken along with negative examples where the prover as well as the probandum is known not to occur

- *kevala-anvaya* (“positive only”): inferences based on positive correlations only, where there are no known examples of an absence of the probandum property, such as would have to be the case with the universally present property, knowability (there is nothing that is not knowable)
- *kevala-vyatireka* (“negative only”): inferences based on negative correlations only where outside of the inferential subject there are no known cases of the probandum.

Many of the inferences that Buddhists identify as hinging on an “internal pervasion” (*antar-vyāpti*) Nyāya philosophers see as “negative only” (*kevala-vyatireka*). Taking a particular *śiṃśapā* oak as the *pakṣa*, we have the negative correlation proving it is a tree: whatever is not a tree, is not *aśiṃśapā* oak, for example, a lotus.

Western interpretations and representations of inference as classically conceived have often missed its unity as a knowledge source. Ganeri (2001b: 20) claims that it is better to understand both the Buddhist and early Nyāya patterns as “not enthymematic,” not skipping a step of generalization and then implicitly using universal instantiation (UI) and modus ponens (MP) in applying the rule to a case at hand. Case-based reasoning need not be interpreted as relying on universal quantifiers, and the representation of Schayer (1933) and others which uses them is misleading. Theirs is indeed misleading, and Ganeri appears to be right with regard to the early theories. But with late Nyāya Schayer’s argument form of UI and MP misleads for yet another reason, namely, failing to be sufficiently sensitive to the logic of occurrence and non-occurrence of properties at a location, or qualifying a property-bearer, as Staal (1973) and others have brought out. Furthermore, Ganeri is right that in analyzing the pattern one tends to miss the unity of the

causal theory that has one mental state brought about by another. In the Nyāya theory, everything is integrated in the notion of “reflection,” *parāmarśa*, as an inference’s proximate instrumental cause or “trigger,” *karāṇa*. While not the only necessary condition, this one is the last in place, securing the occurrence of inferential knowledge.

Following Matilal (1998), we can reconstruct such “reflection” as a singular inference:

$$(K)(S^pHa) \rightarrow (K)Sa$$

This says that on the condition that a subject knows that H-as-qualified-by-being-pervaded-by-S qualifies *a*, then the subject knows that *Sa*. The arrow should be interpreted as depicting causal sufficiency, in line with Uddyotakara and the later tradition. “Reflection” is a complex mental state that is nevertheless a unity, both as a particular cognition that can be a causal factor for the rise of another cognition and as having intentionality, or “objecthood,” expressible in a single sentence. Attempts to find a single rule are in consonance with both of these dimensions of the theory. But a lot of inductive depth is packed into the idea of a pervasion being known, and a lot about it is said that shows that there is generalization, at least in the later Nyāya theory. Knowing a general rule is considered crucial, not just extrapolation to a next case. From Uddyotakara on, Nyāya philosophers treat pervasion as the equivalent of a rule stating that—to use the language of sets and terms—the extension of the probandum term includes that of the prover term, includes it entirely such that there is nothing that locates the pervaded property (the prover) that does not also locate the pervader (the probandum), as argued by Kisor Chakrabarti (1995) among others.

The central most issue with inference, to consider the effort of late Nyāya philosophers, is to make plain the logic of pervasion as well as how we know the universalized items, or entire extensions, of the terms figuring in our knowledge of such rules, the items that underpin our knowledge of such inclusions, such naturally necessary pervasions of a prover by a probandum

property. Lots of work from the earliest focuses on fallacies and inference in the context of formal debate. And there are many philosophical inferences advanced in the literatures of the various schools, such as proofs of momentariness, the existence of God, the possibility of liberation from birth and rebirth, and dozens more.

8.2 SVARTHA AND PARARTHA INFERENCES

In Indian logic an inference is a combined deductive inductive reasoning consisting of at least three categorical propositions. All inferences are thus pure syllogisms of the categorical type which are at once formally and materially valid. Hence we have not a classification of inferences into deductive and inductive, immediate and mediate, syllogistic and non-syllogistic, pure and mixed. The Naiyayikas give us three different classifications of inference. According to the first, inference is of two kinds, namely, svartha and parartha. This is a psychological classification which has in view the use or purpose which an inference serves. According to another classification, inference is said to be of three kinds, namely, purvavat, sesavat and samanyatodrsta. This classification has reference to the nature of the vyapti or the universal relation between the middle and major terms of inference. Purvavat and sesavat inferences are based on causal uniformity, while samanyatodrsta is based on non-causal uniformity. According to a third classification, inference is distinguished into kevalanvayi, kevalayatireki and anvaya-vyatireki. This classification is more logical inasmuch as it depends on the nature of the induction by which we get the knowledge of vyapti or the universal proposition involved in inference. These different kinds of inference we shall have to consider one after another.

All inferences must have one of two ends in view. They are meant either for the acquisition of some new knowledge on our part or for the demonstration of a known truth to others. Accordingly, all inferences are classed under the

two heads of svartha or inference for oneself and parartha or inference for others. ' An inference is called svartha when it aims at the knowledge of an unperceived object on the part of a man who employs that inference. In this kind of inference a man seeks only to reach the conclusion for himself by relating it to the major and minor premises. This is illustrated in the case of a man who infers the existence of fire in a hill because he first perceives a mass of smoke in it and then remembers that there is a universal relation between smoke and fire. On the other hand, an inference is parartha when it aims at demonstrating the truth of the conclusion to other people. In this inference there is a justification of the conclusion through a justification of the middle term that leads to it. It is here specifically pointed out that the same middle term which is universally related to the major is also present in the minor term. The conclusion is thus found to follow necessarily from a synthesis of the major and minor premises. This synthesis is embodied in a third premise which relates the minor, middle and major terms of the inference. A parartha anumna is illustrated when a man having inferred the existence of fire in a hill lays it down as a thesis and proves it as a conclusion following from the major and minor premises and their combination into a third premise.

8.3 PURVAVAT, SESAVAT AND SAMANYATODRSTA INFERENCES

In the Nyaya-Sutra inference is distinguished into three kinds, namely, purvavat, sesavat and samanyatodrsta. There are different views with regard to the nature of these inferences. According to one view, a purvavat inference is that in which we infer the unperceived effect from a perceived cause. Here the linga or the middle term is related to the sadhya or the major term as its cause and is, therefore, antecedent to it. In this inference we pass from the knowledge of the antecedent cause to that of the consequent effect. This is illustrated when from the presence of dark heavy clouds in the sky we infer that there will be rainfall. A sesavat inference is that in which we

infer the unperceived cause from a perceived effect. Here the middle term is related as an effect to the major term and is, therefore, consequent to it. In this inference we pass from the knowledge of the effect-phenomenon to that of the antecedent causal phenomenon. This is illustrated in the inference of previous rain from the rise of the water in the river and its swift muddy current. It will be observed here that in both purvavat and sesavat inferences the vyapti or the universal relation between the major and middle terms is a uniform relation of causality between them. These inferences thus depend on scientific inductions. In samanyatodrsta inference, however, the vyapti or the universal

relation between the major and middle terms does not depend on a causal uniformity. The middle term of the inference is related to the major term neither as a cause nor as an effect. We infer the one from the other, not because they are causally connected, but because they are uniformly related to each other in our experience. This is illustrated when one infers that the sun moves because, like other moving objects, its position changes, or, when we argue that a thing must have some attributes because it is like a substance. Here the inference depends not on a causal connection, but on certain observed points of similarity between different objects of experience. So it is more akin to an analogical argument than to syllogistic inference.

According to a second interpretation, a purvavat inference is that which is based on previous experience. If two things have always been found to be related in the past, then from the perception of the one we infer the existence of the other, as when we infer fire from smoke. Similarly, a sesavat inference is taken to mean inference by elimination, in which the inferred character is the residuum of a process of elimination which excludes other characters. This is illustrated when one argues that sound must be a quality because it cannot be a substance or an activity or a relation and so on. So also samanyatodrsta inference is explained as that in which we do not perceive the relation between the major and middle terms, but find the middle to be similar to objects which are related to the major term. This is illustrated when one argues that the soul-substance exists because the quality

of consciousness must like other qualities, inhere in a substance. According to a third view these three kinds of inferences may be taken to mean kevalanvayi, kevala-vyatireki and anvaya-vyatireki inferences which we are to consider next.

1. Check your Progress

1. Types of Anuman

8.4 KEVALANVAYI, KEVALA-VYATIREKI AND ANVAYA-VYATIREKI INFERENCE

In view of the different methods of establishing vyapti or a universal relation between the major and middle terms, inferences have been classified into the kevalanvayi, the kevala-vyatireki and the anvaya-vyatireki. An inference is called kevalanvayi when it is based on a middle term which is always positively related to the major term. Here the knowledge of vyapti between the middle and major terms is arrived at only through the method of agreement in presence (anvaya), since there is no negative instance of their agreement in absence. This is illustrated in the following inference:

All knowable objects are nameable;

The pot is a knowable object;

Therefore the pot is nameable.

In this inference the major premise is a universal affirmative proposition in which the predicate 'nameable' is affirmed of all knowable objects. This universal proposition is arrived at by simple enumeration of the positive instances of agreement in presence between the knowable and the nameable. Corresponding to this universal affirmative proposition we cannot have a real universal negative proposition like 'No unnameable object is knowable,' for we cannot point to or name anything that is unnameable. The minor

premise and the conclusion of this inference are also universal affirmative propositions and cannot be otherwise. Hence with regard to its logical form the kevalanvayi inference is a syllogism of the first mood of the first figure, technically called Barbara.

A kevala-vyatireki inference is that in which the middle term is negatively related to the major term. It depends on a vyapti or a universal relation between the absence of the major term and that of the middle term. Accordingly, the knowledge of vyapti is here arrived at only through the method of agreement in absence (vyatireka), since there is no positive instance of agreement in presence between the middle and major terms excepting the minor term. This may be illustrated by the following inferences:

- (1) No non-soul is animate; All living beings are animate;
Therefore, all living beings have souls.
- (2) What is not different from the other elements has no smell;
The earth has smell;
Therefore, the earth is different from the other elements.

Symbolically put the inferences stand thus:

No not-P is M;

S is M;

Therefore, S is P.

In the second inference above, it will be seen, the middle term 'smell' is the differentia of the minor term 'earth.' An inference which is thus based on the differentia (laksana) as the middle term is also called kevala-vyatireki. In it the minor term is co-extensive with the middle. Hence we have no positive instance of the coexistence of the middle with any term but the minor. So there can be vyapti or a universal relation only between the absence of the middle and the absence of the major term. We cannot point to any positive instance of agreement in presence between the major and middle terms, except those covered by the minor term. Hence the major premise is a universal negative proposition arrived at by simple enumeration of negative instances of agreement in absence between the major and middle terms. The

minor premise is a universal affirmative proposition. But although one of the premises is negative, the conclusion is affirmative, which is against the general syllogistic rules of Formal Logic. Hence we see that kevala-vyatireki inference is not any of the valid moods of syllogism recognised by Formal Logic. The validity of such inferences, however, has been admitted by Bradley as a special case of negative reasoning.

An inference is called anvaya-vyatireki when its middle term is both positively and negatively related to the major term. In it there is vyapti or a universal relation between the presence of the middle and the presence of the major term as well as between the absence of the major and the absence of the middle term. The knowledge of the vyapti or the universal proposition, on which the inference depends, is arrived at through the joint method of agreement in presence and in absence (anvaya and vyalireka). The vyapti or the universal proposition is affirmative (anvayi) when it is the result of an enumeration of positive instances of agreement in presence between the middle and major terms. It is negative (vyatireki) when it is based on the simple enumeration of negative instances of agreement in absence between the middle and major terms. The difference between the universal affirmative and universal negative propositions (anvaya-vyapti and vyatireka-vyapti) is that the subject of the affirmative proposition becomes the predicate, and the contradictory of the predicate of the affirmative proposition becomes the subject in the corresponding negative proposition. Hence an anvaya-vyatireki inference may be based on either a universal affirmative or a universal negative proposition as its major premise. It is illustrated in the following pair of inferences:

- (1) All cases of smoke are cases of fire; The hill is a case of smoke;
Therefore, the hill is a case of fire,
- (2) No case of not-fire is a case of smoke; The hill is a case of smoke;
Therefore, the hill is a case of fire.

The Vedantists do not recognise the above classification of inference into kevalanvayi, kevala-vyatireki and anvayavyatireki. According to them, inference is logically of one kind, namely, anvayi. An inference must be

based on vyapti or the universal relation between the middle and major terms. The knowledge of vyapti is arrived at through the observation of agreement in presence between the middle and major terms with the non-observation of any contrary instance. Hence for the Vedantists, both the premises as also the conclusion of an inference must be universal affirmative propositions. That is, all inferences must be in the technical form of Barbara. But there cannot be any kevalanvayi in the sense of an inference in which the major term is a character that is not anywhere non-existent. In kevalanvayi the middle term is only positively related to the major term, since there is no case of their absence. This, however, is not true. The whole system of finite categories being transcended and negated in Brahman or the Absolute, we cannot have any term which is never non-existent. As for the Nyaya view of vyatireki, the Vedantists contend that as a reasoning based on a universal negative proposition it is not to be regarded as an inference, but as arthapatti or postulation. An inference is a knowledge of the major term through that of the middle term. This knowledge is based on the vyapti or the universal relation between the presence of the middle and the presence of the major term. When one infers fire from smoke he depends on the knowledge of vyapti,

not between the absence of fire and the absence of smoke, but between the presence of smoke and the presence of fire. There being no such thing as vyatireki inference, we cannot admit the possibility of anvaya-vyatireki inference which is but a synthesis of the anvayi and vyatireki forms of inference. According to the Naiyayikas, however, arthapatti is not a separate method of knowledge, but a form of inference. We shall have to consider this question more fully hereafter.

2. Check your Progress

1. Types of Vyapti

8.5. THE LOGICAL FORM OF INFERENCE

All the systems of Indian philosophy agree in holding that the syllogism represents the typical form of an inferential reasoning. In inference we arrive at a truth through the medium of some other truths. Like the conclusion of a syllogism, inferential knowledge is a deduction from certain propositions. There is however some controversy among the different systems as to the number of the constituent parts or propositions entering into an inference (avayava).

According to some old Naiyayikas, there are ten members or constituent parts of an inference. These are (1) *jijnasa* or the desire to know the truth, (2) *samsaya* or doubt about the real nature of a thing, (3) *sakyaprapti* or the capacity of the *pramanas* to lead to true knowledge, (4) *prayojana* or the purpose of making an inference, (5) *samsaya-vyudusa* or the removal of all doubts about the truth of an inference, (6) *pratijna* or the first proposition, (7) *hetu* or the reason, (8) *udaharana* or the example, (9) *upanaya* or the application of the example, and (10) *nigamana* or the final conclusion.

The above view of the syllogism as consisting of ten parts or members (*dasavayava*) has been criticised and rejected by the later Naiyayikas, from *Vatsyayana* downwards. According to them, the first five factors, mentioned above, are unnecessary for proving anything by means of an inference. They represent not so much the logical steps in drawing a conclusion as the psychological or epistemological conditions involved in inference. Thus the desire to know (*jijnasa*) may be taken as a condition of all knowledge, by which we want to realise some end. But such desire does not prove anything to any person and cannot, therefore, be regarded as a factor of inferential reasoning. Similarly, doubt is the impetus to a desire to know the truth and is, in this sense, a condition of knowledge. But to doubt is not to prove anything. The validity of all knowledge depends on the validity of the methods of knowledge (*Sakyaprapti*). But the validity of the methods cannot be put forward as a part of the argument to prove a conclusion. So also the purpose or the end, which an inference serves, is no part of the inference

itself. The removal of doubt (*samsaya-vyudasa*) consists in repudiating all views which contradict the conclusion of an inference. This serves to lend indirect support to the conclusion, but does not really prove it. Hence it has been held by the Naiyayikas that the syllogism consists of the last five members mentioned above, since they are all necessary for proving or demonstrating a truth. The Samkhya and Vaisesika systems also accept this view of the syllogism as consisting of five members or propositions. The five members of the syllogism have been explained by the Naiyayikas as follows.

- (1) The first member of the syllogism is called the *pratijna* or the *propositum*. It is just a statement of one's position and consists in the assertion of some unperceived quality or character in relation to some object of experience. The assertion may be affirmative or negative. Hence in the *pratijna* certain predicate is either affirmed or denied of a certain subject, e.g. 'the hill is fiery,' or 'sound is not eternal.' The *pratijna* includes a subject (*paksa*) and a predicate (*sadhya*), but no copula or verb to relate the two, e.g. 'panato vahnimdn.' It thus corresponds to a proposition without any copula. It is to be proved and established by other propositions in the course of the inference. The *pratijna* simply tells us what the subject of the inference is and what we want to infer or prove with regard to it.
- (2) The second member of the syllogism is called the *hetu* or the reason. It consists in the statement of the mark or the sign (*linga*) which being present in the subject or the minor term suggests that the latter possesses a certain property predicated of it. It is the assertion of the middle term by which we know that the *paksa* or the minor term is or is not related to the *sadhya* or the major term. It may thus be called the middle premise or the middle proposition of the syllogism. But while the *pratijna* is a proposition of two terms, the *hetu* is a one-term proposition. Thus for the *propositum* 'the hill is fiery,' the *hetu* or the middle proposition is 'dhumat,' i.e. 'because of smoke.'

- (3) The third member of the syllogism is called udaharana or the example. It consists in the assertion of a universal relation (vyapti) between the major and middle terms with reference to some apposite instances. The hetu or the middle term proves the presence or the absence of the major in the minor only as it is connected with the minor, on the one hand, and universally related to the major, on the other. Hence the universal relation between the major and middle terms must be duly asserted as an essential member of the syllogism. This assertion is a universal proposition which may be either affirmative or negative. It is a universal affirmative proposition when it indicates the agreement in presence between the major and middle terms as supported by a positive instance, e.g, 'all cases of smoke are cases of fire, to wit, the kitchen.' It takes the form of a universal negative proposition when it shows the agreement in absence between the two, as supported by a negative instance, e.g. 'no case of not-fire is a case of smoke, to wit, the lake.' The third member of the Nyaya inference thus corresponds to the major premise of the syllogisms in the first figure. As a universal proposition supported by certain instances, the third member of the syllogism is found to be an inductive generalisation based on actual facts of observation. It thus shows that an inference is both deductive and inductive, formally valid and materially true. As Dr. Seal rightly observes: 'It harmonises Mill's view of the major premise as a brief memorandum of like instances already observed, with the Aristotelian view of it as the universal proposition which is the formal ground of the inference.'
- (4) The fourth member of the syllogism is called upanaya or the application. It consists in the application of the universal proposition with its example to the subject or the minor term of the inference. While the third member of the syllogism states the universal relation between the major and middle terms, or between their absence, the fourth member shows the presence or the absence of the middle in

the minor term. It may thus be called the minor premise of the syllogism, and may be a universal affirmative or negative proposition. It is affirmative when it is the application of an affirmative major premise with a positive instance, e.g. 'so, like the kitchen, the hill is smoky.' It is a negative proposition when it is the application of a negative major premise with a negative instance, e.g. 'unlike the lake, the hill is not not-smoky, i.e. it is smoky.' The fourth member of the syllogism is not merely a repetition of the second or the middle proposition. It brings out the identity between the middle term mentioned in the second member and that which is stated to be universally related to the major in the third member of the syllogism. As such, it is a synthesis of the second and third members of the syllogism. It shows that the same middle which is universally related to the major term is also present in the minor term, and is, therefore, very useful for the purpose of proof.

- (5) The fifth and the last member of the syllogism is called nigamana or the conclusion. Here the preceding four steps are brought to a point so as to demonstrate the truth of the first proposition, with which the inference starts. It consists in the re-statement of the pratijna or the propositum as proved by the major and minor promises, e.g. 'therefore the hill is fiery.' It should not be supposed that the conclusion is an unmeaning repetition of the first proposition. What is at first put forward as a hypothesis or bare assertion is asserted in the conclusion as a firmly established truth. What appears in the first proposition as a judgment to be proved, does indeed re-appear in the conclusion, but as something proved and demonstrated by other propositions. The logical form of an inference or the syllogism, according to the Naiyayikas, may be illustrated in the following ways:

- (1) S is P;
S is M;
M is P;

S is M;

S is P.

Or,

The hill is fiery;

Because it smokes;

Whatever smokes is fiery, e.g. the kitchen;

So the hill smokes;

Therefore it is fiery.

(2) S is P;

S is M;

No not-P is M;

S is not not-M;

S is P.

Or, The hill is fiery;

Because it smokes;

Whatever is not-fiery does not smoke, e.g. the lake:

Not so the hill (i.e. the hill does smoke)

Therefore the hill is fiery.

The Mimamsakas and the Vedantists join issue with the Naiyayikas on the question of the parts or members of a syllogism. They agree with the Naiyayikas in holding that the syllogism is necessary only for pararthanumana or demonstrative inference and that svarthanumana or inference for oneself requires no verbal statement in the form of the above syllogism. But they decline to accept the Nyaya view that the syllogism consists of five members or propositions. According to them, a syllogism does not require more than three members to carry conviction to anybody. The two essential conditions of a valid inference are vyapti or a universal relation between the major and middle terms and paksaahannata or the presence of the middle term in the minor. Hence the full force of a syllogism comes out in the body of three affirmative propositions, two of which stand for the grounds of inference and one for the conclusion. These three propositions are either the pratjna, hetu and undaharana, or the undaharana,

upanaya and nigamana. Hence we will have two forms of the syllogism, which may be put thus :

(1) S is P;
S is M;
All M is P.

Or, The bill is fiery;
Because it smokes;
Whatever smokes is fiery, e.g. the kitchen.

(2) All M is P;
B is M;
S is P.

Or, Whatever smokes is fiery, e.g. the kitchen;
The hill smokes;
Therefore it is fiery.

It will be observed here that in the first form of the syllogism given above, the inference starts from the conclusion, and then the premises are stated to justify it. In the second form, the premises are given first and then the conclusion is drawn from them. That inferences may take both forms has been recognised by some modern Western logicians like H. W. B. Joseph, L. S. Stebbing, F. M. Chapman and Paul Henle. But it will be admitted by all that while the second form (in which the premises come first and the conclusion last) has a rigidly formal character, it is the first (in which the conclusion comes first and the premises last) that is ordinarily used by us when we actually infer anything. "In ordinary speech we more often state the conclusion first and then state the premises. This gives emphasis to the conclusion and also aids in showing the direction of our argument." If this be so, then we must say that the Nyaya form of inference, in which the conclusion-to-be-proved comes first and the premises last, is the natural or actual form of reasoning. But it should be remarked that the first proposition cannot be strictly called the conclusion, since a conclusion is what follows from certain grounds or premises. So it seems better to speak of it, like the Naiyayika, as just a pratijna or probandum, i.e. something to be proved. This

proposition stands out as the conclusion when it is seen to follow logically from certain other premises. That there must be two such premises, viz. the major and the minor, all logicians would readily admit. And that there must also be a third premise to synthesize these two seems to be admitted only by a logician like Bradley. It will, however, be admitted by others that there is no logical necessity for any thinker to infer the existence of fire in a hill unless it is shown that the smoke in it is just that real natural smoke which is pervaded by fire. If the smoke in the hill be an illusion, like the mirage, then we cannot conclude that there is fire in the hill, although we may think that there is. So if there is to be no gap in the chain of reasoning that is to establish the conclusion, we are to have a third premise to bring out the identity of the middle term in the preceding two premises. These three premises together with the conclusion and the probandum give us the five-membered form of the Nyaya syllogism which, therefore, seems to be both psychologically correct and more conclusive for demonstration.

8.6 LETS SUM UP

Classical Indian philosophers are not focused on logic per se, but rather on a psychological process whereby we come to know things indirectly, by way of a sign, *hetu* or *liṅga*, an indication of something currently beyond the range of the senses, whether at a distance spatially or temporally or of a sort (such as atoms or God or the Buddha mind) that by nature cannot be directly perceived.

8.7 KEY WORDS

Pratijna, It is just a statement of one's position and consists in the assertion of some unperceived quality or character in relation to some object of experience

Hetu : The second member of the syllogism is called the hetu or the reason. It consists in the statement of the mark or the sign (linga) which being

present in the subject or the minor term suggests that the latter possesses a certain property predicated of it.

Udhaharan, The third member of the syllogism is called udaharana or the example. It consists in the assertion of a universal relation (vyapti) between the major and middle terms with reference to some apposite instances.

Upanaya : The fourth member of the syllogism is called upanaya or the application. It consists in the application of the universal proposition with its example to the subject or the minor term of the inference.

Nigama: The fifth and the last member of the syllogism is called nigamana or the conclusion.

8.7 QUESTIONS FOR REVIEW

1. Explain the types of anumana as explained in Nyaya
2. How is anumana explained in Buddhist Logic
3. What is Jain view on types of anumana

8.8 SUGGESTED READINGS

- *Nyāya-sūtra (Aphorisms on logic)* by Gautama, who is also known as Akṣapāda. Edition: Taranatha and Amarendramohan (eds.) 1936. English translation: Jha 1913. Reference: NS *adhyāya.āhnika.sūtra*.
- *Nyāya-vārttika (Glosses on logic)* by Uddyotakara, a commentary on the *Nyāya-bhāṣya*. Edition: Taranatha and Amarendramohan 1936. English translation: Jha 1913.
- *Pramāṇa-samuccaya (Compendium on epistemic means of cognition)* by Dignāga. Edition: Original Sanskrit text lost. English translation: first chapter, Hattori 1968; second chapter, Hayes 1988 ch. 6; fifth chapter, Hayes 1988 ch. 7. Reference: PS chapter.verse

- *Pramāṇa-vārttika (Gloss on epistemic means of cognition)* by Dharmakīrti. Edition: Pandeya 1989. English translation: first chapter to verse 38 with autocommentary, Hayes and Gillon 1991 and Gillon and Hayes 2008; first chapter verses 312 -- 340 with autocommentary, Eltschinger, Krasser and Taber (trans.) 2012. English translation of the Chapter on argument: Tillemans 2000.
- *Pramāṇa-viniścaya (Settling on what the epistemic means of cognition are)* by Dharmakīrti. Edition of the chapter on perception: Vetter 1966. Edition of the chapter on inference: Steinkellner 1973.
- *Prasanna-padā (Clear-worded (Commentary))* by Candrakīrti, a commentary on *Mūla-madhyamaka-kārikā*. Edition: Shastri 1983. English translation: Sprung 1977.
- *Praśastapāda-bhāṣya (Praśastapāda's Commentary)*, also known as *Padārtha-dharma-saṃgraha (Summary of categories and properties)*, by Praśastapāda. Edition: Bronkhorst and Ramseier 1994. English translation: Jha 1916.
- *Rú shí lùn (Treatise on truth; Tarka-śāstra)*. Edition: *Taishō Chinese Tripiṭaka* 1633. Reference: T 1633 page.horizontal-band.vertical-line
- *Sandhi-nirmocana-sūtra (Aphorisms on release from bondage)* Edition: Lamotte 1935. French Translation: Lamotte 1935.
- *Śata-śāstra*: see *Bāi lùn*.
- *Śloka-vārttika (Gloss in verses)*, a commentary on Śabara's commentary on Jaimini's *Mīmāṃsā Sūtra*, Bk. 1, Ch. 1, by Kumārila Bhaṭṭa. Edition: Musalgaonkar 1979. Translation: Jha 1924.
- *Tarka-śāstra*: see *Rú shí lùn*.
- *Upāya-hṛdaya*: see *Fāng biàn xīn lùn*.
- *Vāda-nyāya (Logic of debate)* by Dharmakīrti. Edition: Shastri 1972; Gokhale 1993. English translation: Gokhale 1993.

Notes

- *Vāda-vidhi (Rules of debate)* by Vasubandhu. Edition: Frauwallner 1957. English translation: Anacker 1984 ch. 3.
- *Vaiśeṣika-sūtra (Aphorisms on individuation)* by Kaṇāda. Edition: Jambuvijāyājī 1961. English translation: Sinha 1911. Reference: VS *adhyāya.āhnika.sūtra*

8.9 ANSWER TO CHECK YOUR PROGRESS

1. Answer to Check your Progress – 1

- Seshvata
- Purvavat
- Samayatodrsta
- Svarthanumana
- Pararthanuman

1. Answer to Check your Progress -1

Kevalanvayi,
Kevala-vyatireki
Anvaya-vyatireki

UNIT 9 NAVYA NYAYA

STRUCTURE

9.0 Objectives

9.1 Introduction

9.2 Navya Nyaya Method

9.3 Metaphysical base

9.4 Navya Nyaya Logic

9.5 Negation

9.6 Lets Sum up

9.7 Key words

9.8 Suggested Readings

9.10 Answer to Check your Progress

9.0 OBJECTIVES

- learn about Navya nyaya method
- Navya nyaya as propounded by Gangesa
- Modified and revolutionized the old Nyaya

9.1 INTRODUCTION

The **Navya-Nyāya** or **Neo-Logical** darśana (view, system, or school) of Indian logic and Indian philosophy was founded in the 13th century CE by the philosopher Gangeśa Upādhyāya of Mithila and continued by Raghunatha Siromani. It was a development of the classical Nyāya darśana. Other influences on Navya-Nyāya were the work of

earlier philosophers Vācaspati Mīśra (900–980 CE) and Udayana (late 10th century). It remained active in India through to the 18th century.

Gangeśa's book *Tattvacintāmaṇi* ("Thought-Jewel of Reality") was written partly in response to Śrīharśa's *Khandanakhandakhādyā*, a defence of Advaita Vedānta, which had offered a set of thorough criticisms of Nyāya theories of thought and language. In his book, Gangeśa both addressed some of those criticisms and – more important – critically examined the Nyāya darśana itself. He held that, while Śrīharśa had failed to successfully challenge the Nyāya realist ontology, his and Gangeśa's own criticisms brought out a need to improve and refine the logical and linguistic tools of Nyāya thought, to make them more rigorous and precise.

Tattvacintāmaṇi dealt with all the important aspects of Indian philosophy, logic, set theory, and especially epistemology, which Gangeśa examined rigorously, developing and improving the Nyāya scheme, and offering examples. The results, especially his analysis of cognition, were taken up and used by other darśanas.

9.2 NAVYA NYAYA METHOD

Navya-Nyāya developed a sophisticated language and conceptual scheme that allowed it to raise, analyse, and solve problems in logic and epistemology. It systematized all the Nyāya concepts into four main categories (sense-)perception (*pratyakṣa*), inference (*anumāna*), comparison or similarity (*upamāna*), and testimony (sound or word; *śabda*). Prof John Vattanky has contributed significantly to the modern understanding of Navya-Nyāya.

The Nyaya strategy is to appeal to our intuitions about knowledge, in order to learn something about reasoning and not vice versa. Bimal Krishna Matilal in its first meaning, a logic said is a collection of closely related artificial languages... In its second but older meaning, logic is the study of rules of sound argument. The expression 'Navya-Nyaya' literally means 'the recent Nyaya' or 'the new Nyaya', usually employed for indicating the

later phase of the Nyaya school of philosophy, as distinguished from its earlier phase, which is commonly known as ‘Pracina Nyaya’, i.e., ‘the earlier Nyaya’ or ‘the old Nyaya’. Aksapada Gautama (c. 100 CE) is traditionally regarded as the founder of the Nyaya school, and a set of aphorisms known as Nyaya- sastras that are ascribed to him happens to be the oldest available text of this school. Quite a few commentaries and subcommentaries on these aphorisms were written, many of which are now lost, and are known only from references to them in later works. The available texts in this series of commentarial literature are (i) Nyayabhasya of Vatsyayana (fourth century), (ii) Nyayavarttika of Uddyotakara (seventh century), (iii) Nyayavarttika- tatparya-tika of Vacaspati Mishra (ninth century), (iv) in Nyayavarttika tatparya-pari suddhi of Udayana (tenth century).

9.3 METAPHYSICAL BASE

We, therefore, begin our explorations in Navya-Nyaya logic with a brief account of the metaphysical basis of the system. The Nyaya School of philosophy upholds direct realism and pluralism; and it shares this outlook in common with the Vaisesika School, which is traditionally maintained to be founded by Kanada (second century CE). The Vaisesika system has been described as ‘a synthesis between philosophy of nature, ethics and soteriology’, and this is also true of the Nyaya school, though here we find in addition a lot of emphasis on epistemology and the rules that should be observed in philosophical debates. The doctrines of Nyaya philosophy were severely criticized by a number of opponents, the principal among them being the Buddhists of the Madhyamika, Yogacara and Svatantra-Yogacara sects. For the Naiyayikas, the world contains innumerable entities that are in principle knowable and nameable. Each such entity, whether external, like a pot, or internal, like a cognitive state, is real, and has an intrinsic nature (svabhava). Many of these entities are eternal, and even those that are non-eternal, are stable, i.e., non-momentary (aksanika). Many of these entities are mutually related, and these relations, which are as real as their relata, are

of various kinds. The relation that links most of these existent objects is the relation between (i) the entities that are located (adheya), and (ii) the entities where these entities are located (adhara). This relation between location and locatee is known as dharma-dharmi-bhava. This general relation may again obtain through some specific relations. For example, when we cognize a man as characterized by a stick, the relation between the man and the stick is that of contact (samyoga). Again when we cognize an animal as a white cow, the relation of the animal with white colour and the universal, viz., cowness is that of inherence (samavaya). None of these claims would be admitted by the Buddhists. For the Madhyamika Buddhists, the objects of our experience are devoid of nature (nihsvabhava); for the Buddhists of the early Yogacara school, pure consciousness (vijñaptimatra) is the sole reality, there being thus no external objects; and according to the Svatantra Yogacara school, whatever is real is also momentary, which electively precludes the possibility of such things being either located in, or related with anything else. Each entity, they maintain, is unique (svalaksana) and unrelated. The commentaries and subcommentaries that grew around the Nyayasutras tried to defend the Nyaya doctrines by rejecting the Buddhist views. Navya-Nyaya philosophers did not forget these issues when they developed their language and logic. One of the favorite strategies of the Buddhists was to show that the entities admitted by the Naiyayika-s cannot be properly defined, and they tried to establish this by pointing out defects in such definitions proposed in the Nyaya texts. Another strategy was to point out that the Nyaya doctrines were beset with logical difficulties like self-dependence, mutual dependence, infinite regress, etc. The Buddhists also tried to show that in many cases what was regarded as a single or unitary entity by the Naiyayikas could not be so, since each of them harboured mutually incompatible properties. The adherents of the Nyaya school were hard-pressed to find out some way for answering such criticisms, and this more or less compelled them to find out some techniques for formulating precise and immaculate definitions; and also for answering the dialectical arguments of the Buddhists. In some cases, minor modifications in the earlier doctrines were also made, though the basic doctrines and the

commitment to realism and pluralism were not compromised in any way. By combining the Nyaya epistemology with the Vaisesika ontology. It is, however, Gangesa (thirteenth century) who integrated and popularized the technique of subtle argumentation in his magnum opus *Tattvacintamani* (TCM) and is regarded as the founder of the Navya-Nyaya tradition. The tradition was carried forward in Mithila by Vardhamana Upadhyaya (fourteenth century), Yajñapati Upadhyaya (fifteenth century), and Paksadhara Misra (fifteenth century), among others. The novelty and originality of the Navya Nyaya School is found not so much in introducing new topics of philosophical discussion but in the method employed, in devising a precise technical language suitable for expressing all forms of cognition. By the time the Navya-Nyaya language was devised, Buddhism, the principal opponent of Old Nyaya had become almost extinct in India. Navya-Nyaya philosophers had the Mimamsakas as their chief adversary, but their language was strong enough to withstand attacks from both Buddhism and Vedanta. From Mithila, Navya-Nyaya travelled to Navadvipa, in Bengal. Misra, Narahari and Vasudeva Sarvabhauma are the early exponents of Navya-Nyaya in Navadvipa. The unorthodox logician, Raghunatha Siromani (sixteenth century), who was a disciple of sarvabhauma wrote a commentary on TCM, in which he went far beyond Gangesa by introducing changes in NavyaNyaya metaphysics and epistemology. The One who contributed to the fullest to development of navya nyaya is Gangesa's technique of reasoning. The fame of Navadvipa Naiyayikas spread all over India, and scholars from other schools too adopted the Navya-Nyaya language. This highly technical language became the medium for all serious philosophical discussion by the sixteenth century, irrespective of the ontological, epistemological, and moral commitments of the discussants. However, one must remember that though the NavyaNyaya language can be successfully dissociated from its context.

9.4 NAVYA NYAYA LOGIC

NavyaNyaya was developed as a complete system of philosophy with its epistemology, logic, ontology and soteriology. 'Navya-Nyaya logic', writes Sibajiban Bhattacharya, 'is mainly a logic of cognitions'. A piece of cognition has at least three elements – visesya (qualificandum), prakara or visesana (qualifier), and samsarga or the qualification relation between them. If, for example, one's cognitive content is a-R-b, i.e., b is located in a by the relation R, then says the Naiyayika, one is directly aware of a, b, and R where a and b are things in the real world and not mere representations of things and the relation R actually obtains between a and b. So a cognitive content a-R-b is true if and only if b is located in a by the relation R. So, when one cognizes a man with a stick, the man is the qualificandum, the stick is the qualifier and the relation between the man and the stick, in this case, is contact or samyoga. This piece of cognition will be true (prama) if and only if the man being perceived has contact with a stick. It is, therefore, obvious that the Navya-Naiyayikas are in favour of giving a direct reading of a cognitive content. This situation, when viewed in terms of locus-located relation is: b is located in a or a superstratum (adheya) of a in the relation R in a-R-b, and a is the locus or the substratum (adhara) of b in the relation R in a-R-b. Generally speaking, according to Navya-Nyaya, the basic combination which expresses a cognitive content is a locus-locatee combination of the form 'a has f-ness' '(there is) f-ness in a' ('the lotus has redness' '(there is) redness in lotus', which is expressed in ordinary language as 'the lotus is red'.). In a perspicuous account of a cognitive content, the Navya-Naiyayika would like to make. Navya-Nyaya Logic is explicit the connection between the lotus and its colour in consonance with their own categorical framework. It is evident from the above analysis that relations play a crucial role in the Navya-Nyaya concept of a cognitive content. Over and above the two relations of contact and inherence admitted by the Vaisesikas, Navya Naiyayikas define many new relations for precisifying our cognitive content. A standard definition of relation in terms of subjuncts superstratum (anuyogi) and adjuncts substratum (pratiyogi) given by Gadadhara is as follows. When xRy is a cognitive content, R is a relation of x toy i" x is the adjunct of R (one which is related) and y is the

subjunct (to which x is related) of R. The Navya-Nyaya way of expressing a relation is always as xRy, where the entity to the left of R is the adjunct and the entity to the right of R is the subjunct. The Navya-Naiyayikas admit two types of relation, occurrence exacting (vrtti-niyamaka) and non-occurrence exacting (vrtti-aniyamaka). An occurrence-exacting relation always gives the impression that one entity is located in another entity, while a non-occurrence-exacting relation does not do so. The latter only makes us aware that the two terms are related. It is easier to identify the adjunct and subjunct of a relation of the former type; the adjunct is that which is located and the subjunct is that where the adjunct is located but in the second type adjunct and subjunct are identified depending on the fiat of the cogniser. The Navya-Naiyayikas mainly use four types of direct relation: (1) contact (samyoga); (2) inherence (samavaya); (3) svarupa 5; and (4) identity (tadatmya). Of these, the first two are occurrence-exacting, svarupa is sometimes so, and identity is not. They admitted some indirect relations (parampara sambandha) too, e.g., the colour of a cloth's thread resides in the cloth by an indirect relation composed out of inherence and its inverse, viz., sva-samavayi-samavetatva. According to the Nyaya school all these relations, direct and indirect, are binary relations. It is now time to give a minimal account of the Navya-Nyaya language, which is a higher-order technical language but, strictly speaking, is not a formal language. The primitive terms of the language are the nouns or nominal stems like ghata (pot), dhuma (smoke), vrksa (tree), kapi (monkey), etc. By adding Svarupa will be left untranslated because any English term is bound to distort its meaning; it is identical with either one or both the relata. The simple suffix 'tva' or 'ta', many new abstract terms are generated. For example, by adding 'tva' to dhuma, abstract terms like dhumatva (smokeness or smokehood), which is a universal (jati), can be generated. The suffix 'ta' is used to generate relational abstract expressions such as causehood (karanata), locushood (adharata), and their corresponding inverse relational expressions such as effect hood (karyata), located-hood or super stratumhood Navya-Nyaya also uses a possessive suffix 'mat' (or its grammatical variant 'vat') meaning 'possessing' to generate new concrete terms as in 'vahnimat' or fire-

possessing. There is an operator known as the determiner-determined-relation (nirupya-nirupaka-bhava) which obtains between correlatives like locus-hood and located-hood, cause-hood and effect-hood, motherhood and son-hood, etc. To explain, when a is the locus of b, the relational abstract locus-hood (adharata) resides in a and its correlative located-hood (adheyata) resides in b. The property of locus-hood residing in a determines or is determined by the located-hood residing in b, depending on the direction of the relation. This determining relation guarantees exact description of the content of cognition. Suppose, one sees that there is a plum in a bowl and a book on the table. In terms of locus-locatee these two facts can be described as follows. The plum has a located-hood determined by the bowl and the book has the located-hood determined by the table. Similarly, the bowl has the locus-hood determined by the plum and the table has the locus-hood determined by the book. As the located-hood of one entails the locus-hood of the other and vice versa, there exists a determiner-determined relation between located-hood and the locus-hood. Hence the cognitive content, viz., 'the plum is in the bowl' can be rephrased as the plum possesses a located-hood that is determined by the correlative locus-hood residing in the cup and 'the cup has a plum in it' can be explained as the cup possesses a locus-hood that is determined by the correlative located-hood residing in the plum. Another very important operator is avacchedakata, or limitor-hood. This operator performs multiple functions in a cognitive situation. (1) It states explicitly the mode of presentation of an object, (2) it acts as a quantifier in a content-expressing sentence, and (3) it helps us to determine which pair of sentences is contradictory. The first operation of a delimiter can be explained with the simple example of 'the floor is with a pot'. When we cognize something, some qualifiers are expressed in the first order language and some are merely understood. The qualifiers which are merely understood are called the 'delimiters'. So in the above example, the floor is the qualificandum and the pot is the qualifier, both of which have been mentioned. But there are two other unmentioned qualifiers, viz., potness and floorness qualifying respectively pot and floor and hence are the delimiters. A full account of the content undoubtedly requires these delimiters and if the

mode of presentation or the delimitor is properly specified, we can set aside all confusions. Besides the delimiters of the qualificandum and the qualifier, there exists a delimiting relation too, which in this context is contact. So, fully spelt out, the sentence ‘the floor is with a pot’ (ghatavat bhutalam) turns out to be: the floor delimited by flooriness possesses a locus-hood that is determined by the correlative located-hood residing in the pot delimited by potness in the delimiting relation of contact. To understand how the Naiyayikas use ‘delimitor’ to state the quantity of the cognised structure, we may consider two interesting examples given by Mahesa Chandra Nyayaratna. When the content-expressing sentence is: ‘A person having brahminhood is scholarly’, it does not signify that all brahmins are scholarly. Rather this means that the property of being brahmin and scholarship are sometimes found in the same locus, i.e., ‘Some brahmins are scholarly’. On the other hand, when the content expressing sentence is: ‘Men are mortal’, the qualifier mortality pervades the delimitor of the qualificandum, i.e., humanity. Hence, the sentence should be construed as universally quantified. The general rule is: when the chief qualifier is just co-resident (samanadhikara) with the property of being the qualificandum, the content-expressing sentence should be taken as particular but when the chief qualifier is delimited by the delimitor of the qualificandum (visesyatavacchadaka-vacchinna), the sentence is to be construed as universal. To find out how delimitorhood helps us determine contradiction in a pair of cognitive content or sentences, let us consider the following example. When a strong breeze blows over a tree, the leaves and the branches of the tree are seen to tremble. The roots and the trunk of the tree do not, however, tremble. Thus it may be said that the tree is characterized both by trembling (sakampatva) and absence of trembling (akampatva), which are opposed to each other. Using the delimiting operator, the Navya-Naiyayika would show that though trembling and the absence of trembling are present in the tree, that does not affect the unity of the tree; nor does it amount to the assertion of a contradiction that the same tree is both trembling and non-trembling at the same time. He would rather say that the tree in respect of its branches (sakhavacchedana) is the locus of trembling,

whereas the same tree, in respect of its root (mulavachedena) is the locus of the absence of trembling. In like manner, when a monkey sits on a tree, the tree may very well have contact with that monkey in respect of one of its branches; while the same tree in respect of its roots may simultaneously harbour the absence of that contact. In such cases, the locushood resident in the tree is said to be delimited (avacchinna) by different delimiters (avacchedaka) – the tree, as delimited by its branch is the locus of contact with monkey, and this is in no way opposed to the fact that the same tree, as delimited by its roots, is the locus of the absence of contact. There would be a contradiction if the tree would have been a location of a contact and the absence of that contact with respect to the same delimiter. In this connection, it must be mentioned that the presence or absence of a certain thing in a certain locus is always through some specific relation. Thus, a pot may be present on the floor of a room through the relation known as contact, and at the same time, present in its own constituent parts through the relation of inherence. The pot, however, is not located in the floor through inherence, or in its own parts through contact. But this does not lead to any contradiction. A logical language remains incomplete without an account of negation. To understand the Navya-Nyaya concept of negation we need to understand Navya-Nyaya Logic and their ontology of absence. Absence, they point out, is not merely a logical or linguistic operator, it is as objectively real as a positive entity is. Four types of absence are admitted in the system: (1) mutual absence or difference (anyonyabhava), e.g., a jar is not a pen and vice versa; (2) absence of not-yet type (pragabhava), e.g., absence of a bread in flour before it is baked; (3) absence of no-more type (dhvamsabhava), e.g., absence of a vase in its broken pieces and (4) absolute absence (atyantabhava), e.g., absence of colour in air. So an absence is always of something and that something is called the counterpositive or the negatum (pratiyogi) of that absence. Consider the absence of smoke in a lake. Smoke is the counterpositive (pratiyogi) of the absence of smoke and pratiyogita or the relation of counterpositiveness is the relation between an absence and its counterpositive. Here, the lake is the locus (anuyogi) of the absence. Hence, anuyogita connects the absence in question with its locus.

Here absence is that of smoke in general (dhuma-samanya) and not this or that particular smoke, hence it is called dhuma-samanyabhava. Next, let us explain the notion of a delimiter and the delimiting relation in the context of an absence. When x is in y, x is related to y in a particular relation and that relation is the delimiting relation. Similarly, when there is an absence of x in y, a counterpositiveness must be there in x and there must be a relation to delimit that counterpositiveness. Suppose there is smoke on a mountain. Here the delimiting relation is contact (samyoga). There is at the same time absence of smoke on the same mountain by the relation of inherence because smoke never resides in a mountain by the relation of inherence. Again, smoke is absent on the mountain by the relation of identity or tadatmya, since smoke and mountain cannot be identical. So counterpositiveness in the first case is delimited by the relation of inherence whereas in the second case the delimiting relation is identity. At the same time counterpositiveness so related determines (nirupaka) the said absence. Thus the first absence is determined by the counterpositiveness residing in smoke delimited by the relation of inherence (samavayasambandh avacchinna-pratidyogita nirupitadhumasamanyabhava) and the second absence is determined by the counter-positive-ness residing in smoke limited by the relation of identity (tadatmyasambandh avacchinna-pratidyogita-nirupita-dhuma-samanyabhava. Navya- Naiyayikas, like the Buddhists and the Old Naiyayikas divide inference broadly into two types. Svarthanum, inference-for oneself deals with the psychological conditions, i.e., causally connected cognitive states leading to one's own inferential cognition, while Pararthanu- anumana (PA) or inference-for- others essentially deals with the proper linguistic expression of this inference with a view to communicating it to others. SA which is a process of mental reasoning par excellence consists of four steps, each of which is a state of cognition causally connected with the immediately preceding state. The process can be best explained with their typical example. A person first sees that (a) the hill (paksa the locus of inference) possesses smoke (hetu the ground of inference, probans). This is perceptual cognition which reminds him that (b) wherever there is smoke there is fire (sadhya the provable probandum) as he has always observed in a

kitchen. The first step is technically called paksadharmatajñana, meaning the probans is known to be present in the locus of reasoning. The second step (known as vyaptijñana) is memory or a collective cognitive state of the universal concomitance between smoke and fire. Then (a) and (b) are combined to produce a complex form of cognition called 'paramarsa' or 'consideration' of the form (c) the hill possesses smoke pervaded by fire and then follows the conclusion (d) Therefore, the hill possesses the fire. PA has five constituents arranged in the order pratijna or assertion, hetu or reason, udaharan a or example, upanaya or application and nigamana or conclusion. The typical example of a fully-fledged pararthanumana is the following. Pratijñā: The hill possesses fire (stating what is to be proved) Hetu: The reason is smoke (stating the ground of inference) Udaharana with vyapti: Wherever there is smoke, there is fire as in a kitchen . Upanaya: The hill is similar (in possessing smoke) Nigamana: Hence, the hill possesses fire. Though the conclusion of a PA appears to be the same as the first step, these two perform two different tasks. The first step just asserts the thesis while the conclusion declares that what is to be proved has been proved. According to the tradition, the first step is said to be generated by verbal cognition, the second is established by inference, in the third step, example is acquired through perception and the fourth step is based on cognition of similarity. Since these four steps are established by four sources of true cognition admitted in the Nyaya school, the Naiyayika considers this five-membered argument as the demonstration par excellence (parama-nyaya). Gangesa in the Vyaptivada of TCM has rejected many definitions of pervasion (vyapti) given by the opponents of which only the first will be analysed here. Simply stated, the definition runs thus: Pervasion or vyapti is the absence of occurrence of the hetu in every locus of absence of the sadhya. This definition, however, has been amended quite a number of times to free it from the charges of over-coverage (ativyapti) and under-coverage (avyapti). A ramified version of the definition, though it is not the final version, is: The hetu is pervaded by the sadhya if the hetu is in no way occurrent by the relation of hetutavachedaka in any locus of the absence of the sadhya which is characterized by the sadhyatvacchedakadharmā and

also by the sadhyatavacchedakasambandha. We have said before that pervasion is the relation of invariable concomitance of the ground of an inference (hetu) and the thing to be inferred (sadhya). Without the knowledge of this relation it is not possible to infer. In a valid inference, 'The hill has fire because it has smoke', the sadhya is fire, the hetu is smoke and paksa or the locus is the hill. Sadhyatavacchedaka-sambandha is the relation in which the sadhya resides in the paksa. As fire resides in the hill by the relation of contact (samyoga), the limiting relation is contact. The property which is the delimitor of the sadhya in this case is fireness (vahnitva) and not the property of producing burns (dahajanakatva). Similarly by hetutavacchadka sambandha is meant the relation in which the hetu resides in the paksa. In the given instance, that relation is also contact, as smoke too resides in the hill by contact. This absence of occurrence of smoke is again absence of occurrence of smoke in general and not of any particular smoke. So there is the relation of pervasion between the hetu smoke and the sadhya fire as there is general absence of occurrence of the hetu smoke by the delimiting relation of contact, determined by every locus of absence of the sadhya fire, counterpositiveness of which is delimited by the relation of contact and the attributive delimitor firehood. Plainly speaking, fire pervades smoke because no smoke ever resides by way of contact in a lake or anywhere else, which is the locus of absence fire qua fire. While exploring the psychology of reasoning, the Naiyayika-s have also specified three pre-conditions of the possibility of engaging in a reasoning. The reasoning process cannot even take o" if these pre-conditions are not fulfilled. Reasoning process begins 1. if the reasoner is not aware that there is fire on the hill, i.e., that the probandum is present in the locus. Of course, if the reasoner desires to reason to the effect that there is fire on the hill even after being sure of the fact, he may indulge in reasoning; 2. if the reasoner does not believe that there is absence of fire on the hill, i.e., the probandum is absent in the locus; and 3. if the reasoner does not believe or doubt that the hill is characterised by some property which is concomitant with the absence of fire, i.e., the locus is characterised by some probans, which is invariably concomitant with the absence of the probandum. The second and

the third pre-condition require ascription of minimal rationality to the reasoner in the sense that the person naturally avoids the alternatives that lead to contradiction. Next, the Naiyayika-s discuss in details how a reasoner can be sure that SA will lead to a sound conclusion. According to them, the psycho-cognitive states previously specified ensure the truth of the conclusion provided the probans, which serves as the ground of reasoning is legitimate. A probans is legitimate if and only if it possesses five features, viz., a. It is present in the locus of reasoning (paksa-sattva); b It is present in a similar location (sapaksa-sattva); c It is not present in any dissimilar location (vipaksa-asattva); d It is not associated with the contradictory of the probandum in the locus (abadhitatva); e If another probans tending to prove the contradictory of the probandum is not present in the locus (asatpratipaksitatva) These five features provide the truth conditions of the cognitive states involved in SA; a) is the truth condition of paksadharmatajñana, b) and c) are the truth conditions of vyaptijñana disjunctively and thus become the truth condition of paramarsajñana too d) and e) have a direct relevance to the truth of the conclusion. The violation of these conditions leads to the types of defective probans known as asiddha (unestablished), viruddha (hostile), savybhicara (deviating), badhita (contradictory) and satpratipaks.a (counterbalanced) respectively. All these defects of probans can be present in one non-veridical inference, e.g., ‘the lake has fire because it has potness’. In this example, the lake is the inference-locus, fire is the probandum and potness is the probans. It violates the first condition because the probans potness is not present in the locus of reasoning, the lake. It goes against the second condition because potness is present only in pots but absent in various loci of fire, hence the probans is opposed or hostile. A more familiar example of this type of fault is: sound is eternal as it is an effect. The inference under discussion is also vitiated by the defect due to a deviating probans. Here the probans potness which is present only in pots can easily reside in a locus which is characterised by the absence of fire. That shows that potness is not invariably concomitant with fire, the probandum. In this example, the probans potness becomes contradictory and hence illegitimate, if the lake does not possess fire. Again,

it is easy to show the possibility of the existence of an alternative probans, say, water, capable of proving the absence of fire in the lake, thus counterbalancing the force of the original probans and preventing the conclusion. All these defective probans are faulty because they somehow block the conclusion of the inference. Thus, it is obvious that the psychological conditions of SA are related to the conditions of validity of it in such a way that the fulfilment of the former guarantees the fulfilment of the latter. Having shown this in the context of SA, the Navya-Naiyayika- work out what role these conditions play in PA, the full-fledged explicit form of reasoning employed primarily for convincing others. As the theory of PA became more and more developed, many structural and transformation rules of reasoning were abstracted. These truth-preserving rules enabled the reasoners who had access to the same set of premises to arrive at the same conclusion. Thus the theory of reasoning which began as a description of psychology of proof as well as a way of knowing was transformed into a logical theory, not as a formal rule-driven axiomatic theory but as a model-theory. One area where the adherents of Navya-Nyaya added a novel feature of philosophical discussion was the formulation of anugama (i.e., consecutive or uniform character). It is often found that the same term is applied to indicate a number of entities, even though at first sight, no common feature can be found in them. Normally, one would expect that application of the same word to a number of things depends on the apprehension of some common feature in them; and if such apprehension is to be veridical, then some such common feature should actually be present in those entities. The problem is to find out some such common properties. The relation of pervasion that justifies the inference of sadhya (S) from hetu (H) may be apprehended in two ways: 1. Wherever H is present, S is also present; and 2. Wherever S is absent, H is also absent. The first of these is known as anvaya-vyapti, while the second is known as vyatireka-vyapti. It may be noted here that (i) and (ii) are not interchangeable, because if no vipaksa can be found, then formulation of (ii) cannot be admitted; whereas if no sapaksa is available, then (i) cannot be admitted. Both these are, however, regarded as cases of vyapti. Both these types of vyapti have,

however, one property in common – viz., the property of being an object of the cognition which is contradictory to the cognition of deviation (vyabhicara), which would ensue – if there is any locus where H is present along with the absence of S. Thus, the property of being the object of knowledge which is opposed to the knowledge of deviation (vyabhicaradhivirodhijñānavisayatva) is the common feature (anugama) that characterizes anvaya-vyapti as well as vyatireka- vyapti. We have discussed above the five types of ‘defective reasons’ (hetvabhāsa). Here again, – the same term is being applied to different things that have apparently no common feature. Nevertheless, three definitions that are applicable to each of the hetvabhasas have been formulated by Gangesa; one of them being – as follows: If X is such that a veridical cognition of X prevents either an inference (anumana) A or some cause of inference A, then X would be a hetvabhasa with respect to A. These three definitions provide us with alternative analogies of the five types of hetvabhāsa. The Naiyayika-s maintain that if the presence of the property S has already been ascertained in the locus P, then even if we are Yadvisayakatvena jñānasya anumiti-tatkaranā-anyatara-virodhitvam, tattvam. hetvabhasatvam aware of the presence of some property H that is pervaded by S in P, no inference of the form ‘P has S’ or ‘S is present in P’ will take place, unless we have a strong desire for inferring the presence of S in P. In accordance with this, the earlier Naiyayikas maintained that prior doubt regarding the presence of S in P, which they call pakṣata, is a pre-condition of the inferential cognition ‘P has S’ or ‘S is in P’ Now such a doubt may assume various forms, e.g., (i) ‘Does P possess S or not?’ (ii) ‘Is S present in P or not?’, (iii) ‘Is S counterpositive of an absence located in P or not?’ and so on. Unless we can find here a common feature, it will be extremely difficult to express the causal connection between such a doubt and the said inferential cognition; because only one, but not all of such doubts can be present before that inferential cognition. Here, again, Raghunatha Siromani has said that all such doubts are such that they are prevented from occurring by a cognition where the presence of S in P is ascertained. Similar problems may also be raised about the avayava-s (components of inference). Having thus

discussed generally the Navya-Nyaya theory of inference, all the properties and relations that obtain in their prototypical sound inference ‘the hill has fire as it has smoke on it’. In fact, there are six generated properties all related by different determining relations (nirupya-nirupaka-bhava) by (i) dhumatvanis .ha-avacchedakata, (ii) dhuma-nistha-hetuta, (iii) vahnitva-nistha-avacchedakata, (iv) vahninis tha-sadhyata, (v) parvatatvanistha-avacchedakata, (vi) parvata-nistha-paksata. In an unsound inference, because of a defect in the probans, some of these relations are blocked (pratibaddha). Navya-Nyaya logic is a logic of terms and relations. There have been several partial attempts to symbolize Navya-Nyaya logic by using first order language (Bhattacharyya Sibajiban (1987), Ingalls (1951), Matilal (1968) Staal (1962), etc.). But these have neither increased the perspicuity of Navya-Nyaya language nor enhanced the power of Navya-Nyaya logic. We too are contributing our bit with the hope of getting a better understanding of the apparently formidable texts of Navya-Nyaya logic. Our endeavour, to begin with, is to glean the syntax of the Navya-Nyaya language from the brief overview mentioned above. Formally, there is no need of introducing two sorts of primitive terms, yet we have taken two sorts simply to retain the intuitive difference between thing words and relational abstract expressions. There are a number of 2-place operators used to form complex terms sentence-surrogates, viz., L, D, A, C, P. Navya-Nyaya philosophers bring all of them under the category of ‘sambandha’ (relations). It will be obvious from the explanation given below that L, D, C, A, P are semantically distinct, and we are not offering any formal distinguishing criterion. Besides these, there are standard logical particles – negation (N) conjunction (5) and disjunction (6). These logical particles too occur between two terms. 1. L such that a L b, $\$ L a, \$ -1 L b$ Explanation: L is the locus-located relation (adhara-adheya-bhava), when a is located in b implying that locatedhood is in a and locus-hood is in b. For example, plum-in-a-cup should be understood as there is locatedhood-in- the- plum and locus-hood- in-the-cup. 2. D indicates the determiner-determined relation (nirupya-nirupaka- bhava)For example, while locus-hood determines locatedhood, locatedhood is determined by locus-hood and vice versa. 3. pot-delimited-by pot hood-

located-in-the-floor- delimited-by-floorhood, meaning the locatedhood-in-the-pot-delimited-by-potness-determining the-locusness- in-floor-delimited-by-floorness. Pervasion (vyapti) is considered to be the most important relational operator which is directly related to the process of inference and hence plays a significant role in determining the characteristic features of the consequence relation and in laying down the conditions of universal quantification. However, all accepted definitions of pervasion discussed by Gangesa are in terms of negation

1. Check your Progress

1. Navya Nyaya: New Way
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9.5 NEGATION:

Negation in Navya-Nyaya has been construed as term negation. Barring a few cases, sentential negation has always been transformed into term negation or absence. There are mainly two types of absences – one denying the occurrence of something in a locus and in the other the identity between two negata are denied, i.e., their difference is highlighted. An absence, we have seen is always of something in some place in a specific relation, e.g., absence of pot on a table by the relation of contact. Here, the pot is the negatum or the counterpositive (henceforth CP), the table is the locus of the absence, the delimiting attribute or counterpositiveness is potness and the delimiting relation is contact, since the pot, when present, is on the table by the relation of contact. The relation between absence of pot and the table is known as the abhaviya-svarupa relation (henceforth AS).

Without committing ourselves to any of these semantics, we only point out that simple terms denote simple objects and complex terms denote complex objects. That is, the meaning of sentence-surrogates are not propositions but complex objects. Now, we shall try to define the consequence relation in this

logic of property-projection relying on the already given definitions of negation and pervasion. Their real concern had always been to select the right sort of projection-base and to frame appropriate rules for distinguishing between projectable and non-projectable properties. Unlike Ganeri, while deriving the rules of negation we are not following the footsteps of Raghunatha, which is a minority view. So we retain all three rules of negation as proposed in Ganeri (2004). Besides, we are confining ourselves only to the propositional part of Navya-Nyaya Logic.

2. Check your Progress

1. Negation in Navya Nyaya
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9.6 LETS SUM UP

The founder of the school of Navya-Nyaya (“New Nyaya”), with an exclusive emphasis on the *pramanas*, was Gangesha Upadhyaya (13th century), whose *Tattvachintamani* (“The Jewel of Thought on the Nature of Things”) is the basic text for all later developments. The logicians of this school were primarily interested in defining their terms and concepts and for this purpose developed an elaborate technical vocabulary and logical apparatus that came to be used by, other than philosophers, writers on law, poetics, aesthetics, and ritualistic liturgy. The school may broadly be divided into two subschools: the Mithila school, represented by Vardhamana (Gangesha’s son), Pakshadhara or Jayadeva (author of the *Aloka* gloss), and Shankara Mishra (author of *Upaskara*); and the Navadvipa school, whose chief representatives were Vasudeva Sarvabhauma (1450–1525), Raghunatha Shiromani (c. 1475–c. 1550), Mathuranatha Tarkavagisha (flourished c. 1570), Jagadisha Tarkalankara (flourished c. 1625), and Gadadhara Bhattacharya (flourished c. 1650).

By means of a new technique of analyzing knowledge, judgmental knowledge can be analyzed into three kinds of epistemological entities in

their interrelations: “qualifiers” (*prakara*); “qualificandum,” or that which must be qualified (*visheshya*); and “relatedness” (*samsarga*). There also are corresponding abstract entities: qualificierness, qualificandumness, and relatedness. The knowledge expressed by the judgment “This is a blue pot” may then be analyzed into the following form: “The knowledge that has a qualificandumness in what is denoted by ‘this’ is conditioned by a qualificierness in blue and also conditioned by another qualificierness in potness.”

A central concept in the Navya-Nyaya logical apparatus is that of “limiterness” (*avacchedakata*), which has many different uses. If a mountain possesses fire in one region and not in another, it can be said, in the Navya-Nyaya language, “The mountain, as limited by the region *r*, possesses fire, but as limited by the region *r'* possesses the absence of fire.” The same mode of speech may be extended to limitations of time, property, and relation, particularly when one is in need of constructing a description that is intended to suit exactly some specific situation and none other.

Inference is defined by Vatsayana as the “posterior” knowledge of an object (e.g., fire) with the help of knowledge of its mark (e.g., smoke). For Navya-Nyaya, inference is definable as the knowledge caused by the knowledge that the minor term (*paksha*, “the hill”) “possesses” the middle term (*hetu*, “smoke”), which is recognized as “pervaded by” the major (*sadhya*, “fire”). The relation of invariable connection, or “pervasion,” between the middle (smoke) and the major (fire)—“Wherever there is smoke, there is fire”—is called *vyapti*.

The logicians developed the notion of negation to a great degree of sophistication. Apart from the efforts to specify a negation with references to its limiting counterpositive (*pratiyogi*), limiting relation, and limiting locus, they were constrained to discuss and debate such typical issues as the following: Is one to recognize, as a significant negation, the absence of a thing *x* so that the limiter of the counterpositive *x* is not *x*-ness but *y*-ness? In other words, can one say that a jar is absent as a cloth even in a locus in which it is present as a jar? Also, is the absence of an absence itself a new absence or something positive? Furthermore, is the absence of colour in

general nothing but the sum total of the absences of the particular colours, or is it a new kind of absence, a generic absence? Gangesha argued for the latter alternative, though he answers the first of the above three questions in the negative.

Though the philosophers of this school did not directly write on metaphysics, they nevertheless did tend to introduce many new kinds of abstract entities into their discourse. These entities are generally epistemological, though sometimes they are relational. Chief of these are entities called “qualifierness,” “qualificandumness,” and “limiterness.” Various relations were introduced, such as direct and indirect temporal relations, *pariyapti* relation (in which a number of entities reside, in sets rather than in individual members of those sets), *svarupa* relation (which holds, for example, between an absence and its locus), and relation between a knowledge and its object.

Among the Navya-Nyaya philosophers, Raghunatha Shiromani in *Padarthatattvanirupana* undertook a bold revision of the traditional categorical scheme by (1) identifying “time,” “space,” and “ether” with God, (2) eliminating the category of mind by reducing it to matter, (3) denying atoms (*paramanu*) and dyadic (paired) combinations of them (*dvyanuka*), (4) eliminating “number,” “separateness,” “remoteness,” and “proximity” from the list of qualities, and (5) rejecting ultimate particularities (*vishesha*) on the grounds that it is more rational to suppose that the eternal substances are by nature distinct. He added some new categories, however, such as causal power (*shakti*) and the moment (*kshana*), and recognized that there are as many instances of the relation of inherence as there are cases of it (as contrasted with the older view that there is only one inherence that is itself present in all cases of inherence).

9.7 KEY WORDS

Gangesa : Chief exponent of Navya Nyaya

Locus: Position

locatee, Positioner

9.8 QUESTIONS FOR REVIEW

1. Write a note on navya nyaya.

9.9 SUGGESTED REDINGS

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9.10 ANSWER TO CHECK YOUR PROGRESS

1. Answer to check your Progress-1

- A piece of cognition has at least three elements – visesya (qualificandum), prakara or visesana (qualifier), and samsarga or the qualification relation between them.

- If, for example, one's cognitive content is a-R-b, i.e., b is located in a by the relation R, then says the Naiyayika, one is directly aware of a, b, and R where a and b are things in the real world and not mere representations of things and the relation R actually obtains between a and b.
- So a cognitive content a-R-b is true if and only if b is located in a by the relation R. So, when one cognizes a man with a stick, the man is the qualificandum, the stick is the qualifier and the relation between the man and the stick, in this case, is contact or samyoga.
- This piece of cognition will be true (prama) if and only if the man being perceived has contact with a stick. It is, therefore, obvious that the Navya-Naiyayikas are in favour of giving a direct reading of a cognitive content

2. Answer to Check your Progress- 1

- The logicians developed the notion of negation to a great degree of sophistication. Apart from the efforts to specify a negation with references to its limiting counterpositive (*pratiyogi*), limiting relation, and limiting locus, they were constrained to discuss and debate such typical issues as the following:
- Is one to recognize, as a significant negation, the absence of a thing x so that the limiter of the counterpositive x is not x -ness but y -ness? In other words, can one say that a jar is absent as a cloth even in a locus in which it is present as a jar? Also, is the absence of an absence itself a new absence or something positive?
- Furthermore, is the absence of colour in general nothing but the sum total of the absences of the particular colours, or is it a new kind of absence, a generic absence? Gangesha argued for the latter alternative, though he answers the first of the above three questions in the negative.

UNIT 10 - NYAYA: PAKSATA, PARAMARSA, DEFINITION OF VYAPTI

STRUCTURE

- 10.0 Objectives
- 10.1 Introduction
- 10.2 The nature of Paramarsa
- 10.3 Significance of Tarka
- 10.4 Lets Um up
- 10.5 Key words
- 10.6 questions for Review
- 10.7 Suggested Readings
- 10.8 Answer to Check your Progress

10.0 OBJECTIVES

- Learn what is pakshata
- Importance of Paramarsha
- Definition of vyapti

10.1 INTRODUCTION

The word Anumana in Sanskrit literally means that which follows the already existing knowledge. It has thus come to stand for deductive inference which follows from already existing knowledge, which may either be based on perception, or Sabda or even inferential knowledge. It is, however, necessary to make a distinction between Anumiti and Anumana. It is Anumiti which is inferential knowledge; Anumana is a means to that knowledge. For the Nyaya logician Anumana is the most important means of

knowledge. The later Nyaya following the Buddhist logicians accepted two kinds of Anumana. One is the Anumana for one self, the other is Pararthanumana or inference for others. It is the latter which takes explicitly the linguistic form. The Nyaya logicians, however, most probably accept that the linguistic form is present even in the Swarthanumana. What characterises the Swarthanumana is a certain mental process. In the case of Pararthanumana it is this mental process in the others which is invoked and kindled when the knowledge is communicated. Thus according to Indian logic every Anumana in the final analysis is only Swarthanumana. The Pararthanumana which is necessary for communication is just its linguistic expression.

The Parasthanumana is known as Panca Avayavi Vakya or a sentence with five parts. An instance which is traditionally given is the following:

1. Parvato Vahinman
2. Dhumat
3. Yatha Mahanasab
4. Ayam ca tatha
5. Tasmata tatha

These parts were known as Pratijna, Hetu, Drstanta, Upanaya and Nigamana respectively. The Vaisesikas called them Pratijna, Apadesa or Linga, Nidarsana, Anusandhana and Pratyamnaya.

The history of Indian logic reveals that originally the syllogistic argument consisted of ten parts or avayavas. But in the course of development of the syllogistic method, the syllogistic argument was reduced to five and it came to be known as a Vakya (or a certain pattern of speech) with five parts. This kind of argument with five parts was subjected to severe criticism at the hands of the Buddhist logicians like Dignaga, Dharmakirti and Dharmottara. They reduced the syllogistic argument to the first three or the last three and in some cases even to two in the fashion of Aristotelian syllogism and enthymeme. They argued that either the first two or the last two parts were redundant. Vatsyayana, the commentator of Nyaya Sutras, has tried to

defend the five parts by arguing that each of these parts stands, as it were for each Pramana; since Pramanas or the sources of knowledge are four, the syllogistic argument should consist of four parts and a conclusion bringing the total to five.

Although this kind of syllogistic inference is known as a sentence or Vakya there seem to be difficulties in regarding it as one sentence. The fourth and the fifth are definitely separate sentences and cannot, by any stretch of imagination, be regarded as parts of one sentence. But every Avayava or a part of this Pancavayavi sentence cannot be regarded prima facie as an independent sentence. The second and the third do not satisfy the characteristics of a sentence. No doubt a part of them can be regarded as a sentence, but on account of the ablative case and Yatha, their characteristics of a sentence is converted into the characteristics of a clause or Pada. However, from a logical point of view they may be treated as sentences. And so in a wide sense the parts of the Pancavayavi sentence may be regarded as separate sentences or propositions. It is not difficult to see that the Pancavayavi sentence does not have a syllogistic form. There is a suppressed major premiss which is contained in the first two propositions. The third is a particular example of the universal major premiss. It can be observed without much difficulty that the arrangement of the Pancavayavi vakya emanates from the procedure of controversy. The lacuna that Vyapti or the major premiss is suppressed must have been observed by Indian logicians. So in the course of time with the instance or the third premiss, they also supplied the universal concomitance. Thus the instance was not just an instance; it also stood for the major premiss or Vyapti between the Hetu and the Sadhya. At what stage of development of Indian logic this happened cannot be said, but this must have been quite early, since Akapada and Vatsyayana mention it. It is to be noted that the Buddhist logicians have not used the word Vyapti for this concept. Instead they use the word Hetusadhyapratibandha. Literally it means 'tying together' of Hetu and Sadhya or 'involution' of the form ($\sim q \supset \sim p$).

It appears to me that the concept of Vyapti itself underwent a change in the course of the development of logic. Vyapti literally means range, field or area the term or proposition covers. This is how one can ask for the Vyapti or denotation of a single word. When we find out the Vyapti of two words in terms of each other we find out the extent to which their fields overlap. Thus to find out the Vyapti of smoke and fire is to see whether smoke and fire always go together or whether one can exist any time without the other being present. In the case of smoke and fire it can be seen that smoke cannot be produced at all unless fire existed some time. But fire can exist without smoke.

That is the Vyapti of fire is greater than the Vyapti of the smoke. The term (fire) whose Vyapti is greater is called Vyapaka and the term (smoke) whose Vyapti is less is called Vyapya. The Vyapya is related to the Vyapaka in such a way that no one can perceive the first without the second. Hence the Vyapya is called the Hetu or the cause of knowledge of the Vyapaka. The Vyapti aims at establishing a connection between the Vyapya and the Vyapaka. Hence the Vyapaka is also called the Sadhya. Thus when the word Vyapti is used in the theory of inference it stands for the concomitance between two terms such that the range of the one is covered by the range of the other. It is necessary to remember that the Hetu is not the cause that is smoke is not the cause of fire, the knowledge of smoke is the cause of the knowledge of fire. On the other hand in the instance that is given, the smoke is the effect and the fire is the cause. Since there cannot be an effect without a cause, an effect does presuppose a cause, and so one can always infer the cause from the effect. Since this is the relation which exists between smoke and fire, Dharmakirti termed this kind of inference as Karyanumana. The later Hindu logicians too followed Dharmakirti in this respect. It should be noted that smoke and fire are only the constituent conditions of inference. As an existing condition the knowledge of smoke can be regarded as the cause of the knowledge of fire, that the knowledge of smoke is the cause of the knowledge of fire was explicitly recognised by later logicians like Visvanatha.

In the Nyaya logic the notions of the cause and the effect admit the separate and independent existence of cause-entities and effect-entities. They exist separately and the one cannot be confused with the other. However though separate, they exist together in relation to a common substratum. When we try to find out the Vyapti between two separate concepts or things the Vyapti is known as Bahirvyapti. The early logicians like the author of Vyomavati and the Buddhist and the Jain logicians like Arcata and Mallisena, have recognised it. Perhaps this distinction of Bahirvyapti and Antarvyapti, like that of Karyanumana and Svabhavanumana, was given up by the later logicians as it does 'not serve any practical purpose. But the distinction seems to be important from the point of philosophy as well as logic.

In the case of Vyapti between smoke and fire, the relata symbolised by the two words are independent entities. But sometimes two related things may not be independent; they may be related by the relation of genus and species, or the way the higher class is related to the lower class. The two concepts may not be causally related; they may be separable as parts of one whole or there may be identity between them. It is in this way that the two universal concepts (Jati) forming one hierarchy are related. Dravaytva, Gandhatva and Prthvitva are so related. The Simsapatva and Vrksatva are also related in the same manner. But the way simsapa and Vrksa are related is not the same as the way Dhuma and Vahni are related. There is, in the former pair, not a causal relatedness; there is an inseparableness of a different order. This inseparableness is called Tadatmya by Dharmakirti. But this Tadatmya is different from the Tadatmya of the Vedantin. Stcherbatsky has translated Tadatmya as identity. But the notion is not that of identity. It is rather that of Inclusion. According to Dharmakirti, Tadatmya between the Hetu and the Sadhya provides a basis for inference which is altogether different from the one supplied by cause-effect. In the Vyapti that exists between the Hetu and the Sadhya related by Tadatmya relation we have an instance of Antarvyapti. Simsapa and Vrka are not two independent entities like smoke and fire. A

Nyaya logician who recognises the reality of class or Jati would say that though Vrka and Simsapa are not separable notions the Vrkastva and Simsapatva are; and perhaps it is on this ground that the Nyaya logicians rejected the distinction between Antaryyapti and Bahirvyapti. But the distinction made by the Buddhist logicians seems to be justified because they do not believe in the reality of Jati or class.

The five propositions which form the Indian variety of syllogism are known as Pratijna (enunciation); Liilga, Hetu or Apadesa (reason); Drstanta, Udaharana or Nadarsana (instance); Upanaya or Anusandhana; and Nigamna or Pratyamnaya (conclusion).

Like the Greek one Indian syllogism has also three terms. They are known as Paksa, Hetu and Sadhya. The earlier view was that the Hetu (the middle term) establishes a connection between the Paksa (the minor) and the Sadhya (the major), the predication of Sadhya being the conclusion. It must have been noticed soon that this was not possible unless there was a universal concomitance or Vyapti between the Hetu and the Sadhya. So the knowledge of Vyapti was regarded as the cause of the Anumiti or inferential knowledge. It was, however, found out that this was also not sufficient and so the notion of Paramarsa was discovered.

1. Check your Progress

1. Explain Vyapti

10.2 THE NATURE OF PARAMARSA

The discovery of Paramarsa was an important step in the development of Indian logic. Perhaps the Buddhist logicians Dignaga and Dharmakirti had this notion vaguely in their mind when they talked of the three forms of

Hetu. But the Nyaya logician Udyotakara used this notion explicitly in his logical theory and since then it became a part of the theory of a Nyaya.

The word Paramarsa has come from the root Mrs; an affix para is added to it. According to Monier Williams the root Mrs means to seize, lay hold of, touch, feel. Macdonell says that it means touching mentally. The affix has a sense of beyond. So the word Paramarsa literally means comprehension or touching something beyond the given premisses. This beyond is vital for the inferential process. Athaley was aware of this. That is why while using the word consideration as suggested by Max Muller he remarks that it “does not convey the idea of Paramarsa as used by the Naiyayikas.

This role of Paramarsa, however, has not been properly grasped by some Indian logicians as well as writers on Indian logic. They confuse it with the psychological process of comprehension. That it is a logical process, an instrument in taking a leap from premises to conclusion has been, in all probability, forgotten. In fact, as a psychological comprehension, it becomes even unnecessary in the theory of inference. As shall be seen later, Paramada is not a step in the process of perception, but is a link in the process of inference.

Before proceeding further let me state in their own words what the Indian writers on logic have said about Paramarsa. Visvanatha following the old school of logic, defines Paramarsa as the Vyapara or operation of the comprehension of concomitance (Vyapti-dhi). Vyapara is an effect of Karana (cause) which, like karana, also is a cause of the final effect. Thus, if a wheel is the cause (karana) of the pot, the movement of the wheel is the Vyapara, which, also is the cause of the pot. The wheel is thus a necessary earlier condition of the pot as well as the movement of the wheel. In the same way knowledge of the concomitance gives rise to Paramarsa as an intermediary between the Vyaptijnana and Anumiti. If Vyaptisjnana is the cognition of the concomitance between smoke and fire Paramarsa is thought to be the total cognition that on the mountain there is smoke which is invariably connected with fire (Vahni-Vyapya-dhuma-van-parvatah iti jnanam). Neo-logicians refused to accept the definition of Karana as a cause

possessing operation and pointed out that Karana is that which leads directly to Phala or effect (Phalayoga-Vyavacchinnam Karanam. If this view is accepted, Paramarsa itself becomes the Karana for Anumiti. But in both the cases it is agreed that Paramarsa is a stage between Vyapti or the general premises and the conclusion. However, we also ought to know the view of the earliest Nyaya and Vaisesika logicians to whom the concept of Paramarsa was not known. According to this view Linga or Hetu is the cause of Anumiti. It is with the aid of Linga that a connection is established between Paka or the minor term and Sadhya, the major term. Linga or Hetu, thus, plays the role of the middle term and reminds one of the syllogism attributed to Aristotle. But neo-logicians point out that Linga cannot be the Karana for Anumiti or inference. For if Linga is the Karana then there is no reason why the smoke of yesterday or tomorrow should not lead to an inference. However, it is not smoke but the knowledge of smoke in a certain context that leads to inference. What is really missed in this view is the transition or movement that is so very important in inference. The middle term is treated like a joint (P-M-S) between the major and the minor. Another difficulty in this view is that it is forgotten that in inference the middle term does not merely play a role of a predicating link between the other two terms. Inference is essentially a transition from two thought-processes to the third which is derived from them. This element is also overlooked in the psychological treatment of Paramarsa which identifies it with psychological comprehension. Even if all the terms are comprehended together in one juxtaposition, it will surely not lead to inference. The particular terms comprehended either in one field of perception or in a joint field of percept and memory do not give us the form of inference. It is not the particular terms which are important; it is the logical connection between the terms leading to a third connection or leap that is important. The essence of Paramarsa consists in visualising these connections rather than the particular terms in which these connections exist. For the particular term may change and still the logical connection may remain constant. Thus the Paramarsa in the inference that there is fire on the mountain consists in the recognition of two connections which leads to the third. The first connection is the

substratum-support connection, between the mountain and the smoke, the second is the Vyapti connection between smoke and fire. The third is the connection between the mountain and fire. It should be remembered that the terms, mountain, smoke and fire are thoroughly irrelevant. Paramarsa is the recognition of the fact that from two connections we pass to the third connection. The particular terms would lead to actual inference. But like the particulars the forma law also would be necessary for inference. It should be noted that Paramarsa is also known as Trtiya linga paramarsa. This Trtiya linga or third sign is not a linga in the sense smoke is one. It refers to the third connection which is at the back of the transition from premisses to conclusion. Paramarsa is different from conclusion. It is the precondition of conclusion. Premises lead to Paramarsa which in return leads to conclusion. It is, thus, a kind of implication which is collectively implied by two or more propositions.

In the classical example the mountain has smoke therefore it has fire the relation that exists between the mountain and smoke and the mountain and fire are the relations of predication of substratum and support. However, Paramarsa would also hold good between two implicative propositions like:

1. Wherever there is smoke there is fire; and 2. Wherever there is fire, there is heat. The classical example is just a special case of Paramarsa. It should also be remembered that Paramarsa may also hold good between more than two propositions. Paramarsa thus points to the notion of logical transitivity, so very essential as an instrument of logical thinking. This logical transitivity may be of two kinds,

$$(1) ((p.(P]q))]q)$$

$$(2) (((p]q). (1]r))]r)$$

Paramarsa then should not be confounded with the psychological law of comprehension which is useful in the process of perception but which is completely irrelevant for logical thinking. In logical thinking, without being consciously aware of the intervening terms, one may arrive at the final conclusion as in the following (p] q) :].....] z.

Perhaps the responsibility for treating Paramarsa in a psychological way falls on Udayana. Or perhaps Udayana has been misunderstood. But whether

he committed the mistake about Paramarsa he seems to have committed a mistake about the nature of logical conclusion. According to him Paramarsa is cognised in the place of Upanaya (the fourth proposition) which is in between Dntania and Nigamana. The form of Upanaya is given as Tatha ca ayam. It is plain that in the stock instance, Ayam (this) stands for the mountain or Parvata. But what does Tatha ca mean? If it has a reference to Drstanta it should mean yatha mahanasab dhumavan vahniman ca, tatha parvatah api dhumavan vahniman ca. But the mere presence of Hetu and Sadhya together does not yield a universal concomitance and so a conclusion would not follow. Probably it was for this reason that the Drstanta was supplemented by Vyapti. Perhaps at the place of Drstanta there is Paramarsa based on Pratyaksa and the terms of this Paramarsa are Hetu, Sadhya and Sapaksa. On the basis of this there is another Paramarsa which is based on reason and memory at the place of Upanaya. This yatha ca ayam would be explained as Ayam paravatah api vahni-vyapya-dhumavan. Since the Paramarsa or comprehension at the place of Drstanta is a psychological one, the Paramarsa at the place of Upanaya is also likely to be considered in a psychological way; in fact, it has been so considered. But this raises a difficulty about the nature of conclusion. The conclusion in the stock syllogism is that there is fire on the mountain. If this conclusion is already known in the fourth premises, that is in the place of Upanaya, then the conclusion becomes thoroughly redundant. Two problems arise at this stage. First, the above kind of treatment ignores the distinction between implication and inference. As a matter of fact the conclusion is not present or at least not detached in Upanaya. But once Paramarsa is understood in a psychological way it is difficult to avoid such a conclusion. It is the implication and not the inference, that we have in Upanaya. Secondly, such a treatment does not admit the detachment of the conclusion from the premises, which is so very essential for logical conclusion. Thus it is likely to be thought that Indian logic does not state the rule of detachment so vital for inference. Udayana's logic had some such basis. He thought if in Upanaya itself we had the composite cognition which included the cognition of Sadhya (here Vahni) where was the necessity of separate conclusion?

How are we to detach it? What then was the function of the Nigamana sentence or conclusion? Should it also stand for Vahni-vyapya-dhumavan parvatah? According to Udayana this was the form of inference or Anumiti. But as Gangesa pointed out later, the inference consists not in the composite knowledge that the mountain which has smoke has fire but in the detached knowledge that the mountain has fire. Tatha in the Nigamana sentence, should point to Pratijnana and not to Upanaya. Tasmāt in the Nigamana sentence has a power of detaching the Sadhya from the Hetu and should stand for detachment. That Paramarsa, in fact, points out the logical transitivity is clear in the definition of Paramarsa itself. If we understand by Paramarsa the psychological comprehension the significance of the implication referred to above will be completely missed. For the psychological view as pointed out earlier, will give us mere juxtaposition of all the terms without suggesting that they also lead to the implication of the above kind.

In both the forms indicated above Paramarsa is implicative in character and represents some kind of the law of transitivity. Strictly speaking no inference should follow from these implicative laws. Inference presupposes the law of detachment. The essential feature of inference is that there is a detachment between the premisses and conclusion, which is represented by the relation Because-therefore. This is pointed out by Tasmāt or therefore in the Nigamana Vakya. Gangesa recognised this in clear terms. He pointed out that Dhuma-vyapya-vahniman parvata represented only the Paramarsa and Vahniman parvata alone was Anumiti which does not simply follow from the Paramarsa, though it is one of the factors in the process. This would not be the case if Paramarsa and Anumiti were identified by saying that Dhuma-vyapya-vahniman-parvata, was both the Paramarsa and the Anumiti. The distinction between Paramarsa and Anumiti and with it the distinction between the law of implication (Transitivity) and the law of inference was made still more explicit because of the fact that it was recognised that Anumiti belonged to the category of effect, whereas Paramarsa belonged to the category of cause. It ought to be remembered that according to Nyaya logicians the effect comes into existence only when the cause becomes non-

existent. Inference or Anumiti as represented by Nigamana Vakya is entirely on a different level from Paramarsa or Upanaya Vakya, and neither in structure nor in form, can it be identified with Paramarsa. The law of inference has the cause-effect structure where the cause and the effect are temporally separated. On the other hand the law of implication has an implicative structure where the elements are in a sense unseparated and are, so to say, bound together.

10.3 SIGNIFICANCE OF TARKA

In Indian classical literature the word Tarka is ambiguously used. In its wider application it denotes the whole of logic and is equivalent Anviksiki. It is in this sense that it is used in Manusmrti, Maha Bharat and Badarayana Sutras. It is in this sense that it is also used by the earlier Buddhist logicians like Asanga and Vasubandhu. One of the logic texts which, thanks to Prof. Tocchi, is now translated from Chinese into Sanskrit is called Tarka Pravda. That the word Tarka is sometimes used in this exhaustive sense can be seen from The History of Indian Logic by Sri Vidyabhushana. The word Tarka is used in a narrower sense also. The later logicians have used it in this sense, thus making it subservient to Anumana. This is how some of the early logicians said that Tarka is of eleven types and neo-logicians said that it is of five types. Without doubting the propriety of such uses of this word, I wish to point out that the word has a third and more fundamental sense than any of the senses mentioned above. I think this fundamental sense is in the background whether the word is used in its wider or narrower application and I believe I have reasons to think that most Indian logicians intended to use the word in this fundamental sense.

To begin with, it may be pointed out that the word Tarka does not find a place in Vaisesika Sutras, nor does it find a place in the Bhasya by Prasastapada. It is not used to denote a logical principle by the Buddhist logicians either. But this word has been mentioned in Nyaya Sutras as one of the categories. Perhaps the difficulty about the role and import of this word

arises on account of the fact that it has not been included amongst Pramānas or means or knowledge. In his commentary on the first aphorism Vatsyayana states in unequivocal terms that Tarka is not included amongst the means of knowledge. Even in the text it has been mentioned separately. This separate mention of the word or its exclusion from Pramānas is perhaps the reason why most logicians have misunderstood its real import and have categorised it as Bhrama or false cognition. This also seems to be the case with Annambhaua, whose Tarka Sangraha has been accepted as a good manual of Indian logic. Whether it was the real intention of Annambhaua or not, what Annambhaua has written in Tarka Sangraha has given the impression that Tarka plays only second fiddle to Anumana. Tarka does not prove anything; it only lends support to Anumana. The definition of Tarka given by Annambhatta, Vyapyaropena Vyapakaropah has been interpreted by recent writers on logic as a method of reductio ad absurdum. I however, strongly feel that for the correct significance of Tarka, one has to go behind such a usage of Tarka. Let us examine the argument of Annambhatta.

Annambhatta first classifies knowledge into Smṛti and Anubhava, or memory and direct experience. Then he subdivides experience into two, that which corresponds to a thing (Yathārtha) and that which does not correspond to a thing (Ayathārtha). There can be no doubt that what corresponds to a thing is a veridical experience. From this one is likely to conclude that when an experience does not correspond to a thing it is a false one. Here one is presupposing that there are only two truth values, truth and falsity. But when a person's experience does not correspond to a thing it may be either because the experience is different from the nature of a thing or it may be because the person in the strict sense of the term is not experiencing at all, but is having before him only the non-empirical conditions of experience. The first experience will be an illusory experience; the second experience will be what is now known as a priori knowledge thus Yathārtha knowledge and Ayathārtha knowledge need not correspond to veridical and illusory experience. They may be referring to two different varieties of knowledge itself. This fact will be clearer if we understand the

method Annambhatta follows. Annambhatta divides the Ayathartha knowledge into three kinds: Sarhsaya, Viparyaya and Tarka. Of these three kinds it is only the Viparyaya which is illusory experience. To equate Ayathartha knowledge, which includes Tarka and Sarhsaya in addition to Viparyaya, with the Viparyaya alone would not be proper. Nevertheless, Annambhatta himself has done it in Dipika, his own commentary on Tarka Sangraha. It is such a loose use of words which has been responsible for the miscarriage of the true import of words and concepts.

It will be interesting to see how the Nyaya logicians explain the theory of Yathartha knowledge which one gets by way of perception. In perceptual experience there is a conjunction or contact of (1) the Atman and the Manas, (2) the Manas and the Indriya and (3) the Indriya and the Visaya. If Atman, Manas, Indriya and Visaya act in a normal way the person would have true perception; that is what is called Yathartha Jnana or knowledge. In Ayathartha knowledge either some element in the perceptual apparatus may go wrong and so something which is not there may be seen¹ or one of the factors in the perceptual or knowledge situation may be absent. It may be that during the perceptual process, a white object may be perceived as yellow due to certain psychological reasons. Or the person while perceiving an object may be seeing only a common characteristic which the object he perceives has with other objects. This second alternative deserves a careful analysis. It may lead to (a) illusion and (b) doubt. (a) A person perceives a certain thing but does not specifically know what it is. This happens when the person sees only the sense or characteristics common to several things. In such a case he may mistake one object for the other (which is a case of illusion). (b) Or he may have indecision (which is a case of doubt). When a man sees a rope and mistakes it for serpent the situation gives rise to the first kind of mistake. When the person doubts whether the object of his perception is a pillar or a man it gives rise to the second kind of mistake. The second kind of mistake may again happen at the conceptual level. Or in a knowledge situation, the object element or the content of the knowledge may be altogether absent. In the language of Nyaya, in such knowledge situations there may not be the contact of sense (Indriya) and the object

(Visaya). Such knowledge situation gives rise to the form of knowledge but not to the concrete particular knowledge as such; for the particular element that is required for concrete knowledge is missing. Such knowledge will not give any information but be a definite aid to the information or particular knowledge. It is such knowledge that is required in the case of Tarka. It is this kind of knowledge which we presuppose in the reductio ad absurdum method too; but the assumption leading to reductio ad absurdum will only be a special case of such a knowledge. In such knowledge what is really necessary is, to use the language of the Naiyayikas, a conjunction of the Atman with the Manas, but not the conjunction of the Manas with the Indriyas and the conjunction of Indriyas with the thing. Thus this special variety of knowledge cannot be regarded as illusory, at any rate, in the ordinary sense of the term. All our Ayathartha knowledge, thus, need not be illusory. Even if in one sense Tarka is Ayathartha knowledge it should not follow necessarily that Tarka is illusory in nature (Bhrama). It would only follow that Tarka is something non-empirical.

It is interesting to note the definition of Tarka given in the Nyaya Sutras. Avijnatave arthe karanopattitah tatva-jnanartham uha tarkah. The translation of this aphorism given by Ganganath Jha does not appear to bring out its real import. According to the aphorism Tarka is the uha or reasoning which is necessary for the knowledge (of the thing) when that knowledge (of the thing) has not occurred. But it is not in the ordinary way. It is Karanopapattih that is, from the point or the cause or reason. To what does Karanopapatti refer? According to the procedural rules of aphorisms the context must be found in the previous aphorisms. The previous chapter deals with the nature of Nyaya and discusses avayavas. The Karana, thus, refers to the Pancavayavi vakya or Anumana or inference. Tarka is, then, that argument which goes to the root of Anumana and so is its pre-supposition or condition. If this is so Tarka cannot merely be a secondary argument in support of Anumana, supporting Anumana though it would be. It should be as it were an avyakta or unmanifest picture of inference. It appears to me that this particular function of Tarka has been overlooked by

commentators of Nyaya Sutra and by many other logicians. What is pre-supposed by Anumana? From the Vyapti or concomitance of Hetu and Sadhya, a conclusion is drawn. The Hetu is given to us in perception and the concomitance of Hetu and Sadhya is also given to us in perception. That is why an inference is supposed to depend upon perception. It can be said that inference "follows from" Vyapti or major premiss which contains terms given from perception. The relation can be expressed in terms of "follows from". Thus this earlier perception i.e., the terms of Anumana, in one sense, may be supposed to be the necessary precondition of inference; but evidently by Tarka this is not meant; for a conclusion would not follow merely because some terms were perceived earlier. A conclusion simply does not follow if mere terms and nothing else are given. It also requires a certain principle or dictum according to which it follows. We must, therefore, in further analysis distinguish 'follows from' from 'according to'. Unless there are particular terms a conclusion would not follow. But when we say that a conclusion is "according to" a certain rule the presence of a term or terms would not be necessary. The form bereft of particular Hetu or Sadhya is also pre-supposed by every inference. This form which also can be regarded as a condition of Vyapti is, according to me, pointed out by Tarka. Tarka-knowledge points to this invariable condition in all its varieties and implications. It gives the relation between Apadya and Aplidaka in its anvaya or vyatireka form. As has been pointed out earlier this knowledge cannot be Yathartha knowledge unless it contains elements of objectivity. Though pre-supposed by all inference, a bare dictum would not be regarded as something empirically real. It is interesting to note that even those logicians who have not thought of this particular nature of Tarka nevertheless explain it in a similar way. They say that Tarka is concerned with Aharya knowledge. Aharya knowledge is defined as that knowledge which arises out of our desire even when the object is non-existent. That is, it is just an assumed or hypothetical knowledge. If we resume that there is no fire where there is fire it is a case of Aharya knowledge. Aharya knowledge thus, is the bare form of knowledge without any reference to objectivity. It is conditional knowledge, where the condition obstructs the

knowledge being objective. Such knowledge is indicated by Yadi Tarhi (if-then) or by Va, Ahoavit (or). If the conditional part of this knowledge is represented by if-then it is clearly the knowledge of the implication which is evidently presupposed by any Vyapti. Vyapti cannot be established merely on the basis of the knowledge that two things in the world are found to co-exist. Two chairs in a room may happen to co-exist but the knowledge of this chair and knowledge of that chair do not make for Vyapti relation between them. When it is said that there is Vyapti relation between a Hetu and the Sadhya, what is meant is that there is a relation of implication or some kind of dependence between them which makes the Sadhya deducible from the Hetu.

It is important to note that other logicians particularly belonging to the Nava-Dvipa tradition, do not regard Tarka, Samsaya and Viparyaya on one level. Visvanatha Pancanana is clear on this point. It is, indeed, true that all these three varieties of knowledge can be classed under Aharya knowledge. But that is for different reasons. Any knowledge to be meaningful must have the class characteristic (Jati), the form (Akrti) and the matter or the content exhibited (Vyakti). Tarka and Samsaya have the universal characteristic (Jati) of knowledge. This is how Aharya knowledge is classed under knowledge, but the Akrti (form) and the Vyakti (content) cannot consistently and in its own nature co-exist in Aharya knowledge.

In the case of Samsaya the form is represented by “.... Or” This is a strong ‘or’ and is usually represented by both (a) “...V...” and (b) “~(.....and.....)”, though (b) is preferable. The matter as such which occupies the places of dots, gives us two or more independent propositions. Had this form not been present, we would have been able to assert two (or more) propositions. We would have, for example, been able to say that (a) there is a man and (b) there is a pillar. But the form,....(-and-) prevents this. The Akrti becomes prati-bandhaka to Vyakti and so Samsaya does not yield any information, unless the form of this kind of knowledge is broken by a stronger assertion like. it is not a man. On account of such an assertion the form of Samsaya knowledge-ubhayakotikatva-is lost and in the residue (of the knowledge) the form and the contents become compatible.

What is true of Samsaya, is equally true of Tarka. In Tarka the form or Akrti is represented by if-then or yadi... tarhi. The two assertions act as Vyakti or content. Had there been just these two assertions then they would have been held independently. But here again the form of Tarka obstructs such assertions. For the second assertion (or the first negation) at least partially is dependent on the other. But that assertion on which the other assertion is dependent is only conditionally asserted. That is it is not really asserted. It is Aharya or can be withdrawn. Thus the form of Tarka takes away the informative-ness of both the propositions. In ordinary language Tarka or hypothetical proposition is stated in the form, if p then q. This creates a misunderstanding that q is dependent on p. Like the modern symbolic logicians, Indian logicians too point out that this cannot be so unless we assert a stronger implication between p and q. So the form of ordinary language if p then q, on logical analysis, turns out to be its contraposition- if not q, then not-p. It is the not-p which is dependent on not-q and it is only by implication that if p then q follows from it. Indian logicians, therefore, recognise only, if not-q, then not-p as the real form of Tarka and define it as Vyapyaropena Vyapakaropah. It thus has the form of assumed contraposition of the original proposition which indicates - the Vyapya Vyapakabhava. The original proposition is, wherever there is smoke, there is fire. The Tarka is, if there had not been fire, then there would not have been any smoke. In the original smoke is the Vyapya and fire the Vyapaka. In the assumed contraposition non-fire or absence of fire is supposed to be Vyapya and non-smoke or absence of smoke is supposed to be Vyapaka. However, the contrapositive implies the original proposition ($\sim q \dots \sim \dots p$) \dots ($p \dots q$) and ($\dots q \dots \sim p$) are equivalent. In Indian logic this rule is illustrated in the development of the theory of Tarka. Tarka states that if there is no fire there is no smoke. But that there is smoke is empirically given and so it (the proposition) cannot be denied. And if the smoke cannot be denied, by implication the fire cannot be denied too. A positive relation between Hetu and Sadhya indicates a relation of Vyapti but does not prove it. The negative relation that wherever there is no Sadhya there is no Hetu proves it. Thus Tarka indicates the relation

which is presupposed by Vyapti. Ordinarily it may not be necessary to work out all these implications but when there is a doubt expressed the implication can be worked out. The neo-logicians expressed this by saying that Tarka is of two kinds: visaya-parisodhaka and vyapti-grahaka. If there is no fire there is no smoke. But there is smoke, which implies that there is absence of non-fire which implies that there is fire. This is an instance of visaya-parisodhaka Tarka. But if there is still a doubt a further implication can be worked out. If the connection between smoke and fire is accidental then smoke will not be produced out of fire. Here is the case of Tarka which is vyapti-grahaka. This indicates that if two things are bound by cause and effect such that the effect cannot exist without the cause, then when the effect is perceived, the cause must be presupposed. Effect statements imply cause statements. It is this kind of implication which builds up the Vyapti. It is clear that Tarka indicates implication and points to the law of implication. On the other hand Vyapti indicates the actual relation that exists between two phenomena. Thus if there is such a relation between Smoke and Fire, then it means not only $S > F$ ($S = \text{Smoke}$; $F = \text{Fire}$) but it also means that there is S . Thus Vyapti relation is of the form $(S, (S > F))$. This is clearly the relation of inference and points to the law of inference or what is sometimes called modus ponens. But clearly the law of inference presupposes the law of implication.

Tarka or implication, however, cannot be classed under the means of knowledge which give us the knowledge of objects. In Indian logic inference is always singular, some particular S , say S_1 is P . The form of Vyapti, Paramarsa and the conclusion can now be made clear

Vyapti- $(S, (S >))$

Paramarsa- $(S_1, (S, (S > F)))$ and $(S_1 < S) > (S_1 > F)$

Anumiti- $(S_1 > F)$ or $(S_1 \therefore F)$

Stronger implication and its basis

The concept of Tarka as indicated in the earlier works of logic shows that it was a very loose kind of implication. In the hands of the Buddhist and the later Nyaya logicians the notion underwent a change and either a stronger

notion was supplied or the old notion itself was reinforced with greater strength. Without this stronger notion, it would not have been possible for the Indian logicians to bring different varieties of inference under one principle.

It appears to me that notion similar to 'strict' implication but not exactly the same, is presupposed by Pratibandha or Vyapti in Indian logic. If p strictly implies q it means that q follows from p . Such a relation presupposes a certain peculiar connection between p and q , which is certainly something more than the mere going together of p and q , and can be represented by the notations $\sim(p\sim q)$. Any pair of objects say, X and Z , even if they co-exist, may not be strictly related and so assertion about them (the propositions p and q) may not involve a necessary relation. Thus one should not be able to establish a relation between "There is a donkey" and "There is a pot" even if the donkey is present whenever the pot is present. So the propositions "there is a pot" and "there is a donkey" will not be related by a necessary relation, though they can be related by material implication. What is this peculiar relation presupposed in Indian theory of implication? Indian logicians, particularly Dignaga and Dharma Kirti, have tried to answer this. They point out that inference is of two varieties. Either it is Swabhava-anumana or it is Karya-anumana. The first kind, they point out, presupposes a Vyapti like, "whatever is Samsapa is a tree". "Wherever there is smoke there is fire", would be the kind of Vyapti employed in the second. They imply that necessary relations between propositions presuppose certain other relations like causality or inclusion. On the logical side these relations become relations of implication and lead to inference. According to them the relation that exists between a thing X denoted by Hetu, and a thing Y denoted by Sadhya is either the relation of Tadatmya or the relation of Tadutpatti. Implication is possible from two propositions, p and q , if p and q are assertions of X and Y and only if one of the two relations inclusion or causality, exist between X and Y . Thus the sort of implication that a logical inference presupposes is either of the effect type or of the Swabhava type. On the ontological side they denote a relation of Tadutpatti-have been produced from and Tadatmya or inclusion. Stcherbatsky uses the word

identity for Tadatmya. But the word 'identity' is very vague and needs a clarification.

The difference between the two propositional functions, “Whatever is.....is” and “Wherever there is ... there is.....” should be clearly distinguished. The latter gives us implication which presupposes a causal relation; It is the implication between two simple propositions which denote two non-identical or different or separable objects related to each other by causal relation. On the other hand the first gives us implication between propositions which denote purely distinguishable but inseparable object or a relation between two inseparable parts of a whole or between a part and a whole. It may be noted that an antecedent clause in the hypothetical proposition which describes causal relation points to an effect and not to a cause whereas the consequent clause points to a cause and not to an effect. The effect cannot exist without a cause though the cause can exist without an effect. Thus whereas a statement about the effect implies a statement about the cause, a statement about the cause does not imply a statement about the effect. Again, a statement about the absence of the effect does not imply a statement about the absence of the cause though the statement about the absence of the cause implies the statement about the absence of the effect. This is so because the existence of the effect entails the existence of the cause whereas the existence of the cause does not entail the existence of the effect. Thus taking p to be the effect statement or the antecedent and q to be the cause statement or the consequent, the implication can be worked out. They would be (1) p implies q; (2) not-q implies not-p; (3) not (q implies p); (4) not (not-p implies not-q). Whatever is true in the case of Karya Anumana also holds good in the case of Swabhava Anumana. As Dharmakirti points out both these varieties have the same kind of hetu-mdhya-pratihandha-samarthya. Every tree need not be a samsapa but every samsapa is both a samsapa and a tree. The notion of the tree being integral to the notion of samsapa, it immediately follows that if something is samsapa then it must be a tree. Thus we can always go from the whole to the part, or can Infer one part from the other part, if they are related by Ekartha

Samavaya, that is have the same object as a common and inseparable substratum.

The terms Swabhava and Tadatmya are rather vague and ambiguous, and it is this vagueness about them which made the Buddhist logicians a target of criticism. However, leaving a margin for the vagueness of the terms the Buddhist logicians are expressing an important truth when they use the terms Swabhava and Tadatmya. According to Stcherbatsky Tadatmya is usually regarded as the relation of identity and Swabhava is supposed to express an analytic judgment. However, both these words express something more than what is attributed to them. Swabhava not only expresses an analytic notion but also expresses a predicative notion. Similarly, Tadatmya not only expresses the relation of identity but also expresses the relation between a substantive and a quality or a relation which is expressed in language as a relation between two classes where one includes the other.

I find there is enough justification for what I say in the Indian logical texts. For example, Dharmottara says that the notions Tadatmya and Swabhava are relative notions. They presuppose a certain prior knowledge on the part of those who are using the terms. As regards the notion of Swabhava, for example, when a man uses the term samsapa unless he knows that samsapa is a variety of tree at least, as forming the back-ground for his judgment, an inference of the kind would not follow. After seeing a samsapa, if a person gets a notion of "height" and not that of a "tree", writes Dharmottara, the person would not be able to have a Vyapti between the samsapa and the tree. Thus the concept of Swabhava does not point only to what is known as the logically analytic proposition. It can apply equally well to what is logically regarded as an empirical and synthetic proposition, for when a judgment is made it is the picture of the whole with the subject, predicate and the relation between them which occurs to the person who judges. The proposition indicates a whole which presupposes the existence of parts which make that whole. The whole inheres in the parts and is therefore the Swabhava or the manifestation of itself. Similarly, Tadatmya also points not

to the relation of identity pure and simple but to the existence of two properties in the same thing. Thus the notion of Tadatmya is related to the notion of Swabhava which is a logical notion. In the same way Tadutpatti is related to Karya. Unless Dharmakirti is interpreted in this way one would not be able to understand the meaning of his statement that there are only two kinds of inferences, one based on Karya and the other based on Swabhava. If Swabhava refers to an analytic proposition, a proposition like "All men are mortal" will neither be Swabhava nor Karya; but evidently from a proposition, "All men are mortal" one can draw a conclusion because between men and mortality there exists a certain relation which on logical side points out a relation of implication between two propositions, (1) There are men and (2) they are mortal. Evidently this implication is also pointed out by Dharmakirti as Swabhava, as he deals with such propositions too.

It may be remembered that the two kinds of inferences, the predicative and the causal, point to the ways an implication arises. But in fact they are not two types of inferences. This is how the later logic which emphasised the theory of inference over-looked this distinction. To clarify this point it is necessary to note the distinction between Vyapti and implication. Vyapti is a concrete case of implication. It is an implication between two statements or propositions p and q such that if we say that p implies q is an instance of Vyapti then it means the proposition p denotes P which is an entity and the proposition q denotes Q which is another entity and between these two entities there is a relation (such as identity etc.) which is expressed as implication between the propositions p and q . On the other hand, if we say that p implies q expresses implication, pure and simple, then it means that between propositions p and q exists a relation of implication without stating anything about P and Q . An implication gives a relation between propositions without stating anything about the terms of the propositions themselves. But when we talk of Vyapti we do not merely say that p and q bind each other by a certain relation but further say that there is P . Vyapti indicates that on the ontological side the two terms of Vyapti form a whole such that each term (i.e. the part of the whole) can exist singly and

independently. On the other hand in pure implications, the terms P and Q may act as variables and may be true for any value including the null. Let us, now, try to appreciate the entire situation that makes the stronger implication of the Indian variety possible. In the case of Karyanumana it means the following:

$p \rightarrow q$ is equivalent to the assertion that there are P and Q, such that (a) P is the effect of Q; (b) that if there is an effect there must be a cause and (c) the knowledge of the effect and the knowledge that if there is an effect there must be a cause leads to $p \rightarrow q$.

In the case of Swabhava anumana also the explanation holds good if we substitute in the place of the causal relation an inseparable relation between the parts and the whole or a relation between a class and sub-class. At this point it will be interesting to distinguish three kinds of propositional functions, (1) Wherever.....there....(2) What is.....is..... (3) Ifthen All these forms are very often used in Indian logic. The first two forms are employed for expressing universal propositions with existential import, the third is used for expressing conditional knowledge or implication. It should never be forgotten that Indian logic, particularly of the Nyaya school, is concerned only with the universal propositions that have existential import. The universal proposition in the Nyaya logic is really equivalent to the combination of all singular propositions which form that class. When we talk of Vyapti, it not only indicates a certain implication between the Hetu and the Sadhya but also points to their existence. Thus a universal proposition or Vyapti is better expressed in the form p and p implies q, (p. (p > q) and not in the form p implies q. It is that particular form which is suggested by the propositional forms wherever...there..... and “whatever is.....is.....”. On the other hand when the form ifthen..... is used it merely signifies p implies q and not p and p implies q. The knowledge signified by the propositional form p implies q will not be accepted by an Indian logician as knowledge. It is Ayathartha or Aharya knowledge, though in all cases of yathartha knowledge which indicates a relation between a real Hetu and a real Sadhya, this knowledge of implication will have to be presupposed. The form, p and p implies q presupposes p implies q. Without

this a theorem of the form p and p implies q cannot be established. At the back of any logical Vyapti there is implication which is indicated by p implies q . The form whereverthere... .. can be analysed into ifthen, such that the places of the dash convey existential import and prevent or nullify the conditional character of the function; it indicates implication between two existents. The implicative relation between the existent Hetu and Sadhya is clearly seen in the later formulations of Vyapti, where Vyapti is defined as *sadhya bhavavat avrttivam* and *sadhyavat anyavrttitvam*. It must be carefully noted that Vyapti has the propositional structure indicated by the propositional forms, whereverthere..... and whatever is...is.... which presuppose the propositional function If.....then.....

2. Check your Progress

1. What is Paramarsha

10.4 LETS SUM UP

Just as inference depends on the knowledge of vyapti or a universal relation between the middle and major terms, so it depends on the relation of the middle term with the minor term. In inference the minor term becomes related to the major through its relation to the middle term. Every inference proceeds with regard to some object about which we want to establish something on the ground of a vyapti or a universal proposition. Hence the minor term is as much necessary for inference as the middle term. The minor term being called *paksa* in Indian logic, *paksata* is treated as a necessary condition of inference. If there is to be any inference, there must be a *paksa* or a minor term. Hence the question is: Under what conditions do we get the minor terra of an inference? Or, under what conditions do we draw inference with regard to anything? While the validity of inference depends on vyapti, its possibility depends on *paksata*. Inference takes place

when there is a paksa or subject of inference, it becomes valid when based on vyapti or a universal relation between the middle and the major term. Hence while vyapti is the logical ground of inference, paksata is its psychological ground or condition

10.5 KEY WORDS

vyapti : universal relation between the middle and major terms

paramarsha, : literally means comprehension or touching something beyond the given premises.

Tarka : the uha or reasoning which is necessary for the knowledge (of the thing) when that knowledge (of the thing) has not occurred.

10.6 QUESTIONS FOR REVIEW

1. Explain the nature of Pakshata
2. Write a note on Paramarsha
3. Expound Tarka

10.7 SUGGESTED READINGS

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10.8 ANSWERS TO CHECK YOUR PROGRESS

1. Answer to Check your Progress-1

Vyapti literally means range, field or area the term or proposition covers.

This is how one can ask for the Vyapti or denotation of a single word.

When we find out the Vyapti of two words in terms of each other we find out the extent to which their fields overlap. Thus to find out the Vyapti of smoke and fire is to see whether smoke and fire always go together or whether one can exist any time without the other being present. In the case of smoke and fire it can be seen that smoke cannot be produced at all unless fire existed some time. But fire can exist without smoke.

2. Answer to Check your Progress -1

- . Paramarsa is the recognition of the fact that from two connections we pass to the third connection. The particular terms would lead to actual inference.
- But like the particulars the forma law also would be necessary for inference. It should be noted that Paramarsa is also known as Trtiya linga paramarsa.

Notes

- This Trtiya linga or third sign is not a linga in the sense smoke is one. It refers to the third connection which is at the back of the transition from premisses to conclusion.
- Paramarsa is different from conclusion. It is the precondition of conclusion. Premises lead to Paramarsa which in return leads to conclusion. It is, thus, a kind of implication which is collectively implied by two or more propositions.

UNIT-11 INDUCTIVE ELEMENTS IN INDIAN LOGIC: THE CONCEPTS OF VYAPTIGRAHOPAYA, SAMANYALAKSANAPRATYASATTI, TARKA, UPADHI

STRUCTURE

11.0 Objectives

11.1 Introduction

11.2 The faculty of knowing universals and universal propositions

11.3 Jnana-Laksana-Pratyasatti

11.4 Upamana

11.5 Elements in causal process

11.6 Let's sum up

11.7 Keywords

11.8 Questions for review

11.9 Suggested Readings

11.10 Answer to Check your Progress

11.0 OBJECTIVES

- Learn vyaptigrahopaya
- Understand Samanyalakshanapratyasatti
- Know tarka
- Nature of upadhi

11.1 INTRODUCTION

The concept of knowledge for Indian philosophers is slightly different from the concept of knowledge as is usually understood in the West. Indian philosophers start with the notion that knowledge is the knowledge of things. Of course they had to modify this notion in the course of time. In addition to things some people accepted the reality of universals, negation or Abhava and Samavaya. Others introduced the notion of Aharya knowledge. But these extensions are somewhat inconsistent with their basic stand and primarily their belief about the notion of knowledge remains as it is. Thus for Indian philosopher's mathematical concepts do not reveal knowledge. It is either Vikalpa or Aharya knowledge. Thus basically knowledge is empirical and has to be known empirically. The Nyaya logic holds such a view. Such empirical knowledge is dependent on means of knowledge or Pramana for its production. But it is equally dependent on something (Artha) which is obtained from outside. Knowledge thus, is ultimately dependent on perception as a means of knowledge for this external part. This external part in knowledge always makes it susceptible to fallibility, doubt (Samsaya) exceptions (Vyabhicara) and temporal contradictions (Badha). The Nyaya logicians do not doubt the validity of Pramartas. But, in fact, the means of knowledge must also be tested. Here a controversy arises amongst different schools of thought. Some say that that the validity of Pramanas is self-dependent or sui generis. Such a view is known as Svatah Pramanya Vada and has been held by the Mimamsa logicians in particular. The other view is held by the Nyaya logicians and is known as Parataha Pramanya Vada. The Buddhist logicians accept the Parataha Pramanya view in respect of perception. Their attitude towards inferential knowledge is not quite clear. we need not enter into a controversy here but simply state that according to Nyaya the validity of all Pramanas is ultimately dependent on "Inference". The inferential knowledge too, is analysable into two parts. The correct inferential process is infallible but the external element in every concrete case of inference makes it susceptible to error. Again if the inferential machinery is faulty the inferential knowledge would be erroneous. Since the correct inferential process is accepted as infallible, a doubtful piece of knowledge should be tested for its validity by

inference. This, however, does not mean that knowledge is non-empirical. On the other hand that any knowledge is not accepted as valid uncritically shows that Nyaya does not regard any knowledge as certain. No knowledge can be regarded as *sui generis* or absolutely certain for in that case a doubt in respect of knowledge cannot be explained. Visvanatha states this point in unequivocal terms: *Pramatvam na svatograhya samsayanupapattitah*. All knowledge can at the most be regarded as probable, as there is always a possibility of our existing knowledge being contradicted by *Vyabhicara* or *Badha*. This creates a problem for the Nyaya logician.

How does one arrive at a universal proposition? This is what is termed as the problem of *Vyaptigrahopaya*. It is necessary to distinguish *Vyaptigraha* from *Vyapti*. *Vyapti* is the invariable concomitance. *Vyaptigraha* is the knowledge of invariable concomitance. *Vyaptigrahopaya* is the method by which one may arrive at the knowledge of invariable concomitance. The problem may be tackled at two different levels. It may first be suggested that one arrives at the universal concomitance or *Vyapti* by observing several instances. This is what is termed as *Bhuyodarsana* by *Annam Bhatta* and several other logicians. By observation, on many occasions, of the facts that there is fire where there is smoke, one may arrive at the proposition that wherever there is smoke there is fire. But evidently there is a risk involved in such a hasty generalisation. *Vishanatha* is quite apprehensive of this. He states in unequivocal terms that "repeated observation is not" a cause (of knowledge), since sometimes the apprehension of invariable concomitance takes place even from single observation (instance) in case inconsistency does not suggest itself. But sometimes doubt is not removed even by repeated observation.

Some logicians are very critical about the efficacy of repeated observation. They state that even if two things are observed as going together for hundreds of times even then contrary cases are observed.' Mere repeated observation of two things together do not entitle them to be related in a universal proposition. *Visvanatha* following other logicians like *Gangesa* suggests a method which is very similar to the method suggested by *Bacon* and *Mill*. He suggests that there should be *Vyabhicaragraha* and

Sahacaragraha to determine the Vyapti or the universal proposition. Sahacaragraha means going together. It should be equivalent to the method of agreement: if A and B are found together then to conclude there is a connection between A and B and that A and B will always be found together. Visvanatha however, expands the notion, and includes in it the negative agreement also. Thus the method of Sahacaragraha becomes synonymous with the joint method of agreement and difference. In Nyaya logic of deductive inference Vyatireka Vyapti has a special meaning. If p is the Hetu and q is the Sadhya, then Vyatireka Vyapti means, $\sim q \supset \sim p$. Universal propositions are stated in this form when Vyatireka Vyapti is intended. But while discovering the Vyapti i.e., when the Vyapti is yet to be known, it cannot be clearly grasped whether out of the two terms one is Hetu and the other is Sadhya. Vyatireka in Sahacaragraha does not therefore, mean the negation of the consequent and thereby the negation of the antecedent. For the antecedent consequent relations are yet, not even determined. The Sahacaragraha relation then means any of the following four cases ;

- A. B
- $\sim A.$ $\sim B$
- B. A
- $\sim B.$ $\sim A$

That Vyatireka has this meaning can be clearly seen from the way Udayanacarya uses the term in Kusumanjali. For determining the Vyapti and causal relations he gives the rule; Yatsatve yatsatvam, yadabhava yadabhavalj. This clearly indicates the above enumerated four cases. It should be noted that in the present context (1) and (3) and (2) and (4) are identical. There would be a Vyabhicara or violation of this rule if any of the following pairs appears:

- (1) A. $\sim B$ (or their commutation)
- (2) $\sim A.$ B. (or their commutation)

Vyabhicaragraha prevents the above cases. Thus it strictly maintains that if there is absence of the one there must be absence of the other:

$$\sim A \rightarrow \sim B$$

$$\sim B \rightarrow \sim A$$

(\rightarrow =def. strictly going together or implying] This is a clear method of difference. Let us take a concrete case and see whether these methods establishing Vyapti, agree with implications that exist between Hetu and Sadhya. Let us suppose that the relation between “a” and “b” is established as a relation between Hetu and Sadhya. Let “a” be “smoke” and “b” be “fire”. Then under the above explanation:

- (1) When smoke is observed in kitchen fire is, also observed.
- (2) When smoke is not observed somewhere fire is also not observed, e.g., in a lake.
- (3) When fire is observed, with it smoke is also observed. (This will be the same as the first case.)
- (4) When fire is not observed somewhere smoke is also not observed. (This case will be the same as the second).

Each pair in the above instances can be presented in the form of propositions and a pair of two such propositions does not go against the principle of material implication, whereby even if there is no smoke there should be fire. For the second instance is simply a case where smoke and fires do not co-exist. It does not tell us that they should not co-exist. Similarly the third instance does not tell us that if there is fire there must be smoke. It is simply a case where they co-exist. So the cases under Sahacaragraha do not contradict the principle of implication. The one case of Vyabhicaragraha (stated above as $\sim A \rightarrow \sim B$) tells us that it cannot be that there is A and $\sim B$. This is what the principle of implication (or strict implication) also suggests. The other case is, $\sim (\sim A \cdot B)$. This does not agree with the principle of material implication. But cases coming under this, are cases of equivalence. ($p=q$) based on the one cause one effect relation; at least some universal propositions do follow' this principle.

It should be noted that the word Upadhi plays a very important role in determining the Vyapti relation. Upadhi has been defined as Sadhya-vyapakatve sati sadhanavyapakalvam. It almost acts like a concomitant variant in determining the relation between the Hetu and the Sadhya.

However, by using the method of Sahacaragraha and Vyabhicaragraha the problem is only postponed a step further. As in the case of repeated observation, here too, a universal relation that binds the two entities is never given to us. This was recognised by logicians of the Nyaya school. So they employed the method of reductio ad absurdum to prove the Vyapti. They tried to base the universal relation on causality. This was, in fact, not a new idea; Dharmakirti had suggested long ago that inference can be based either on Tadatmya or Tadutpatti — causality. Following Dharmakirti, logicians of the Nyaya school, tried to establish a Vyapti by using the notion of Tadutpatti. There cannot be an effect without a cause. So from a given effect a cause can be inferred. Similarly, if it can be maintained that there is no cause then there is no effect can also be affirmed. Of the two instances that which comes later in time and is dependent on the earlier is regarded by these logicians as effect; that which comes earlier is regarded by them as cause. It is just to be noted that Indian logicians use the words in this way. They found that smoke is dependent on fire for its existence. This relation they termed as the relation of effect and cause. It is because of this that one can infer the existence of fire from the knowledge of the existence of smoke. So if the Vyapti is denied it would be tantamount to saying that we deny the special relation between fire and smoke and to logicians of Nyaya school this appeared absurd. If smoke, they observed, is not a constant concomitant of fire then it cannot be dependent on fire for its existence. Yadi Dhumah Vahni-vyabhicari syat, tarhi Vahni-janyo na syat. This is what is known as Vyapti-grahaka Tarka. Their dictum in this context is that one can doubt so long as one does not face a contradiction (Vyaghatavadhiraśanka) and to say that smoke is not dependent on fire for its existence contradicts our everyday experience.

The weak points in the Nyaya theory of universal proposition and inference were two: (1) they made inference and universal proposition depend upon

causality; and (2) they made the concept of causality very vague and open to bitter criticism. Other schools of thought took advantage of this and Carvakas, long before the rise of Navya-nyaya doubted the efficacy of inference as a means of knowledge. They pointed out that from any number of known cases one cannot infer anything about unknown ones. They doubted causality also, saying that causality is a generalisation from particular instances of cause-effect pairs. We only observe that this smoke is seen along with “this fire. How can we jump; to the conclusion that this would be the case every time? Such a statement is based on Vyapti which in turn is based on the causal relation. Thus there is a vicious circle or Anyonyasraya. There is, in fact, no argument against such a perfect skepticism except this that even a sceptic cannot be a sceptic all the time without inconsistency. The Nyaya logicians had to consider the view point of the Carvakas. The Carvakas could not be refuted on the basis of theory; The Nyaya logicians had to take resort to pragmatism. They argued if a universal connection is denied, say, between any smoke and any fire it would be impossible to explain the human tendency to search food whenever a man is hungry or search for fire whenever he is faced with smoke. Causality is embedded in human thinking and is a postulate for human actions. In a way this is a refutation of the Carvakas, but in a way it is not; for there is an implicit recognition of the fact that all empirical knowledge has a sense of uncertainty about it. Our tendencies cannot really decide anything though they may have practical value. A may be existing for several years. It does not mean that he would never die. From the fact that the Sun rises every day it does not necessarily follow that it would rise tomorrow. The ultimate resort to pragmatic argument by the Nyaya logic for establishing Vyapti and causality is the recognition of the fact that it regards all empirical knowledge as only probable. It will be interesting in this context to point out that even the Vyapti of Dhiana and Vahni is not regarded by Visvanatha as infallible. He writes: “Manmate iu samanya-laksanaya sakala-dhumopasthitan kalantariya-desantariya-dhum-vahni-vyapyatva-sandehas-sambhavati. “According to me even if all smokes are presented to us, by the faculty of knowing universals, there is always a doubt

that some smoke at some point of time or space may not be concomitant with fire.”

11.2 THE FACULTY OF KNOWING UNIVERSALS AND UNIVERSAL PROPOSITIONS

For the Naiyayikas a general proposition is known by a kind of perception or pratyasatti. According to Nyaya logicians there are three kinds of Pratyasattis, two of which – Samanya laksana pratyasatti (SLP) and yogaja laksana pratyasatti (YLP) give us knowledge of the universals or universal connections. From what is written in the Nyaya texts is that SLP gives pure concepts and relations whereas YLP gives us the generalizations from experience. “Yoga”, means connection and here it means a connection between empirical particulars and the universals. Unfortunately even in some texts Yogaja is confused with yogic. But as a matter of fact yogaja laksana pratyasatti has nothing to do with Yogis or Yogashastra. So under the title, the faculty of knowing universals and universal propositions. I am including Samanya laksana and Yogaja Laksana pratyasatti. It need not be thought that the object of these two pratyasattis should be different and independent although the pure process of SLP could be distinguished in the complex.

The Nyaya logicians object to complete enumeration of instances as a step towards induction or Vyapti. They in a way characteristic to themselves, raise an objection to the procedure of arriving at the Vyapti and then answer the objection. Annam Bhatta, the author of Tarka Sangraha and Dipika writes: Sakala-vahni-dhumayoh asannikarsat katham vyaptigrahah iti cet na. Dhumatva-vahnitva-rupa-samanya-laksana-pratyasatyasakala-dhuma-vahni-Jnana-sambhavat. If it is objected that when there is no perception of every fire and every smoke there cannot be the notion of concomitance, the objection is not valid. It is possible to cognise every smoke and fire in the Universe through the class notions of fire and smoke which are arrived at by the faculty called Samanya laksana pratyasatti. Athaley’s comment on this

point is very interesting. He writes, “The objection shows that the Naiyayikas clearly saw the error into which Aristotle fell and they tried to escape from it in a way peculiar to themselves. The difficulty is twofold. In the first place, there is the obvious impossibility of our observing all the particulars denoted by the class term (e.g., Dhuma); and secondly, even granting that we have ascertained all the cases, how do we arrive at the general notion of Vyapti, comprising those cases but certainly distinct from them? Co-existence of smoke and fire may be seen to exist in this case, and in that and in a third, and so on; but how do we get the super-added knowledge that it exists everywhere? The notion of everywhere is distinct from and additional to the totality of particular cognitions. The expedient by which the twofold difficulty is avoided by the Naiyayikas is very characteristic. Formation of Vyapti is certainly a process where one goes from the known to unknown as in the case of inference. But the Nyaya logicians regard induction not as an inference but as a kind of an extraordinary perception (Pratyasatti). This extraordinary perception is the process by which after perceiving an individual thing such as a ghata we at once cognise its Jati, ghatatva, by the law of association. When two things are closely associated together, the perception of one necessarily leads to the immediate apprehension of the other. This is not an inference, for there is neither Paramarsa nor any Hetu. It is not also ordinary perception, because there is no Indriya sannikarsa with smoke in all the cases”. This is what is called Pratyasatti.

It appears to me that though the learned scholar has correctly grasped the problem of universal generalisation he shows certain confusion in his solution. Perhaps even the text like Annambhatta’s may be responsible for this. He seems to have confused pure universal propositions with universal propositions which have an empirical basis. It is only the pure universal propositions which should be cognised by the pure faculty of Samanya laksana-pratyasatti. As we have observed above the propositions with empirical basis are known by the universal propositions with empirical basis are known by yogaja laksana pratyasatti, although in it too Samanya laksana

pratyasatti should be operative in so far as there would be reference to universality. Let us try to analyse the problem presented by Athaley.

For a Nyaya logician Jati or Samanya is a category by itself and is different from any particular substance which is its substratum. This is even recognised by Athaley. For he confesses that the totality of particulars is not a class of particulars. The knowledge of Jati is got through particulars. But Jatis continue to 'exist' even if all particulars are destroyed. The relation of Jati to individual members can be compared to that of the whole to its parts with the only difference that when the parts are destroyed the whole is destroyed, whereas even when the particulars are destroyed the Jati continues to exist. The notion of Jati, thus, is not an empirical notion like that of the totality of particulars, which would lead to perfect induction. When a particular is cognised the notion of Jati is supplied a priori. Without this notion of Jati there cannot be any cognition at all. Jati is the same as Parkara; it is a kind of Visesana or adjective. Nyaya logic has recognised that without the cognition of the Visesana there cannot be the cognition of Visesya. (Visista jnanain prati visesana-jnanam Avasyakam). For the cognition of Jati, class or universal which cannot be given by experience a special faculty has been recognised by the Nyaya logicians. This is what is known as Samanya laksana-pratyasatti (the perceptive faculty by which the knowledge of Jati or Samanya is obtained). If the problem is to cognise a particular object (e.g., Dhuma) then it cannot be done purely by Samanya-laksana-pratyasatti. It will have to be obtained by Indriya Sannikarsa or physical contact or by Yogaja-laksana-pratyasatti which nevertheless may include SLP. In fact, YLP is SLP operating in the sphere of empirical particulars, YLP then can be regarded as a complex 'process' of which SLP will be a distinguishable but inseparable aspect. Since the knowledge of the classes which are not empirical objects, cannot be obtained by any other faculty, the relation between them also cannot be obtained by any other faculty. They are obtained by SLP alone. The relations between two classes cannot be particular. Thus a proposition like "the pot is included in pthvi" or "the pot is included in substance or existence" can be obtained by Samanya-laksana-pratyasatti. Since such a proposition states the Vyapti

between two non-particular, non-empirical notions, there is no necessity to substantiate the relation by giving an instance. For instance, or Drstanta is a particular ease to be obtained by sense-contact and so is strictly irrelevant in determining the relation between two classes. But when we arrived at a Vyapti like whenever there is smoke there is fire, we are not only concerned with a relation between two pure classes or concepts like fireness and smokeness but we are also concerned with particular fires and particular smokes. Here the Drstanata becomes necessary and the pratyasatti that is operative is YLP (although this, in my opinion, may include SLP). This point will be discussed later.

When a proposition states a connotative relation between classes, it is not possible to deduce any particular proposition (which is its subaltern in the traditional logic) from it, for the relation between a class and its sub-class is entirely different from the relation between a class and its members. This latter relation gives us an idea of a class which is quantitative or denotative. Such a notion of class is a sum total of all particulars under it. The logicians, both eastern and western, had an uneasy time with the notion of class. They pulled it either towards denotation or towards connotation. It should, however, be clear that if a class notion is understood in a connotative sense, merely giving a characteristic, then given a class we can never arrive at truths about particulars. Such a class notion is non-empirical; we arrive at truths about such classes not by observation and generalisation, but by intuitive induction. The Nyaya logic has such a notion of class, though from time to time it has also mixed up the other notion with it the other notion where class is a sum total of all individuals under it and is to be understood in a denotative way. This other notion of class is connected with YLP. When we take into consideration this other notion of class we can derive particular truths from universal truths. But there is always an air of indefiniteness about such universal propositions which are empirical and based on the observation of particulars. The notion of Vyapti, in the Nyaya logic, has at its back, the class membership notion, and so die Vyaptigraha corresponds to problematic induction of European logic. The pure Samanya-laksana-pratyasatti, should give us the notion of pure class and a relation between

two or more pure classes. It is important to note that the Nyaya logic has distinguished two kinds of relations, one existing between classes and the other existing between a class and its members. When a proposition is based on this second relation, it must make sure that the class is non-empty and this is safeguarded by instance or *Drstanta* in the *Vyapti* sentence.

As has been observed above, all *Vyaptis* are not determined by pure relations between two classes. The proposition, “wherever there is smoke there is fire” does not give us a relation between the class smoke and the class fire. In fact there is no *Vyapti* between the class of smoke and the class of fire. They do not have a common substratum. The class of fire (or fireness) exists in fire and the class of smoke exists in smoke. Therefore, even if “smoke and fire” have a common substratum and even if there is concomitance between the two, there cannot be a *Vyapti* between smokeness and fireness. Symbolising the class of fire by *f*, fire by *F*, the common substratum of fire and smoke by *M*, the class of smoke by *s* and smoke by *S*, we get the following two pairs.

(1)

(2)

(I am using the notation *W* to denote exist in a substratum.) From both these pairs it does not follow that *f* and *s* are directly related.

The *Vyapti* “wherever there is smoke there is fire” implies a more complicated relation than is found in the *Vyapti* between two classes. On the one hand it relates two particulars, a particular smoke and a particular fire, on the other hand it relates the two particulars (“the particular smoke” and “the particular fire”) to their class notions. This class membership relation generates the idea of totality of smoke and totality of fire (*Sakala-dhumatva* and *Sakala-vahnitva*). When there is a class membership relation, the class is understood in terms of extension. In such an example, since the class is also understood in terms of extension it cannot be a pure case of *Samanya-laksana-pratyasatti*. It is rather a combination of ordinary perception and *Samanya-laksana-praiyasatti*, a sort of a situation that we find in problematic induction. And it is this which is given the name *YLP*. Thus in the case of *Vyapti* between smoke and fire, the particulars and the relation between

particulars are obtained by ordinary perception, the class notion is obtained through Samanya-laksana and on the basis of the relation between particulars a relation is 'discovered' between the classes understood in terms of extension. Since the relation between two particulars is a case of matter of fact and since there is no a priori necessity involved in such a connection, the relation that we find in experience should always be kept in mind and never overlooked. In order to specify that there is a relation between two particulars that a Vyapti proposition is always accompanied by an instance or a particular case. This particular case is the basis for regarding the class in extension. It is because the class in such Vyaptis is related to a particular that a particular conclusion can be obtained from a universal premiss. But it is this relation which makes the Vyapti probable and devoid of absolute certainty.

Sometimes even when the Vyapti is based on the relation of two particulars or denotes a class-membership relation it does not substantiate the Vyapti by giving an instance, thus showing that the two elements are really co-existent. This is for example, the case in "wherever there, is gandhavatva there is Itarabhedatva". It is impossible to show any instance of it, because on Nyaya theory Gandhavatva and Itarabhedatva exist only in Prthvi. In such a case the Vyatireka Vyapti, the contrapositive of the original proposition is made the basis of argument. For if the original proposition, is based on the class membership relation, then there should be a possibility of giving an instance after the contrapositive of the original is resorted to. Thus, in the case of the proposition,

Yatra yatra gandhavatvam tatra itarabhedatvam

it is not possible to give an instance (for the case does not exist anywhere but in Prthvi) but as soon as its contrapositive is taken into account as in,

Yatra yatra itarabhedabhavah tatra gandhatvabhavah,

Or

Yat yat itarabhedabhavavan tat tat gandhatvabhavavan, an instance, e.g., yatha jalam, can be given. As has been observed earlier it is not possible to give an instance in the case of propositions based on relations between classes (understood in a connotative way). Such propositions do not have

existential import and they are signified in modern logic by the universal quantifiers. A proposition like “All honest men are virtuous” would be one such case. It is just a relation between two characteristics, “honesty” and “virtue” and it is strictly irrelevant whether there is any honest man. “All honest men” is not an enumeration of every particular honest man. Pure Samanya-laksana-pratyasatti gives us such propositions.

However, problematic induction has a step which can be described as inductive leap. This step does require an uncommon imagination and perhaps because of this the term Samanya laksana-pratyasatti was also used by logicians to describe what may be called the problematic induction. Visvanatha says that by Samanya-laksam-pratyasatti the knowledge of the Prakara is obtained in the presence of a Visesya or substantive. It may, therefore, be objected that Samanya-laksana-pratyasatti cannot give us the knowledge of pure class, since knowledge of the class arises only in the presence of particulars. It may, however, be pointed out that though the knowledge of universals arises in the presence of particulars, it need not necessarily be derived from particulars. The concepts arrived at in the presence of particulars may not refer to any particulars. For example, the notion of Nara-Simha- may be obtained by SLP, though it may not have any particular corresponding to it. The notions of Akhandopadhi and Upadhi should also answer to the objection.

The distinction that the logicians have made between Samanya-laksana and Yogaja-laksana pratyasatti is very significant. The latter faculty claims to give us the knowledge of all the particulars, past, present and future. It is a denotative faculty as against Samanya-laksana pratyasatti which is connotative. Some Nyaya logicians think that Yogaja-laksana pratyasatti gives us such knowledge even in the absence of the particular object or even when the particular object is destroyed or even when it has not come into existence. But this would make it mystical and take it out of the proper sphere of logic.

11. 3 JNANA-LAKSANA-PRATYASATTI

Jnana-laksana-pratyasatti like several other techniques of the Nyaya logic helps the inductive procedure. It approximately corresponds to the notion of analogy in modern inductive logic. Unfortunately, it has been interpreted otherwise by most writers of Indian logic. It gives knowledge of particular as a particular. In Samanya-laksana pratyasatti the substratum (which is particular) and its class (Prakara) are separated and knowledge of the class of the particular is produced. In Jnana-laksana-pratyasatti on the other hand, this separation is not yet effected. Thus it is knowledge of the complex consisting of visesya and prakara. It is on account of jnana-laksana pratyasatti that we get knowledge of 'fragrance' in sandal wood. When a sandal wood (and not its fragrance) is presented to us still its fragrance is 'experienced'. Here knowledge process takes the following form. For Nyaya logicians, no object is perceived without its Prakara or universal characteristic. Thus, an object, say, a sandal wood will have to be analysed into two parts, (1) the Visesya or the substratum and (2) the characteristic of being a sandal wood. Its second characteristic viz., fragrance is also associated with its first characteristic. Thus, the sandal wood having fragrance has the following form : —

A which has p, has q.

On the second occasion when the sandal wood is observed its form would be

A has p.

On the basis of the previous knowledge it is suggested that A also has q. In Nyaya terminology it means q is the operation or Vyapara of the knowledge of A having p. Jnana-laksana pratyasatti is many times explained as the psychological faculty of preperception. Feeling cold is sensed by touch and not by eye. But we very often say Ice looks cold. This is what is called preperception. However, it can be seen, without difficulty, that the logical procedure that is involved even in such a case is that of analogy alone.

11.4 UPAMANA

Jnana-laksana pratyasatti should, however, be distinguished from Upamana which is usually translated as analogy. Upamana is certainly an important

means of knowledge which also is based on similarity and is helpful to inductive procedure. But it is concerned with the relation between the name and its bearer and should not be confused with logical analogy. In contrast with logical analogy, Upamana may be translated as philosophic or semantic analogy or class-apperception. In Upamana the process begins with verbal information and ends with the 'recognition' of an object of perception which was not perceived before. This however, is not only the case in Upamana, but also in all perceptions. There is only a difference of a degree between the Upamana knowledge and {knowledge based on perception. In Upamana we go from one class of knowledge to another class of knowledge, e.g., from the class of cow there is a transition to the class of Gavaya or Gayals, whereas in the perceptive knowledge, i.e., in apperception there is a transition from knowledge of one particular to that of another particular. But the logical form of process is essentially the same. Let us explain the matter more closely.

Apperception — A perceives a cow. On another occasion when he perceives another object (another cow) he is struck by the similarity and recognises it as a cow (that is a particular belonging to the class of cow).

Upamana — A perceives a cow. B tells A (and A knows) that there is an animal similar to cow, which has some properties similar to cow. Later A sees an animal. He observes a similarity between that animal and cow. (But the similarity is, indeed, not so great as to call it a cow). From the similarity A interprets the newly perceived animal as Gavaya (which is similar to cow).

In ostensive definition the object is shown and a person is taught to call that object by a particular name. In Upamana the process is reversed. A person is taught the name first, and from the description of the object, he relates the name to the object. Thus the knowledge of Upamana is ultimately based on "Sanjna-Sanjni relation. This is also the case in apperception.

The logical structure of Upamana is the following:

Quality q is similar to p

p belongs to the object A

q also probably belongs to A, (a class of object similar to A). Here one goes from the quality to a substance, and from the name to the bearer. On the other hand in Jnana-lakana pratyasatti one goes from the object to its properties. Thus one is the process of perception similar to cognition and recognition, the other is the process of knowledge similar to inference. Both of them are useful for induction. By both ' one gets knowledge which is probable. Both help the inductive process and lead half way to Universal connections. But of themselves they are not capable of giving a Universal connection or Vyapti.

11.5 ELEMENTS IN CAUSAL PROCESS

Arambhavada - The Nyaya theory of causation is based on the postulate that the whole is different from the sum of its parts. If the whole is broken the parts exist still. A mirror once broken cannot be conceived as one piece (whole) though parts of the mirror, to use ordinary language, still exist. When the whole exists its parts have a different significance. When the whole is destroyed its parts have a different significance. The Nyaya philosopher, therefore, thinks that when something comes into existence as a whole it is already non-existent as separate parts though the whole may still have parts. The effect has a new beginning. It comes into existence only when the cause “dies”. On account of this peculiar doctrine, the Nyaya theory is termed as Arambhavada. It is opposed to Sankhya theory of causation which regards effect as latent in the cause, and is thereby known as Satkaryavada. It is also opposed to the Buddhist theory which holds that there is no common substratum or continuum between the cause and the effect. Everything is a flux; there is nothing common between the first moment and the second. The effect is definitely different from the cause and has a new beginning for there is a definite discontinuity between the two moments. The Nyaya theory of causation is a compromise between the two opposed schools of Sankhya and Buddhism. With Buddhism it accepts that the effect is not present in the cause, and hence both the philosophies fall

under the category of Asat Karyavada. But unlike Buddhism, Nyaya believes in the common continuum between the cause and the effect. It believes in the Sanvayata or continuity and disapproves of the Buddhist Niramaya. Though it does not believe that the effect is present in the cause it believes that cause and effect are relative terms and become meaningful only in a common substratum. So though the effect is not present in the cause and comes into existence only when the cause becomes non-existent, it is present in the substratum in which the cause is (or was) present. These philosophic aspects of Nyaya theory seem to have been first worked out by Udyotakara, when perhaps he had to face Buddhism on the one hand and Sankhya on the other. Even the name Arambhavada seems to be due to him. There are other philosophic theories of causation too. But all these theories have only a metaphysical importance. Logically these theories are relatively insignificant. I have simply stated the Nyaya theory, because logical doctrines are worked out on the basis of this theory.

Cause: Cause has been defined as “the invariable immediate antecedent of what is not a superfluity”. The clause “What is not a superfluity” is very important. For what is already the cause of something else cannot be the cause of that which is under consideration. The effect has been defined as the Pratiyogi of its previous non-existence. The definition appears to be circular. But it conveys the idea of an effect. The word Amnyatha-siddha in the definition of cause is very important. For everything that immediately precedes the effect is not necessarily the cause.

According to Nyaya logic there are three kinds of causes. They are known as Samavayi or the material cause, Asamavayi or the non-material cause and the Nimitta or the instrumental cause. The material cause of anything is substance or Dravya, the Asamsayi cause is either a quality or an action. The causes other than these are instrumental causes. If we take an example of a piece of cloth (regarded as an effect) the material out of which it is made viz., the thread is its material cause. The material cause continues to exist in the effect. But the effect, cloth, is different from the thread. When the thread exists as thread, the cloth is non-existent and when cloth comes into existence the thread, as thread, becomes non-existent; for the effect is

the newly born something. However, in order to turn the thread into cloth, a certain arrangement of threads or tantu-samyoga is required. This is what is termed as Asamavayi cause. The concept of Asatnavayi cause is a very crucial concept. When something is destroyed, it is the effect of Asamavayi cause which needs to be undone. A piece of cloth is destroyed only when the arrangements of thread is destroyed. The thread need not be destroyed at all. Nyaya metaphysics believes in permanent atoms which cannot be destroyed. So even in the final analysis the material is never destroyed. It is only the form that is destroyed.

According to the Nyaya Logic the Asamavayi cause is of two types. Annambhatta gives the definition of asamavayi cause as follows —Karyena Karanena va saha ekasmin arthe samavetaive sati yat karanam tat asamavayi karanam. Yatha tantu-samyogah patasya, tantu-rupam pata-rupasya". The Asamavayi cause is the one which is inseparably united in the same object either with the effect or with the cause, as the conjunction of threads is of the cloth or the colour of threads is of the colour of the cloth. The conjunction of threads exists by Samavaya or inherence in the thread which is the material cause of the cloth and so inheres in the cloth; it is one kind of Asamavayi cause. The colour of the cloth exists in the cloth which is the cause of the colour of the cloth. This is the second kind of Asamavayi cause.

Everything else (other than these two causes) which is necessary for the production of the effect but which can be separated from the effect comes under instrumental or efficient cause. The Nimitta causes are again of two kinds, the common and the special. God, His desire. Space, Time, Adrsa and prior non-existence of the effect are common causes for all effects. According to the school of Navya Nyaya contractual non-existence or Samsargabhava of preventives or pratibandhaka is also a common instrumental cause.

Of the different instrumental causes, Karana is the most important. The old school defines the notion as Vyapara-vat asadharanam karanam. The new logicians define it as phalayoga-vyavacchinam karanam, that is the cause that immediately precedes the effect. The new logicians do not accept the other definition; for it applies to the agent or Karta who is not a Karana but

only an instrumental cause. The notion of Vyapara is defined as, tat-janye-sati-tat-Janya-janakatvam, being the product of the cause it produces that which is produced by the cause. The wheel of the potter is said to be one of the causes of the pot. But the wheel cannot produce a pot unless it is in action. This action is the Vyapara. According to neo-logicians the notion of Vyapara is covered by Karana itself.

In addition to these causes, Indian logic also recognises auxiliary causes. As we have seen the Nyaya logic gives three kinds of causes. If we add Prayojana or final cause (which has also been recognised) the list would resemble the one given by Aristotle. The three causes, Samavayi, Nimitta and the Prayojana, exactly resemble the causes material, efficient and final, given by Aristotle. The Asamavayi cause of the Indian logic, however, is different from the formal cause attributed to Aristotle. It appears to me that the formal cause of Aristotle has not been properly interpreted by his commentators. They identify it with the form as thought of by Plato. Aristotle, however, distinguishes, form from concept and uses two different words in Greek. The commentators, however, translate it by only one word “the form”. As a matter of fact on account of translating the word by “form” (in a platonic sense) the commentators have created a difficulty for themselves in distinguishing the formal cause from the final cause. I think it would be better to regard the formal cause as the cause which gives “form” to the existing material. It will be useful to add that Indian logic too distinguishes a form (Akrti) from concept (Jati). In fact, from the way Aristotle talks of form, the form resembles Akrti and not Jati. This makes me think that the formal cause of Aristotle’s concept is the same as the Asamavayi cause of Indian logicians.

It is interesting to point out that there is a recognition of inductive procedure, though very elementary and crude, in the Nyaya Sutra itself. Indian logic has grown out of the art of controversy or Vada. And the chief purpose of Vada is to establish a universal proposition or Siddhanta. It should, therefore, be natural to have elements of induction present and discussed in the earliest treatise on Indian logic. Aksapada recognises Samsaya, Prayojana, Drstanta and Siddhanta as elements in this procedure. He distinguishes four cases of

Siddhanta, (a) Sarvatantra Siddhanta (b) Pratitantra Siddhanta (c) Adhikarana Siddhanta and (d) Abhyupagama Siddhanta. Of these (a) is the verified hypothesis and (d) is the hypothesis or the assumed proposition.

Indian logic also gives a rule for accepting a hypothesis as correct, out of rival hypotheses. This is stated as Laghava or the law of parsimony or logical economy. It states that out of two or more hypotheses which explain certain evidence with equal ease, the one that is less complicated should be accepted, the only exception being phalamtikhaganrava. This is stated by the rule, phalamukha-gauravasya-adosatvat (i.e. where the certainty of the hypothesis is otherwise determined by its workability).

Before I close this section it is necessary to point out that according to Indian logic we get universal propositions in four different ways, (1) by perception through Samanya Laksana pratyasatti, (2) by perception through Sahacaragraha and Vyabhicaragraha, by forming Abhyupagama Siddhanta or hypothesis (3) by Sabda knowledge and (4) by inference. For Nigamana is also a universal proposition, though not in the form of a Vyapti. The usual form of Nigamana is (x) (Fx) whereas the usual form of Vyapti is (x) (Fxd > Gx). But from two Vyapti propositions a third Vyapti proposition can be derived, e.g., from 1. Yatra ghatatvam tatra prthvitvam and 2. Yatra prthvitvam tatra dravyatvam a third proposition 3. Yatra ghatatvam tatra dravyatvam, can be derived.

This proposition in its turn can be used as Vyapti proposition

1. Check your Progress

Nyaya logic there are three kinds of causes.

11.6 LETS SUM UP

It is interesting to point out that there is recognition of inductive procedure, though very elementary and crude, in the Nyaya Sutra itself. Indian logic has grown out of the art of controversy or Vada. And the chief purpose of Vada

is to establish a universal proposition or Siddhanta. It should, therefore, be natural to have elements of induction present and discussed in the earliest treatise on Indian logic.

11.7 KEY WORDS

Vyaptigrahopaya: method by which one may arrive at the knowledge of invariable concomitance

Samanyalakshanapratyasatti : the perceptive faculty by which the knowledge of Jati or Samanya is obtained

11.8 QUESTIONS FOR REVIEW

1. Explain vyaptigrahopya
2. What is samanyalakshanapratyasatti

11.9 SUGGESTED READINGS

- *Abhidharma-samuccaya (Compendium of the higher teachings)* by Asaṅga. Edition: Tatia 1976. French translation: Rahula 1971.
- *Bǎi lùn (Treatise in one hundred verses; Śata-śāstra)* by Āryadeva. Edition: *Taishō Chinese Tripiṭaka* 1569. English translation: Tucci 1930.
- *Caraka-saṃhitā (Caraka's collection)* by Agniveśa. Edition: Sharma and Dash 1976. English translation: Sharma and Dash 1976. Reference: CS *sthāna.adhyāya.sūtra*

- *Fāng biàn xīn lùn (Treatise on the heart of means)*. Edition: *Taishō Chinese Tripiṭaka* 1632. Reference: T 1632 page.horizontal-band.vertical-line
- *Hetu-bindu (Drop of reason)* by Dharmakīrti. Edition: Steinkellner 1967. English translation: Gokhale 1997.
- *Kathā-vatthu (Points of controversy)* by Moggaliputta Tissa. Edition: Kāśyapa 1961. English translation: Aung and Davids 1915.
- *Milinda-pañho (Questions of King Milinda)* Edition: Trenckner 1880. English translation: Davids 1890.
- *Mūla-madhyamaka-kārikā (Basic verses on the middle way)* by Nāgārjuna. Edition: de Jong 1977. English translation: Siderits and Katsura 2013. Reference: MMK chapter.verse
- *Nyāya-bhāṣya (Commentary on logic)*, a commentary on the *Nyāya-sūtra*, by Vātsyāyana, who is also known as Pakṣalisvāmin. Edition: Taranatha and Amarendramohan 1936. English translation: Jha 1913. Reference: NSB *adhyāya.āhnika.sūtra*
- *Nyāya-bindu (Drop of logic)* by Dharmakīrti. Edition: Malvania 1955. English translation: Shcherbatskoï 1930 v. 2. Reference: NB *chapter.passage*
- *Nyāya-mukha (Introduction to logic)* by Dignāga Edition: Original Sanskrit text lost. Chinese translation: *Tai Shou* no. 1628 (v. 32,: 1–2). English translation: Tucci 1930. Reference: NM.
- *Nyāya-praveśa (Primer on logic)* by Śaṅkarasvāmin. Edition: Dhruva 1930. English translation: Gillon and Love 1980; Tachikawa 1971.
- *Nyāya-sūtra (Aphorisms on logic)* by Gautama, who is also known as Akṣapāda. Edition: Taranatha and Amarendramohan (eds.) 1936. English translation: Jha 1913. Reference: NS *adhyāya.āhnika.sūtra*.

- *Nyāya-vārttika (Glosses on logic)* by Uddyotakara, a commentary on the *Nyāya-bhāṣya*. Edition: Taranatha and Amarendramohan 1936. English translation: Jha 1913.
- *Pramāṇa-samuccaya (Compendium on epistemic means of cognition)* by Dignāga. Edition: Original Sanskrit text lost. English translation: first chapter, Hattori 1968; second chapter, Hayes 1988 ch. 6; fifth chapter, Hayes 1988 ch. 7. Reference: PS chapter.verse
- *Pramāṇa-vārttika (Gloss on epistemic means of cognition)* by Dharmakīrti. Edition: Pandeya 1989. English translation: first chapter to verse 38 with autocommentary, Hayes and Gillon 1991 and Gillon and Hayes 2008; first chapter verses 312 -- 340 with autocommentary, Eltschinger, Krasser and Taber (trans.) 2012. English translation of the Chapter on argument: Tillemans 2000.
- *Pramāṇa-viniścaya (Settling on what the epistemic means of cognition are)* by Dharmakīrti. Edition of the chapter on perception: Vetter 1966. Edition of the chapter on inference: Steinkellner 1973.
- *Prasanna-padā (Clear-worded (Commentary))* by Candrakīrti, a commentary on *Mūla-madhyamaka-kārikā*. Edition: Shastri 1983. English translation: Sprung 1977.
- *Praśastapāda-bhāṣya (Praśastapāda's Commentary)*, also known as *Padārtha-dharma-saṃgraha (Summary of categories and properties)*, by Praśastapāda. Edition: Bronkhorst and Ramseier 1994. English translation: Jha 1916.
- *Rú shí lùn (Treatise on truth; Tarka-śāstra)*. Edition: Taishō Chinese Tripiṭaka 1633. Reference: T 1633 page.horizontal-band.vertical-line
- *Sandhi-nirmocana-sūtra (Aphorisms on release from bondage)* Edition: Lamotte 1935. French Translation: Lamotte 1935.
- *Śata-śāstra*: see *Bāi lùn*.

- *Śloka-vārttika* (*Gloss in verses*), a commentary on Śabara's commentary on Jaimini's *Mīmāṃsā Sūtra*, Bk. 1, Ch. 1, by Kumāriḷa Bhaṭṭa. Edition: Musalgaonkar 1979. Translation: Jha 1924.
- *Tarka-śāstra*: see *Rú shí lùn*.
- *Upāya-hṛdaya*: see *Fāng biàn xīn lùn*.
- *Vāda-nyāya* (*Logic of debate*) by Dharmakīrti. Edition: Shastri 1972; Gokhale 1993. English translation: Gokhale 1993.
- *Vāda-vidhi* (*Rules of debate*) by Vasubandhu. Edition: Frauwallner 1957. English translation: Anacker 1984 ch. 3.
- *Vaiśeṣika-sūtra* (*Aphorisms on individuation*) by Kaṇāda. Edition: Jambuvijāyaji 1961. English translation: Sinha 1911. Reference: VS *adhyāya.āhnika.sūtra*
- *Vākyapadīya* (*On sentences and words*) by Bharṭṛhari. Edition: Rau 1977. English translation: Subramania Iyer, K.A. 1965, 1971, 1974, 1977. Reference: VP *kāṇḍa.kārikā* or *kāṇḍa.samuddeśa.kārikā*

11.10 ANSWER TO CHECK YOUR PROGRESS

2. Nyaya logic there are three kinds of causes.
 - They are known as Samavayi or the material cause,
 - Asamavayi or the non-material cause
 - Nimitta or the instrumental cause.
 - The material cause of anything is substance or Dravya, the Asamsayi cause is either a quality or an action.
 - The causes other than these are instrumental causes.
 - If we take an example of a piece of cloth (regarded as an effect) the material out of which it is made viz., the thread is its material cause. The material cause continues to exist in the effect.
 - But the effect, cloth, is different from the thread. When the thread exists as thread, the cloth is non-existent and when cloth comes into

existence the thread, as thread, becomes non-existent; for the effect is the newly born something. However, in order to turn the thread into cloth, a certain arrangement of threads or tantu-samyoga is required.

- This is what is termed as Asamavayi cause. The concept of Asatnavayi cause is a very crucial concept. When something is destroyed, it is the effect of Asamavayi cause which needs to be undone. A piece of cloth is destroyed only when the arrangements of thread is destroyed. The thread need not be destroyed at all. Nyaya metaphysics believes in permanent atoms which cannot be destroyed. So even in the final analysis the material is never destroyed. It is only the form that is destroyed.
- According to the Nyaya Logic the Asamavayi cause is of two types. Annambhatta gives the definition of asamavayi cause as follows — *Karyena Karanena va saha ekasmin arthe samavetaive sati yat karanam tat asamavayi karanam. Yatha tantu-samyogah patasya, tantu-rupam pata-rupasya*".
- The Asamavayi cause is the one which is inseparably united in the same object either with the effect or with the cause, as the conjunction of threads is of the cloth or the colour of threads is of the colour of the cloth. The conjunction of threads exists by Samavaya or inherence in the thread which is the material cause of the cloth and so inheres in the cloth; it is one kind of Asamavayi cause. The colour of the cloth exists in the cloth which is the cause of the colour of the cloth. This is the second kind of Asamavayi cause.

UNIT-12 HETUCHAKRA DAMARU OF DINNAGA

STRUCTURE

12.0 Objectives

12.1 Introduction

12.2 Knowledge in What Sense? Ensuring Certainty

12.3 The Concept of a Sign

12.4 Condition 2 versus Condition 3: Epistemologizing Logic

12.5 A Justification of Dinnaga's Hesitation about Contraposition

12.6 The Triple-Condition and Knowledge from Words

12.7 Knowledge of Word-Meaning and Apoha

12.8 Lets sum up

12.9 Keywords

12.10 Questions for Review

12.11 Suggested Readings

12.12 Answer to Check your progress

12.0 OBJECTIVES

- Learn the hetu as explained by Dinnaga
- Understand the 9 combinations of sapaksha and vipaksha as explained by Dinnaga

12.1 INTRODUCTION

The creative period in what we may call “Buddhist Logic” starts with Dinnaga (circa 400-480). Although there were some so-called logical texts written by the Buddhists in the pre-Dinnaga period (see G. Tucci, 1929a, 1929b, and the preceding chapter), we must recognize that the Buddhist contribution to the development of logic in India actually began with Dinnaga. Dinnaga was perhaps the most creative logician in medieval (400-1100) India. He developed and systematized a theory of inference, as well as a theory of the concept of a logical reason or adequate inferential sign (hetu, linga), which became most influential among the logicians of all colors Buddha, Hindu and Jaina and was at the center of discussion and criticism in all the writings on logical theories for several centuries to come.

Dinnaga wrote a couple of manuals specifically on logic, the Hetucakradamaru and the Nyayamukha. However, in his magnum opus, the Pramanasamuccaya, he put his theory of logic in the broader context of his view on epistemology, that is to say, in the context of his pramana theory. A pramana is an instrumental cause for generating prama or knowledge. Thus, in short, “pramana” is a source or a means of knowledge. In this chapter, we will discuss Dinnaga's theory of inference, the extent to which it is influenced by his epistemological doctrines, and its relations with his philosophy of language.

12.2 KNOWLEDGE IN WHAT SENSE? ENSURING CERTAINTY

To explain the Buddhist view of knowledge, we have to mention two kinds of knowledge or knowing episode. Both are claimed to be cases of cognitive awareness that arise as episodes. There is no ownership of such episodes (for there is no person distinct from the “aggregate” of such episodes and much else besides) but each such episode is a discrete member of some awareness-series or other. Hence, we can say that each awareness-episode belongs to a particular awareness-series (an awareness-series is only a continuous sequence of distinct awareness-episodes that are connected casually in some

relevant sense the relevant sense being such that the latter is dependent upon the former for its “origination”). Hence, only in figurative language can we say that an awareness arises in a “person,” or that a “person” owns the awareness.

In order to be a knowledge-episode, a cognitive awareness must be certain. This element of certainty is shared by both kinds of knowledge under discussion here. But there are two ways of ensuring this certainty, the direct way and the indirect way. “Ensuring certainty” implies removing doubt, that is, all possibilities of error. It is agreed that error creeps in as we let our mind, our fancy (imagination = *vikalpa*) take over. Hence, the direct way to ensure certainty is to prevent the play of fancy before it sets in. Prevention is much better than cure. This is possible only when the pure sensory awareness presents the datum (we call it the “percept”) untainted by any imaginative construction (or any play of fancy). This is, therefore, the first kind of knowledge, according to Dinnaga: sensation or sense-perception. Each such sense-perception perceives also itself. Therefore, each perceptual event, according to Dinnaga, has the following structure: [percept-perception (percept)-(self-) perception]. Each percept is a unique particular. Perception is knowledge because the unique particular shines here in its own glory, uncolored by any play of fancy, any operation of the mind. This is the much-coveted epistemologist's foundation. For Dinnaga, it is not simply a foundation; more importantly, it is knowledge *par excellence*.

There is also an indirect way of ensuring certainty, according to Dinnaga. This is not a preventive measure as before, but a curative measure. The play of fancy is allowed to set in, but possibilities of error are gradually removed. A doubt is transformed into a certainty, for, the grounds of doubt are all removed or destroyed. This can happen either through the employment of an inferential mark called the “indicator” reason (*linga*), or through a proper linguistic expression, a word (*sabda*). In both cases we deal with a general notion of sign. It is through the route of a sign that we are led to the object, finally the particular. Since we are not directly confronted with the object, we cannot take the direct route. We cannot prevent the operation of the mind

before it sets in. We, in fact, let our fancy play, and then use it to reach the required certainty.

How does a sign lead to the knowledge of the object? It would be highly uninteresting if we say that there will be a particular sign for each particular object, so that seeing the sign, we would know that the object is there. Seeing my friend's car parked outside, I know that my friend is in. But it is more interesting and non-trivial when we can talk about a general sign for a number of particular objects. In the previous case, we have to see not only the sign, but also, at least once, both the sign and the object together in order to learn that it is the sign of that object. In the latter case, we connect a general sign with a general concept under which several particular objects fall. In fact, the general aspect of the sign is connected with the general aspect of the objects concerned. Seeing, or obtaining, a particular sign, we consider its general aspect and from the general aspect of the sign we are led to the general aspect of the object. Our mind, our “imaginative” (constructive) faculty, will take us that far. But if the connection between the general aspects is the right one (in the manner to be described below), the general aspect will remove all rival possibilities or opportunities for all errors to lead us to the certainty that there is a particular object there, an object that falls under that general concept.

12.3 THE CONCEPT OF A SIGN

What is a sign? Dinnaga said that any property can be the sign for a second property, provided (1) it has been observed to be with the second property at least once, and (2) no example of the “contrary possibility” has been observed or cited. A contrary possibility would be a case where an instance of the sign is present but not the property signified by it. The first condition could be called suggestion of the possibility, while the second, exclusion of the contrary possibility. Our knowledge of the sign will lead to knowledge of the property, provided certainty is reached through this dual procedure: the possibility is suggested begetting an uncertain awareness and contrary possibilities are excluded yielding certainty.

Dinnaga used the above theory of sign and object to show how, apart from sensory perception, inference and linguistic utterance yield knowledge in the indirect way. A body of smoke is observed with a body of fire suggesting the possibility of one being the sign for the other. This means that sighting of a fire or a body of smoke may lead to a doubt: perhaps, there is also smoke (or fire, as the case may be) there. In such cases, only two conditions of the triple-conditioned (*trairupya*) inferential mark or *hetu* are fulfilled, according to Dinnaga, and hence, only a dubious awareness can be generated as a result. For certainty, we need the third condition called *vipaksa-vyavrtti* or, in our language, “exclusion of other possibilities.” This needs awareness about the absence of any example (“counterexample”) a case where the sign is present but the object is not. Now, this also determines which one of the two, fire or smoke, in the previous example, could be the sign or the inferential mark or indicator, and which one would be the object, the inferable object. Examples of fire without smoke are easily available, but none of smoke without fire. Hence, our sighting of a body of smoke suggesting the possibility of fire makes it certain by excluding any contrary possibility, viz., that of there being smoke somewhere even when no fire is there.

The above way of putting matters, as far as inference is concerned, would raise problems for logicians; but with Dinnaga, the epistemologist, this would be unproblematic. For the logicians, inference of fire from smoke would arise from the relation that we have pinpointed as “exclusion of the contrary possibilities” (or “absence of a counter-example”). But, some would argue, the above way of putting matters would be psychologizing logic. For logic, it does not really matter how a person argues or arrives at the inferential conclusion (for example, by first noticing the suggestion of the possibility and thereby entertaining a doubt and then arriving at a certainty). It would be enough to say that A is a logical sign of B, provided A is such that no case of A is a case of non-B, or, what comes to the same thing, that every A is B. The only assumption needed here would be that there are As and Bs. In this way, it will be argued, logic can be freed from the fault of the psychologism.

While I fully approve of the way logic is to be done, or is being done today without reference to psychological or epistemological implication, I would like to maintain that the above way of psychologizing logic is not a totally censured procedure. For, we are not interested here in the particular way a person infers or derives his conclusions, but rather in the general “impersonal” conditions or factors that give rise to knowledge-episodes and other awareness-episodes. Besides, each knowledge episode is identified by virtue of what is “contained” in it or “grasped” by it, and not by virtue of its ownership. And what is contained in such knowledge is derived from what is expressed or expressible by a corresponding utterance or linguistic expression. Logic, which seems to avoid psychologism, deals, nevertheless, with sentences, utterances, statements, or propositions. To be sure, utterances are no better than episodes (similar to our knowledge-episodes), and propositions are no worse than abstract entities.

Conceding in this way the charge of psychologizing logic (psychologism is not always a crime), we may return to Dinnaga, the epistemologist. One of the traditional problems, that survived for a long time in the history of Indian logic, one that has at the same time been a puzzle for modern researchers in Indian logic, is the following. According to Dinnaga's celebrated theory, the hetu, indicator-reason must have these three characteristics:

1. It must be present in a location where the property characterizing the locus would be also present.
2. It must also be present in a similar location.
3. It must not be present in any dissimilar location.

The triple condition mentioned in 1, 2, and 3 above is nothing but the articulation of a particular relation between the property to be inferred, technically called the sadhya, on the one hand, and the reason, or hetu, on the other. The notion of a “similar location” and “dissimilar location” (sa-paksa and vi-paksa) are two technically defined concepts in the system. A similar location is one where the likes of the inferred object would be present. A dissimilar location is a place where the likes of the inferred object will never be present. An example will make it clear. Suppose we are trying

to infer whether sound is impermanent on the basis of its being a product. In this case, product hood would be the basis for the inference and technically called the “reason” (hetu), and the characteristic of being impermanent is the property to be inferred. A similar location would be any place where impermanence is present, for example, a pot. A dissimilar location would be any permanent entity such as the sky or the atoms. Thus, the triple condition would be satisfied if (1) not only the location of the locus's property is also the locus of producthood, the hetu, but also the following two conditions hold: (2) there is a location, for example, a pot, where producthood is present as well as impermanence, inferred property, and (3) there is no place where impermanence is absent but producthood is present. Condition 3 in effect says that impermanence must be connected with producthood in such a way that if producthood is present, impermanence cannot be absent therefrom.

The problem with this theory is that it seems that not all the three are jointly necessary. Even if (2) is not interpreted as “it is to be present in all cases where the object to be inferred is present,” it seems clear that (1) and (3) together would be sufficient to make the indicator-reason adequate to generate a sound inference. This apparently falsifies Dinnaga's insistence upon the necessity of (2) along with (1) and (3) as constituting the required sufficient condition of the indicator-reason.

It is difficult to say categorically what Dinnaga actually intended. For there are passages in Dinnaga that indicate that he wanted both conditions to be necessary, however, there are other passages where it seems that he conceded the charge of redundancy. Among the modern interpreters, Kitagawa (1965) cites philological evidence to demonstrate that Dinnaga did not intend the second condition, that the reason is present in some locus or other where the property to be inferred is also present, to be a contraposed version of the third condition. The second condition was necessary, according to Kitagawa, in order to avoid confusion between two types of pseudo-reason (hetvabhasa), inconclusive (anaikantika) and incompatible (viruddha). While Dinnaga was illustrating the pseudo-reason at *Pramanasamuccayavrtit* II 6c, d and 7, he cited cases where the indicator-

reason would satisfy the second condition but not the third and vice versa. Now, it would have been impossible for such cases to be recognized if the two conditions were logically equivalent according to Dinnaga.

In inference, an awareness of A (the indicator-reason) with regard to a particular case or a set of particular cases (called paksa) leads to an awareness of B (the inferable object property). First, we have to grant that the awareness of A with regard to the particular place or places must be certain, if it has to yield certainty in our awareness of B with regard to the same place. The situation is this: certainty of A with regard to the particular place coupled with some additional information will yield certainty of B occurring in the same place (paksa). This additional information comes from our previous knowledge. An assumption is made, namely, if a rule or pattern emerges from previous knowledge we may hold it true also for the case under consideration. Therefore, if previous knowledge yields that contrary possibilities (possibilities of there being A without there being B) are absent, we may hold the same to be true in the case or cases under consideration. In this way, the indicator-reason A will fulfill the third and the first condition of a proper sign and thus we may reach the required certainty. But Dinnaga insisted that something more is needed as the additional information from previous knowledge in order to lead us to the required certainty: condition 2. In other words, exclusion of contrary possibilities is not enough, information about an actual case of co-occurrence of A and B in a place is to be supplied from previous knowledge in order to ensure the required certainty. Why? Is it not enough to know that there cannot be absence of B in the present place, for example, the case under consideration, for there is A? What, in other words, did Dinnaga have in mind when he insisted upon the second condition as being necessary?

1. Check your Progress

1. What is Sign?

12.4 CONDITION 2 VERSUS CONDITION 3: EPISTEMOLOGIZING LOGIC

One answer to the above question is the following. We find it easier to collect from previous knowledge some information about a co-occurrence of A with B than that about the exclusion of the contrary possibilities. Hence, we can imagine that the citation of a case of co-occurrence would bring us nearer to certainty. For example, a doubt whether there is B or not would be brought within the range of possibility. Next, the exclusion of contrary possibilities would assign the required certainty.

This answer seems plausible if we regard Dinnaga as being concerned here only with the psychology of inference, and not with logic. It would now be argued that this answer is wrong, for Dinnaga cited definite examples where such gradual steps, viz., doubt possibility certainty, have not been marked separately. This leads us to the consideration of those particular examples where contrary possibilities are eliminated, but it is not possible to obtain examples of co-occurrence from previous knowledge, for A is such that it could be and is present only in the given places, for example, the cases under consideration. In other words, A is a unique mark or character of the paksa, the case (or cases) under consideration. For example,

P1: Sound has impermanence, for it has sound-hood (or audibility).

It does not seem counter-intuitive to say that sound-hood or being a sound (or a noise) cannot be the logical mark or basis for inferring impermanence. If, however, we reformulate the argument as given below, as is the practice with most modern writers of the history of Indian logic, it seems logically impeccable.

P2: Whatever is a sound or is audible is impermanent. This is audible (a sound). Ergo, this is impermanent.

I submit that P2 cannot be a proper reformulation of P1. For P1 does not want to show, as P2 wrongly assumes, that a particular case is a case of sound (an audible object) and, therefore, it is impermanent. Rather it tries to show that all cases of sound are impermanent, for they are simply the cases of sound. I shall, therefore, dismiss P2 as a reformulation of P1, and

consider only P1 instead. It should also be noted, in the light of my previous comments, that the proposition "sound is impermanent" may very well be true or the awareness that sound is impermanent may be fact-corresponding, but Dinnaga's claim here is simply that it lacks the required logical certainty (in the sense defined earlier).

We can now face the question of justifying this claim. If the contrary possibility of something being a sound and not impermanent has been excluded by the information available from previous knowledge (that is, by the available information), why can't we decide that sound (all cases of sound) is impermanent? Here we reach the crux of the matter. We have to remember that all cases of sound are not (at least, in principle) part of the available information. They lie outside the domain that is constituted by available information. We are only certain of one more thing: sounds are sounds, or have sound-hood (or have audibility). This is an a priori certainty. But this does not guarantee that cases (instances) of sound are the kind of things of which impermanence or permanence is predicable. It could be that sounds are neither. Such a guarantee is available only if we could cite a case, independently of the present situation, where both the indicator-reason and the inferable object exist together, and show that the present case is similar to such a case. This is, therefore, part of the justification for Dinnaga not being totally satisfied with the exclusion of contrary possibilities (*vipaksasattva*), and thereby insisting upon citation of a similar case or a case in point (*sapaksasattva* = *sadharmyadrstanta*). P1 is, accordingly, declared as inconclusive or uncertain. Hence, it is not a deductively valid argument as is P2. It is being declared as uncertain, because it is quite a different sort of argument whose certainty is not determinable.

The above discussion raises many fundamental philosophical and logical issues connected with the meaning of negation, logical negation and contraposition, contradictories and contraries, possibility and certainty. While I do not wish to enter into such issues in the present context, I would claim that all these issues are relevant here. Briefly, I would note a couple of points. First, the above justification assumes that lack of togetherness of A with non-B does not necessarily imply togetherness of A with B. For, as

have already argued, all as may be such things with regard to which the question of their being either B or non-B does not arise. Hence, “an A is neither B nor non-B” is a further possibility that is not eliminated by the exclusion of the contrary possibilities. And since such a further possibility is not eliminated, the required certainty that the case under consideration is B is not reached. Citation of a “positive” example with A and B together eliminates the said third possibility, and thereby leads us to the required certainty.

From what has been stated so far, it follows that “not non-B” is not always equivalent to “B,” for sometimes it could mean something with regard to which the question of being either B or non-B does not arise. Further, B and non-B are not contradictories, in this way of looking at things, since they can only be contraries in the sense that they both may fail to apply to some cases (which are neither B or non-B).

12.5 A JUSTIFICATION OF DINNAGA'S HESITATION ABOUT CONTRAPOSITION

It may be noted here that part of the problem is connected with the confirmation of induction. For, Dinnaga insisted (in the account of the second type of inference noted in his *Hetucakra*) that to confirm that all products are perishable or impermanent we need not only a perishable product, such as a pot, as a positively-supporting example, but also a nonperishable non-product, such as the sky, as a negatively supporting example (compare *vaidharmya-drstanta*). Just as each black raven tends to confirm that all ravens are black so each green leaf, being a non-black non-raven, should confirm that all nonblack things are non-ravens (which is equivalent to saying that all ravens are black).

For Dinnaga, however, one can propose the following resolution of the puzzle. Taking some liberty with the notion of negation and contraposition, one may say that for Dinnaga while “all ravens are Black” implies “all non-black things are non-ravens,” it is not equivalent to the latter. In other words, the latter may not imply the former. For, suppose all black ravens are

destroyed from the face of the earth. It will still be true that all non-black things are non-ravens, for there will be green leaves, and so on, to certify it, but “All ravens are black” need not be held true at least under one interpretation of such a universal proposition (for there are no ravens to confirm it!). This also means that in Dinnaga's system we will have to assume that only universal affirmative propositions carry existential presupposition.

If we view matters in this way, we can find an explanation why Dinnaga insisted that both a positive and a negative example are needed to confirm the required inference: sound is perishable because it is a product. It seems to explain also why in the above example, P1, it is claimed that because of the lack of a positive example to confirm that each audible fact is perishable, the inference (certainty of the conclusion) is not decidable. We may notice that Dinnaga did supply the so-called negative example in each of the three cases in his Hetucakra to confirm the assertion “No non-B is A.”

But why this stricture upon “All audibles are perishable”? Why can it not be implied by “All non-perishable things are non-audible”? One may think that we need to be sure that there are audible things before we can assert that all audibles are perishable. But this will not do. For if we admit the first character of the “triple-character” of the reason we have to allow that there are audible things, for we have admitted that sounds or noises are audible. Hence the previous consideration for disallowing equivalence between “all audibles are perishable” and “all non-perishable things are non-audible” does not arise in the context of the given inference. Then, why this insistence? An answer to this puzzle is not easily forthcoming from the tradition of the Buddhist logicians after Dinnaga.

A tentative suggestion may be given. Suppose that “audible” and “perishable” have only their contraries in such formulations as “inaudible” and “non-perishable.” This means that there may be things that are neither audible nor inaudible. The “audible-inaudible” predication applies to the domain of only percepts: color and shape, sound, smell, taste, and touch. Further suppose that the domain of perishable imperishable things may not lie wholly within the domain of audible-inaudible things. In this case it

would be possible that some imperishable things (or even a perishable thing) could be neither audible nor inaudible! It is not always counterintuitive to say that non-perishable things such as the sky or the soul are very different sorts of things to which neither audibility nor inaudibility will apply. In this case it may be trivially true (allowing some ambiguity in the notion of negation) that no non-perishable things are audible. But confirmation of this trivial truth will not remove the said doubt whether an audible thing is perishable or not. For it may be neither! Such a dubious possibility is removed only if we can cite an example that is both audible and perishable (or imperishable, as the case may be). If we believe that a particular instance of sound is both audible and perishable then citing such a supporting example we can decide that sound is perishable. This way of citing an example from the domain of the paksa (which should ideally remain in the twilight zone of doubt until the inference is concluded) to support the vyapti relation is called the antarvyapti-samarthana. This was a later development in the post Dinnaga period.

The above defense of Dinnaga is admittedly very weak. But Dinnaga the epistemologist, was concerned with both the certainty over all possible doubt and the confirmation of induction. Since he claims that the “negative” example is not enough and a “positive” example is needed for the required certainty, he must deny that “all ravens are black” is in any way implied by “all non-black things are non-ravens.” This denial forces us to search for a possible situation that may not have been eliminated. Suppose “non-black” in my dictionary means white. It will still be true that all non-black things are non-ravens, which may be confirmed by a white crane. Further suppose that one has never seen a raven and that I imagine that they are neither black nor white, they are grey. Only an actual black raven can remove my doubt in this case. The oddity implicit in such a consideration is not any more serious than the oddity in assuming that a green leaf confirms the rule “all ravens are black,” or even in claiming that certain predicates are projectible in the sense of N. Goodman, while the complements of such predicates need not be so.

It is obvious from Dinnaga writing that he was never comfortable with such a so-called “negative” example (where no “positive” example is available for citation). It is clearly said that a “negative” example may be unnecessary if the vyapti “invariance” relation is supported by a “positive” example, and if the two examples are “well-known” either would be sufficient for they imply each other. Dinnaga is concerned with the cases that are called anvaya-vyatirekin (in Nyaya for example, cases where both (a “positive” and a “negative”) examples are available (prasiddha “well-known”) but not both of them may be cited in the argument-schema. In other words, these comments do not concern the “limiting” cases where a “negative” example is cited simply because no positive example is even available (confer, vyatirekin or kevala-vyatirekin and the asadharana in the Hetucakra). The asadharana or “uniquely inconclusive” evidence (number 5 in the Hetucakra) is such a limiting case. For Dinnaga both the asadharana and the vyatirekin (which is claimed to be correct by Nyaya are equally inconclusive for similar reasons (absence of a citable positive example to support the induction).

12.6 THE TRIPLE-CONDITION AND KNOWLEDGE FROM WORDS

In the above, there has been mainly concerned with the exact significance of the so-called second character of the “triple-character” of the indicator-reason or the inferential sign. Many post-Dinnaga writers found this to be redundant from a logical point of view, and it was generally admitted that the first character (which transpires as paksadharmata in the Nyaya system) along with the third (which becomes another description of the vyapti relation) would be sufficient to yield correct inferential knowledge. In this section, I shall concentrate upon the third character in order to show how Dinnaga extended his theory of inference to include also his theory about how to derive knowledge from language or words giving rise to the celebrated Buddhist doctrine of apoha, or exclusion of rival possibilities, as an explication for universals. The general sign, whether inferential or

linguistic, leads us to the knowledge of the signifiable object provided it is (empirically) established that the former is excluded from whatever excludes the latter, the signifiable object.

Perception yields knowledge of the particulars. Knowledge from the sign, that is, from inference and language, is always about the general. We cannot know the particulars in this way. From my knowledge of the inferential sign, a body of smoke, there arises my knowledge of fire in that place (the paksa), that is, my knowledge that the place excludes connection with non-fire. Our non-perceptual knowledge based upon the sign cannot be more definite than this sort of general connection. We cannot, for example, know what particular fire-body is there in the place from simply seeing the smoke that is there, but we can only ascertain that the hill (the place) is, at least, not without fire (that is, it is not the case that the hill lacks fire; confer ayoga-vyavaccheda). Similarly, from the word “fire” (that is, the utterance of the word “fire”) the hearer has a knowledge of the object referred to only in some general way. The hearer becomes aware that the object referred to is not something that is non-fire. The sign “fire” (the word) certifies simply the lack of connection of the intended object with non-fire. Just as the knowledge of smoke (the inferential sign) leads to our knowing that the hill lacks the lack of connection with some fire-body, knowledge of the word “fire” leads to our knowing the object of reference as excluded from non-fire. Just as from smoke we cannot know what particular fire-body is there, from the word “fire” too we cannot know a particular fire-body but only that something excludes non-fire. If by the meaning (artha) of a word we understand what the hearer knows from hearing the utterance of it, then “fire” can be said to mean “exclusion of non-fire” or “what excludes non-fire.”

After underlining the similarity between both the ways an inferential sign and a linguistic sign yield knowledge of the signified, Dinnaga argued that this would be a reasonable course to take in order to dispense with the objective universals of the Naiyayikas (or at least a large number of such universals) as ontological entities, distinct from the particulars. It is easy, for example, to assume that because common names, that is, kind-names and

material-names, are applied to different and distinct particulars, we must posit some common or shared character, shared by the group of particulars to which they are applied. Realists like the Naiyayikas regard these shared characters (kind-properties or fundamental class properties), at least some of them, to be not only real but also distinct from the individuals that instantiate them. This has traditionally been understood as the problem of universals. For if we assume, as the Naiyayikas do, that a shared character such as “cowhood” or “firehood” is a distinct reality locatable or manifested in a particular then we are further required to assume a suitable relation that would make the manifestation of one reality in another possible. In other words, there should be a relation that will make it possible for one reality, cowhood, to be located in another, a cow. The Naiyayikas' answer is that there is such a relation, samavaya, which we translate, in the absence of a better word in English, as “inherence.” This relation combines real universals with particulars. This raises many intricate questions. For example, how can a real entity be shared by many real and distinct entities, and still be one and the same? How can one and the same entity be present in many disconnected and different spatio-temporal locations? What happens to such an entity if and when all its particular manifestations are extinct? Whenever a new set of similar entities (artefacts) are manufactured, do we thereby create new (objective) universals? And so on and so forth.

In simple language, the familiar problems of universals arises in this way. We would generally say that there are cows, and pots, there is water, fire, gold, and so on. In effect this means that there are distinct (identifiable) individuals (in this world) to which we apply the term “cow” or “fire.” We need a philosophical explanation to answer the obvious question: what warrants us (that is, becomes the nimitta for us) to apply such terms the way we do apply such terms, to different individuals? Words, to use the modern style, either denote or designate objects, yes. But is there any basis, causal or otherwise, that we can call the nimitta, for such designation or denotation? What accounts for the use of the same term to designate different particulars? For, if there is none; language-learning would be for the most part an unexplained mystery.

12.7 KNOWLEDGE OF WORD-MEANING AND APOHA

Some philosophers would like to treat the above question as only a rhetorical question, the answer to which is obvious. It will be claimed that there is some unity among the disparate entities denoted by a term, the unity that provides the *nimitta*, that is, that accounts for the application of the term in question. This unity may not be regarded as an ontologically real entity distinct from each individual that has it. If such *nimittas* or “bases,” that is, the purported unities, are observable criteria (as happens in most cases), then the problem is easily resolved. King Dasaratha had three wives, and, hence, these three individuals shared the feature, being married to Dasaratha, by which we may only refer back to the three observable events of marriage. But, for most of our basic terms such a device is not at all available. To sustain the claim that the purported unities in such cases are distinct realities has been one of the hardest problems in philosophy. And yet one has nagging doubt as to whether the full-fledged nominalistic program can succeed. In fact, it seems preferable if one can maintain that the so-called abstract universals, those unities, are neither full-blown realities, as the Naiyayikas and some other realists would like to have them, nor totally dispensable concepts. In this matter, the Buddhist of the Dinnaga-Dharmakirti school seems to suggest a way out. This is called the *apoha* doctrine. It is regarded as an epistemological resolution of an ontological problem. The point is the following. We need not accept universals as real and distinct entities merely on the basis of the familiar argument that has been sketched here, unless of course there are other compelling reasons to believe in such entities. Our ability to use the same term to denote different individuals presupposes our knowledge or awareness of sameness or similarity or some shared feature in those individuals. This shared feature may simply be our agreement about what these individuals are not, or what kinds of terms cannot be applied to them. “This is a cow” denies simply such predicates as cannot be predicated of the object in question. True, we cannot talk here in terms of a broader indefinite class on each occasion. The

cow is said to be excluded from the class of non-cows, and the white lotus from both the class of non-white and that of non-lotus. But such classes (the so-called complement classes) are constructible each time with the help of the particular linguistic sign (the word) we use on each occasion. They are arguably less substantial and less objective than the positive class of lotuses or the class of blue things. For, in the latter cases, there is a tendency in us to believe further that there are objective class-properties shared by, and locatable in, the members of such classes. If these objective class-properties are explained in terms of some other realities that we do concede, well and good. In our previous example, “being married to king Dasaratha” did not present any problem. Similarly, we can, for example, say that the university studentship is only a convenient way of talking about a bundle of particular facts, admission of each person in university as a student. But in some cases the so-called objective property tends to be a unitary abstract property, a full-blown real universal, and thereby invites all the other problems that go along with it. In the case of a constructed class of non-cows, the search for a common property as an objective class-property is less demanding, for it is clear from the beginning that we cannot find any objective property (except the trivial one, non-cowness) to be shared equally by horses, cats, and tables. The program for finding such a common property is, so to say, “shot” from the beginning. We may note that the trivial property, the lack of non-cowness or denotability by “cow,” is constructible on each occasion and hence it is a “conditional” or conceptual property.

If the above argument is sound then we have captured at least part of the Buddhists' philosophical motivation for developing the apoha doctrine as a viable alternative to the doctrine of real universals. It is also true that in constructing the so-called “negative” classes, we implicitly depend upon the notion of some “positive” class-property. For how can one talk about the class of non-cows without having the notion of the class of cows? (In modern terminology we call the class of non-cows the “complement” class in order to underline this dependence upon the initial class of cows.) This is, in substance, part of the criticism of Kumarila and Uddyotakara against the Buddhists. A tentative answer is the following. We can formulate or

construct the class of non-cows as the class of those entities where the term “cow” is not applicable. True, the word “cow” itself is a universal. But we do not have to accept any objective universal such as cowhood over and above the word “cow.” (This coincides with the nominalist's intuition that words are the only universals that we may have to concede. This is also partly Bhartrhari's intuition about universals when he talks about word-universal (sabda-jati) and object-universal (artha-jati) and makes the latter only a projection of the former. But this will take us beyond the scope of this introductory work.) We can actually define our “negative” class as one constructible on the occasion of the use of each substantial word in terms of the word itself. Once this is done, a search for the common unitary class property (a real one) is not warranted any more, unless for some other compelling reason. This is not pure nominalism, for word-universals are admitted.

There may be an alternative answer, which may not amount to a very different sort of consideration. Each non-perceptual awareness of a cow (which follows, and is inextricably confused with the pure sensory perception of a cow-particular) has a common “cow-appearance” (go-pratibhasa). We may treat this as the shared feature of all the distinct events of our non-perceptual awareness of cows. This would be similar to a type of which each awareness-event (of a cow) would be a token. Now the class of non-cows can be redefined as the class of non-cow-appearance, which may then be explained as the class of items that are not connected with the awareness-events having cow-appearance. Now the origin of this cow-appearance or appearance of the cow-form (distinct from the appearance of the object, the particular, in the perceptual awareness) belonging to the non-perceptual awareness, can be traced to our desire to conceptualize and verbalize, that is, to sort out distinct awareness-events and make them communicable. This becomes possible due to the availability of the concept “cow” and the word “cow.” In this consideration, we also move closer to the Bhartrhari thesis about language, according to which words and concepts are implicitly and inextricably mixed up so much so that a concept is nothing but an implicit speech-potential, a not-yet-spoken word. This cow-

appearance or cow-form is no part of the objective reality that we sensorily perceive but it is supposed or imagined to be there. Hence it is less substantial than such an objective universal as cowhood, which it is meant to replace. This suggested paraphrase of “cowhood” by “denial of or exclusion of non-cow predication” may be regarded as philosophic reparsing. (We can take this paraphrase to be somewhat like the “paraphrasis” in Jeremy Bentham's theory of fiction. As W. V. Quine has noted, this is a method that enables a philosopher, when he is confronted with some term that is convenient but ontologically embarrassing, to continue to enjoy the services of the term while disclaiming its denotation.) Dinnaga's motivation in explaining cowhood as exclusion of non-cows was not very far behind. Indeed, Dharmakirti found the real universals of Nyaya ontologically embarrassing and suggested that they can be conveniently explained away by using the notion of “exclusion” and “otherness.” Again, this is not pure nominalism.

It is true that the so-called non-perceptual awareness of a cow is sequentially connected with the sensory perception of a particular. But, for the Buddhists, this is a contingent connection, the latter awareness being contingent upon our desire, purpose, inclination, etc., as has already been emphasized. The same thing, for example, can be called a doorstopper, a brick, an artefact, a work of art, or a murder instrument, depending upon the motivation of the speaker. The cow-appearance, or the cow-form, the common factor, becomes part of the latter "non-perceptual" awareness only when our perception becomes contaminated by some such motivation or other and thereby becomes impregnated with conceptions and latent speech-potentials. If we are motivated to obtain milk we call it a cow, if we are motivated otherwise we call it a beast, and if we are motivated, for example, to protect our flower-beds we may call it a nuisance.

Word-application or concept-application is an important part of our mental faculty. It is called by Dinnaga (and others) *vikalpa* or *kalpana*, “imagination,” “conceptual construction,” “imaginative construction.” This is a means for identifying and distinguishing the percept or the “representation” of the object in perception. This distinguishing activity is

performed with the help of words (or concepts, if one wishes). Conception, for the Buddhist, is a negative act. It is the exclusion or rejection of the imagined or supposed possibilities. Concept-application should thereby be reinterpreted as rejection of contrary concepts, and word-application similarly as rejection of contrary words. Noncontrary words need not be excluded. Therefore, we can apply “cow” and “white” to what we call a white cow, “fire” and “hot” or “fire” and “substance” likewise to a fire-body. For these are not contrary pairs. Application of words makes us presuppose contrary possibilities only in order to reject them later. We may apply "a product" to remove the doubt whether the thing under consideration is a non-product or not, and we may apply “impermanent” to the same thing in order to eliminate the possibility of its being permanent. Hence the two terms “a product” and “impermanent” are not synonymous in spite of their being applied to the same object or objects. In fact, true synonymy is a hard thing to achieve in this theory. Two words can be synonymous not because there is some common objective universal that they mean, but because they may serve to exclude the same contrary possibilities (see *Tattva-samgraha* of Santaraksita, verses 1032-3).

Dharmakirti and his followers developed a theory of dual object for each awareness, perceptual or non-perceptual. One is what is directly grasped and called the “apprehensible” (*grahya*) and the other is what is ascertained through the first and is called the “determinable” (*adhyavaseya*). In a perceptual awareness the apprehensible object is the datum or the particular whereas the determinable object is such a concept as cowhood, and therefore we pass the verbal judgement “It is a cow.” In a non-perceptual (inferential or linguistic) awareness the apprehensible object is the concept cowhood, and the “determinable” is a particular. In the awareness arising from the utterance of the word “cow” what we apprehend is cowhood or cow-appearance or cow-form and what we determine through it is the (external) object "out there" whereupon we superimpose the cow-appearance or cowhood. This cow-appearance or cowhood is to be interpreted as exclusion of non-cows. Thus in the so-called perceptual judgement "It is a cow" we determine that it is not a non-cow or that it excludes our non-cow

supposition. In the inference or in the knowledge from the linguistic sign “cow,” we likewise apprehend (directly) the exclusion of non-cows, which is then attributed or superimposed (confer aropa) upon the “determinable” object, the external thing, that we determine as excluding our non-cow supposition. In other words, hearing the word “cow” we not only apprehend cowhood but also determine an external object as being excluded from non-cows and such determination in its turn prompts us to act, that is, to proceed to get hold of the cow-particular that will give us milk, and so on. This answers the question about how are we prompted to act from simply a word-generated knowledge of the phoney universal.

To sum up: it must be admitted that the Buddhist substitute, anyapoha (exclusion of the other) has a clear advantage over the Naiyayikas objective universal such as cowhood. Since “exclusion” is not construed as a separate reality, we need not raise the question of how it is related to what by its own nature excludes others. Exclusion of non-cows is a shared feature of all cows and therefore can very well be the “basis” for the application of the general term “cow.” It is not absolutely clear whether talking in terms of the “exclusion” class, that of non-cows, has any clear advantage over our talking about the class of cows, that is, the positive class. It is, however, clear that formation of the “exclusion” class, that of non-cows, is ad hoc and dependent upon the occasion of each use of the general term. It is more clearly an artificially-formed class without any illusion about any underlying common property (a positive one) to be shared by its members. Furthermore, there is the denial rather than assertion of the membership of this artificially-formulated class in the final analysis of the use of such general terms. It seems to me that this device satisfactorily explains the use of the general terms at least without necessarily assuming objective universals. But whether or not we usually learn the use of such terms in this way is, however, another matter. Dinnaga has said:

The theory that the meaning (artha) of a word is exclusion of other “meanings” (artha) is correct because there is an excess of advantage (guna) in this view. For the characters of the objective universal, e.g. being a unity, being manifested fully in many (distinct things), can apply to “exclusion”

since such exclusions are also non-distinct (a unity) in each case, and they do not have to vanish (being support-less) when the objects (individuals) vanish, and they are manifested fully in many. Notions such as “exclusion,” “otherness,” or “similarity” are not, however, dispensable even in this theory.

It may be noted here that the Naiyayikas would also maintain that not all general terms would need objective universals as the “basis” for their application. The term “chef,” for example, can be applied to different persons and the so-called basis for such application can be easily identified as similar objective particulars in each case, training in the culinary art, the action of cooking, and so on. Objective universals are posited sometimes to account for natural kinds, water, cows, and so on. Sometimes it helps to explain causal connections (compare *karanatavacchedaka*, and *karyatavacchadaka* in Navyanyaya) such as the one between seedhood and sprouthood (to explain the fact that from each seed comes out some sprout or other). Sometimes admission of objective universals helps scientific taxonomy. Besides, objective universals are posited when we reach certain fundamental concepts such as substance, quality, and action. Objective universals can be treated as “unredeemed notes” as Quine has called them: “the theory that would clear up unanalyzed underlying similarity notions in such cases is still to come”. In Quine's view, they remain disreputable and practically indispensable and when they become respectable being explained by some scientific theory they turn in principle superfluous.

2. Check your Progress-1

Language as Conceptual Construction according to Dinnaga

12. 8 LET’S SUM UP

The word “wheel” used as a translation of “cakra” does not mean a circular wheel in this context. It means a group, a set, a multitude. The word “reason” is denoting the property called *hetu*. Two well-known studies of

this wheel of reason are available, one by Richard S. Chi, Buddhist Formal Logic (1968), the other by Richard P. Hayes, Dinnaga on the Interpretation of Signs (1988). I shall here follow Hayes, for his exposition is the more elegant. Dinnaga's seminal text is a systematic assessment of the state of a reason that might be put forward in support of given conclusions along with the indication why each one is or is not a good reason. Hayes understands Dinnaga's inference as involving a process of confirmation or disconfirmation by making a comparison of two classes of individuals, with the aim of discovering the relation that the two classes have to one another. The reason or the hetu can then be called the evidence confirming the presence of sadhya or sadhya-dharma (inferable property) in a particular locus or location, called the paksa. Instead of going into the details (for they are already to be found in chapter 1) I shall use the following symbolic relations. Let the class H stand for the loci of the reason or hetu, and the class S for the loci of the property to be confirmed. To compare H with S we can easily note the following four possibilities: (1) there are those individuals that belong to both H and S; (2) there are those that do not belong to H but do belong to S; (3) there are those that do belong to H but do not belong to S; (4) and there are those that belong to neither H nor S. Hayes calls these four "sub-domains or compartments of the induction domain"

12.9 KEY WORDS

samavaya, : "inherence." This relation combines real universals with particulars.

Apoha: A word talks about entities only as they are qualified by the negation of other things.

12.10 QUESTIONS FOR REVIEW

1. Explain key features of Dinnaga's logic

12.11 SUGGESTED READINGS

- *Abhidharma-samuccaya* (*Compendium of the higher teachings*) by Asaṅga. Edition: Tatia 1976. French translation: Rahula 1971.
- *Bāi lùn* (*Treatise in one hundred verses; Śata-śāstra*) by Āryadeva. Edition: *Taishō Chinese Tripiṭaka* 1569. English translation: Tucci 1930.
- *Caraka-saṃhitā* (*Caraka's collection*) by Agniveśa. Edition: Sharma and Dash 1976. English translation: Sharma and Dash 1976. Reference: CS *sthāna.adhyāya.sūtra*
- *Fāng biàn xīn lùn* (*Treatise on the heart of means*). Edition: *Taishō Chinese Tripiṭaka* 1632. Reference: T 1632 page.horizontal-band.vertical-line
- *Hetu-bindu* (*Drop of reason*) by Dharmakīrti. Edition: Steinkellner 1967. English translation: Gokhale 1997.
- *Kathā-vatthu* (*Points of controversy*) by Moggaliputta Tissa. Edition: Kāśyapa 1961. English translation: Aung and Davids 1915.
- *Milinda-pañho* (*Questions of King Milinda*) Edition: Trenckner 1880. English translation: Davids 1890.
- *Mūla-madhyamaka-kārikā* (*Basic verses on the middle way*) by Nāgārjuna. Edition: de Jong 1977. English translation: Siderits and Katsura 2013. Reference: MMK chapter.verse
- *Nyāya-bhāṣya* (*Commentary on logic*), a commentary on the *Nyāya-sūtra*, by Vātsyāyana, who is also known as Pakṣalisvāmin. Edition: Taranatha and Amarendramohan 1936. English translation: Jha 1913. Reference: NSB *adhyāya.āhnika.sūtra*
- *Nyāya-bindu* (*Drop of logic*) by Dharmakīrti. Edition: Malvania 1955. English translation: Shcherbatskoï 1930 v. 2. Reference: NB *chapter.passage*

- *Nyāya-mukha (Introduction to logic)* by Dignāga Edition: Original Sanskrit text lost. Chinese translation: *Tai Shou* no. 1628 (v. 32,; 1–2). English translation: Tucci 1930. Reference: NM.
- *Nyāya-praveśa (Primer on logic)* by Śaṅkarasvāmin. Edition: Dhruva 1930. English translation: Gillon and Love 1980; Tachikawa 1971.
- *Nyāya-sūtra (Aphorisms on logic)* by Gautama, who is also known as Akṣapāda. Edition: Taranatha and Amarendramohan (eds.) 1936. English translation: Jha 1913. Reference: NS *adhyāya.āhnika.sūtra*.
- *Nyāya-vārttika (Glosses on logic)* by Uddyotakara, a commentary on the *Nyāya-bhāṣya*. Edition: Taranatha and Amarendramohan 1936. English translation: Jha 1913.
- *Pramāṇa-samuccaya (Compendium on epistemic means of cognition)* by Dignāga. Edition: Original Sanskrit text lost. English translation: first chapter, Hattori 1968; second chapter, Hayes 1988 ch. 6; fifth chapter, Hayes 1988 ch. 7. Reference: PS chapter.verse
- *Pramāṇa-vārttika (Gloss on epistemic means of cognition)* by Dharmakīrti. Edition: Pandeya 1989. English translation: first chapter to verse 38 with autocommentary, Hayes and Gillon 1991 and Gillon and Hayes 2008; first chapter verses 312 -- 340 with autocommentary, Eltschinger, Krasser and Taber (trans.) 2012. English translation of the Chapter on argument: Tillemans 2000.
- *Pramāṇa-viniścaya (Settling on what the epistemic means of cognition are)* by Dharmakīrti. Edition of the chapter on perception: Vetter 1966. Edition of the chapter on inference: Steinkellner 1973.
- *Prasanna-padā (Clear-worded (Commentary))* by Candrakīrti, a commentary on *Mūla-madhyamaka-kārikā*. Edition: Shastri 1983. English translation: Sprung 1977.

- *Praśastapāda-bhāṣya* (*Praśastapāda's Commentary*), also known as *Padārtha-dharma-saṃgraha* (*Summary of categories and properties*), by Praśastapāda. Edition: Bronkhorst and Ramseier 1994. English translation: Jha 1916.
- *Rú shí lùn* (*Treatise on truth; Tarka-śāstra*). Edition: *Taishō Chinese Tripiṭaka* 1633. Reference: T 1633 page.horizontal-band.vertical-line
- *Sandhi-nirmocana-sūtra* (*Aphorisms on release from bondage*) Edition: Lamotte 1935. French Translation: Lamotte 1935.
- *Śata-śāstra*: see *Bāi lùn*.
- *Śloka-vārttika* (*Gloss in verses*), a commentary on Śabara's commentary on Jaimini's *Mīmāṃsā Sūtra*, Bk. 1, Ch. 1, by Kumārila Bhaṭṭa. Edition: Musalgaonkar 1979. Translation: Jha 1924.
- *Tarka-śāstra*: see *Rú shí lùn*.
- *Upāya-hṛdaya*: see *Fāng biàn xīn lùn*.
- *Vāda-nyāya* (*Logic of debate*) by Dharmakīrti. Edition: Shastri 1972; Gokhale 1993. English translation: Gokhale 1993.
- *Vāda-vidhi* (*Rules of debate*) by Vasubandhu. Edition: Frauwallner 1957. English translation: Anacker 1984 ch. 3.
- *Vaiśeṣika-sūtra* (*Aphorisms on individuation*) by Kaṇāda. Edition: Jambuvijāyajī 1961. English translation: Sinha 1911. Reference: VS *adhyāya.āhnika.sūtra*
- *Vākyapadīya* (*On sentences and words*) by Bhartṛhari. Edition: Rau 1977. English translation: Subramania Iyer, K.A. 1965, 1971, 1974, 1977. Reference: VP *kāṇḍa.kārikā* or *kāṇḍa.samuddeśa.kārikā*

12.12 ANSWERS TO CHECK YOUR PROGRESS

1 Answer to Check your Progress-1

- Dinnaga said that any property can be the sign for a second property, provided (1) it has been observed to be with the second property at least once, and (2) no example of the “contrary possibility” has been observed or cited.
- A contrary possibility would be a case where an instance of the sign is present but not the property signified by it.
- The first condition could be called suggestion of the possibility, while the second, exclusion of the contrary possibility.
- Our knowledge of the sign will lead to knowledge of the property, provided certainty is reached through this dual procedure: the possibility is suggested begetting an uncertain awareness and contrary possibilities are excluded yielding certainty.

3. Answer to Check your Progress -1

- Word-application or concept-application is an important part of our mental faculty.
- It is called by Dinnaga (and others) vikalpa or kalpana, “imagination,” “conceptual construction,” “imaginative construction.” This is a means for identifying and distinguishing the percept or the “representation” of the object in perception. This distinguishing activity is performed with the help of words (or concepts, if one wishes).
- Conception, for the Buddhist, is a negative act. It is the exclusion or rejection of the imagined or supposed possibilities. Concept-application should thereby be reinterpreted as rejection of contrary concepts, and word-application similarly as rejection of contrary words. Noncontrary words need not be excluded. Therefore, we can apply “cow” and “white” to what we call a white cow, “fire”

and “hot” or “fire” and “substance” likewise to a fire-body. For these are not contrary pairs. Application of words makes us presuppose contrary possibilities only in order to reject them later. We may apply "a product" to remove the doubt whether the thing under consideration is a non-product or not, and we may apply “impermanent” to the same thing in order to eliminate the possibility of its being permanent.

- Hence the two terms “a product” and “impermanent” are not synonymous in spite of their being applied to the same object or objects. In fact, true synonymy is a hard thing to achieve in this theory. Two words can be synonymous not because there is some common objective universal that they mean, but because they may serve to exclude the same contrary possibilities (see *Tattva-samgraha* of Santaraksita, verses 1032-3).

UNIT 13 - HETVABHASA

STRUCTURE

13.0 Objectives

13.1 Introduction

13.2 The fallacy of savyabhicara or the irregular middle

13.3 The fallacy of viruddha or the contradictory middle

13.4 The fallacy of prakaramsama or the counteracted middle

13.5 The fallacy of Asiddha or the unproved middle

13.6 The Fallacies of Kalatita and Badhita or the Mistimed and

Contradicted Middles

13.7 The fallacies of cala, jati and nigrahasthana

13.8 Lets sum up

13.9 Keywords

13.10 Questions for review

13.11 Suggested reading and references

13.12 Answers to Check your Progress

13.0 OBJECTIVES

- Understand the hetu
- Learn the hetvabhasas

13.1 INTRODUCTION

In Indian logic the fallacies of inference are all material fallacies. So far as the logical forms of inference are concerned, there can be no fallacy, since

they are the same for all valid inferences. An inference, therefore, becomes fallacious by reason of its material conditions. The Nyaya account of the fallacies of inference is accordingly limited to those of its members or constituent propositions, and these have been finally reduced to those of the hetu or the reason. For the purpose of proof an inference is made to consist of five members, namely, pratijna, hetu, udaharana, npanaya and nigamana. As such, the validity of an inference depends on the validity of the pratijna and other constituent parts of it. If there is anything wrong with any of its members, the syllogism as a whole becomes fallacious. Hence there will be as many fallacies of inference as there are fallacies of its component parts, from the first proposition down to the conclusion. So we may speak of the fallacies of the pratijna, etc., as coming under the fallacy of inference (nyayabhasa). But it must be admitted that the validity of an inference depends ultimately on the validity of the hetu or the reason employed in it. So also the members of a syllogism turn out to be right or wrong according as they elaborate a right or wrong reason. The fallacies of inference ultimately arise out of the fallacious reason. So the Naiyayikas bring the fallacies of inference under the fallacies of the reason (hetvabhasa) and consider a separate treatment of the inferential fallacies due to the propositum, example, etc. (pratijnabhasa, drstantabhasa) as unnecessary and superfluous.

Now the question is: What is a fallacious middle (hetu)? How are we to distinguish between a valid and an invalid middle? Literally speaking, hetvabhasa or the fallacious middle is one that appears as, but really is not, a valid reason or middle term of an inference. It appears as a valid ground of inference because it satisfies some of the conditions of a valid middle term. But on closer view it is found to be fallacious because it does not fulfil all the conditions of a valid ground of inference. ^ As we have seen before, there are five conditions of the hetu or the middle term of an inference. First, the middle term must be a characteristic of the minor term (paksadharmata). Secondly, it must be distributively related to the major term, i.e. the major must be present in all the instances in which the middle is present (sapaksasatta). Thirdly, and as a corollary of the second condition, the

middle term must be absent in all cases in which the major is absent (vipaksasattva). Fourthly, the middle term must not relate to obviously contradictory and absurd objects like the coolness of fire, etc. (abadhitavisayatva). Fifthly, it must not itself be validly contradicted by some other ground or middle term (asatpratipaksatva). Of these five conditions, the third does not apply to the middle term of a kevalanvayi inference, because it is such that no case of its absence or non-existence can be found. Hence, with regard to it we cannot say that the middle term must be absent in all cases in which the major is absent. Contrariwise, the second condition does not apply to the middle term of a kevalavyatireki inference, since here the middle term is always negatively related to the major term. There is a universal relation between the absence of the middle and that of the major term. Of such a middle term we cannot say that wherever it is present the major must be present. It is only in the case of anvayavyatireki inferences that the middle term must satisfy all the five conditions. Hence it has been said that a valid middle term is one that satisfies the five or at least the four conditions as explained above. As contrasted with this an invalid middle term (hetvabhasa) is that which violates one or other of the conditions of a valid ground of inference (hetu). It may be employed as the hetu or the middle term of an inference, but it fails to prove the conclusion it is intended to prove. There are different forms of the fallacious middle according to the different circumstances under which it may arise. All fallacious middle terms have been classified under the heads of the savyabhicara, viruddha, prakaranasama or satpratipaksa, Sadhyasana or asiddha, kalatita and badhita. Kesava Misra observes that the fallacies of definition such as ativyapti or 'the too wide,' avyapti or 'the too narrow' and asamhhava or 'the false' also come under the fallacies of the middle term.

13.2 THE FALLACY OF SAVYABHICARA OR THE IRREGULAR MIDDLE

The first kind of inferential fallacy is called the savyabhicara. In it the hetu or the middle term is found to lead to no one single conclusion, but to different

opposite conclusions. This fallacy arises when the middle term violates its second condition, namely, that it must be distributively related to the major term. This condition requires that the middle term must be pervaded by the major term, or that the major must be present in all the cases in which the middle is present. The *satyabhicara* *hetu*, however, is not uniformly concomitant with the major term. It is related to both the existence and the nonexistence of the major term. It is therefore called *anaikantika* or an irregular concomitant of the *sadhya* or the major term. Hence from such a middle term we can infer both the existence and the non-existence of the major term. Of such *savyabhicara* or irregular middle there are three kinds, namely, the *sadharana*, *asadharana* and *anupasamhari*. The *sadharana* or the ordinary fallacy of the irregular middle occurs when the middle term is in some cases related to the major and in other cases related to the absence of the major. This is illustrated in the following syllogism:

All knowable objects are fiery;

The hill is knowable;

Therefore the hill is fiery.

Here the middle term 'knowable' is indifferently related to both fiery objects like the kitchen, and fireless objects like the lake. All knowables being thus not fiery we cannot conclude that a hill is fiery because it is knowable. Bather, it is as much true to say that, for the same reason, the hill is fireless.

The second form of the *savyabhicara* is called *asadharana* or the extraordinary. It is a peculiar form of the fallacy of the irregular middle. In it the middle term is related neither to things in which the major exists nor to those in which it does not exist. Hence from such a middle term we can infer neither the existence nor the non-existence of the major term. Or, such a middle term may be employed to prove both the existence and the non-existence of the major term. This is illustrated when one argues that sound is eternal because there is *abdatva* or 'soundness' in it. Here the middle term 'soundness' is related only to the minor term 'sound.' It is found neither in eternal objects like the soul nor in other non-eternal things like the pot. Hence we do not know if soundness is universally related to the eternal or

the non-eternal. The middle term being undistributed one way or the other cannot lead to any valid conclusion.

The third form of the savyabhicara is the anupasamhari or the indefinite. Here the middle term is related to a minor term that stands not for any definite individual or class of individuals, but indefinitely for all objects. Hence the distribution of the middle term cannot be proved either positively or negatively. To prove that the middle term is distributively related to the major we are to point out either the positive instances of their agreement in presence or the negative instances of their agreement in absence. Since however, the minor term stands for all possible objects, we can not go beyond them and get any case in which the middle coexists with the major, or the absence of the major is concomitant with that of the middle term. This is illustrated in the inference that 'all objects are eternal, because they are knowable.' The validity of this inference depends on the validity of the major premise, namely, 'all knowables are eternal.' But the validity of the major premise cannot be proved, since beyond all objects we have no instances of the concomitance between the knowable and the eternal.

13.3 THE FALLACY OF VIRUDDHA OR THE CONTRADICTORY MIDDLE

There are two different explanations of the fallacy of viruddha. According to the Nyaya-Sutra and Bhasya, the fallacy of the viruddha consists in the opposition of one doctrine to a previously accepted doctrine, both belonging to the same system of thought. It is a contradiction between the different parts or doctrines of a system of philosophy. As an example of this Vatsyayana cites two contradictory statements from the Yoga-Bhasya, namely, (i) that the world ceases from manifestation because it is not eternal, and (ii) that even then it exists because it cannot be destroyed.

In the above sense the viruddha as a fallacy means the contradictions and inconsistencies involved in any school of philosophy. As such, however, it is not an inferential fallacy, but the fallacy of self-contradiction in which any

theory or philosophy may be involved. Hence the first explanation of the viruddha as given above does not appear to me to be acceptable.

According to the later Naiyayikas, from Uddyotakara downwards, the hetu or the reason is called viruddha when it disproves the very proposition which it is meant to prove. This happens when a middle term exists, not in the objects in which the major exists, but in those in which the major does not exist. That is, the viruddha or the contradictory middle is that which is pervaded by the absence of the major term. The result is that such a middle term instead of proving the existence of the major in the minor terra, which is intended by it, proves its non-existence therein. It contradicts and sublates the pratijna or the proposition which it is employed to prove and establish. Thus if one argues 'sound is eternal, because it is caused,' we have a fallacy of the viruddha or the contradictory middle. The middle term caused does not prove the eternality of sound, but its non-eternality, because all that is caused is non-eternal. Hence the distinction between the fallacies of the savyabhicara and the viruddha is that while in the former the middle term is universally related neither to the existence of the major nor to its non-existence, in the latter the middle terra is universally related to the non-existence of the major term. As a consequence of this, the savyabhicara or the irregular middle only fails to prove the conclusion, whereas the viruddha or the contradictory middle disproves it or proves the contradictory proposition.

13.4 THE FALLACY OF PRAKARAMSAMA OR THE COUNTERACTED MIDDLE

The third inferential fallacy is called the prakaranasama. Literally, it means a reason which is similar to the point at issue (prakarana). We have a point at issue when there are two opposite views with regard to the same subject, both of which are equally possible, so that they only give rise to a state of mental vacillation as to the truth of the matter. Now when a middle term does not go further than producing a state of mental oscillation between two opposite views we have a case of the prakaranasama middle. This happens

when one reason seeks to prove the existence of the major in the minor, but there appears some other reason to prove the non-existence of the major, and both of them are found to be equally strong. Here the opposed reasons counteract each other, but neither can sublate the other. They may indeed be employed as the middle terms of an inference, but each being neutralised or counterbalanced by the other (antpratipaksitn) fails to establish a sure conclusion and is therefore fallacious. Hence the prakaranasama is also called saipratipaksa or that which is opposed by an equally strong hetu or middle term. 'This is illustrated in the following arguments: 'sound is eternal, because the properties of the non-eternal are not found in it'; and 'sound is non-eternal, because the properties of the eternal are not found in it.' Here both the inferences are fallacious, because there is nothing to distinguish between the two middle terms leading to opposite conclusions.' The two middle terms being counteracted by each other cannot lead to any definite conclusion and we are left with the same question with which we started, namely, whether sound is eternal or non-eternal. The fallacy of the prakaranasama is distinguished from that of the savyabhicara by the fact that while in the latter one and the same character of the minor is taken as a middle term that may lead to opposite conclusions, in the former two different characters of the minor are taken as the middle terms leading to opposite conclusions. It is also distinguished from the piruddha or contradictory middle which by itself proves the opposite of what it is intended to prove, while here the opposite conclusion is proved by a different middle term (hetvantara),

13.5 THE FALLACY OF ASIDDHA OR THE UNPROVED MIDDLE

The fourth kind of fallacy is called the sadhyasama or the asiddha. The word sadhyasama means a middle term which is similar to the sadhya or the major term. The sadhya is a character which we want to prove in relation to the paksa or the minor term. Hence the sadhyasama stands for a middle term which requires to be proved as much as the major term. This means that the

sadhyasama middle is not a proved or an established fact, but an asiddha or unproved assumption. The fallacy of the asiddha occurs when the middle term is wrongly assumed in any of the premises and so cannot be taken to prove the conclusion. It follows that the premises which contain the false middle become themselves false. Thus the fallacy of the asiddha virtually stands for the fallacy of false premises, which is a form of the material fallacies in Western logic.

There are three main forms of the fallacy of asiddha, namely, (i) the asayasiddha, (ii) svarupasiddha and (iii) vyapyatvasiddha of these, the asayasiddha is a middle term which has no locus standi. One condition of a valid middle term is that it must be present in the minor term. The minor term is thus the locus of the middle. Hence if the minor term is unreal and fictitious, the middle cannot be related to it. The result is that the minor premise, in which the middle is related to an unreal minor, becomes false. This is illustrated in the inference ‘the sky-lotus is fragrant, because it belongs to the class of lotus.’ Here the minor term ‘sky-lotus’ is unreal, so that the middle ‘class of lotus’ cannot subsist in it. The middle term having no locus standi, we have a fallacy of the asayasiddha or the baseless middle. The svarupasiddha is a middle term which cannot be proved to be real in relation to the minor term. It is a middle term which is not found in the minor term. The existence of the middle in the minor being unreal, the minor premise which relates it to the minor term becomes false. Thus if one argues: ‘sound is eternal, because it is visible,’ he commits this fallacy. Here the middle term ‘visible’ is wrongly assumed in the minor term ‘sound’ and is not justified by facts. If the minor term stands for a number of things and the middle is found in some but not all of them, we have the fallacy of bhagasiddha or ekadesasiddha. To illustrate: ‘the four kinds of atoms of earth, etc., are eternal, because they are fragrant.’ Here the middle ‘fragrant’ is related only to a part of the minor term, namely, the atoms of earth, but not to the other kinds of atoms. Hence the middle term is partly false and so equivalent to the svarupasiddha middle. The fallacies of bhagasiddha or ekadesasiddha are therefore included within the fallacy of svarupasiddha. It includes also such other fallacies as (i) visesanasiddha, where the middle

term has a false adjunct, as when one argues ‘sound is eternal, because being a substance it is intangible,’ while sound is not a substance but a quality; (ii) visesyasiddha, where the middle is an unreal substantive of a real adjective, e.g. sound is eternal, because it is an intangible substance; (iii) asamarthavisesanasiddha, where the middle has an unmeaning adjunct, e.g. ‘sound is eternal, because being a quality it has no cause,’ in which the adjunct ‘being a quality’ has no force or sense in the argument; (iv) asamathavisesyasiddha, where the middle is an unmeaning substantive of a significant adjective, e.g. ‘sound is eternal, because it is an uncaused quality,’ in which the adjective ‘uncaused’ renders the word ‘quality’ quite superfluous.

The vyapyatvasiddha is a middle term whose concomitance (vyapti) with the major cannot be proved. A valid middle term must be universally related to the major term. If a middle term is not known to be universally concomitant with the major, it becomes invalid. The result is that the major premise which should express a vyapti or a universal relation between the middle and major terms becomes materially false. The fallacy of the vyapyatvasiddha may arise in two ways. It may be due to the non-concomitance of the middle term with the major, as in the inference ‘all reals are momentary; sound is a real, therefore sound is momentary.’ Here the major premise is false, because there is no universal relation between the ‘real’ and the ‘momentary.’ Or, it may be due to the presence of an (upadhi) or condition, on which the relation between the middle and major terms depends. Here the middle term is not, as it should be, unconditionally related to the major and is, therefore, false. It is illustrated in the inference ‘the hill is a case of smoke, because it is a case of lire.’ This inference is invalid, because the relation of the middle term ‘fire’ to the major ‘smoke’ is conditional on its being ‘fire from wet fuel.’ This fallacy of the conditional middle is technically called anyathasiddha.

13.6 THE FALLACIES OF KALATITA AND BADHITA OR THE MISTIMED AND CONTRADICTED MIDDLES

The kalatita literally means a middle term which is vitiated by the lapse of time. In this fallacy the middle term consists of two or more events which succeed one another in time. But on the analogy of the given example, these events must be simultaneous if the middle term, constituted by them, is to prove the conclusion. Since, however, they are successive, the middle term becomes inappropriate in the order of time and is therefore called kalatita or the mistimed middle. It is illustrated in the inference ‘sound is durable, because it is manifested by conjunction, like colour.’ The colour of a thing is manifested when the thing comes in contact with light, although the colour exists before and after the contact. So also, it is argued, sound which is manifested by the contact between two things (samyogaoyangya) must be durable, i.e. exist before and after the contact. But the argument is fallacious because its middle term is vitiated by a limitation in time. In the case of colour the manifestation takes place simultaneously with the contact between light and the coloured object. The manifestation of sound, however, is separated by an interval of time from the contact between two things. In fact, we hear the sound when the contact between the two has ceased. Hence it cannot be due to the contact, because when the cause has ceased, the effect also must cease. The middle term being incongruous with the given example fails to prove the conclusion and is therefore fallacious. In this sense the kalatita means a middle term which is subject to different conditions in the two premises of the syllogism. As such, it becomes a kind of fallacy that corresponds to the fallacy of accident in Western logic.

According to a second interpretation, the kalatita is the fallacy of a wrong order of the different members of the syllogism. It is illustrated when there is an inversion of the natural order of the premises and the conclusion, as when we put the premises after the conclusion. On this view, the kalatita corresponds to the fallacy of hysteron proteron. But this view of the matter is not accepted by the Naiyayikas. A change in the order of the members of a syllogism does not really affect its validity nor render it fallacious. Further, such a change does not involve a fallacy of the middle term or an inferential fallacy. It constitutes a defect in the method or procedure and is, therefore, described as the clincher of the inopportune (apraptakala nigrahasthana).

Although the fallacy of the badhita has been treated by some writers as another name for that of the kalatita yet it seems to me better to distinguish between the two in view of the sharp contrast in their meanings. While the kalatita stands for a middle term vitiated by a limitation in time, the badhita means a middle term which is contradicted by some other source of knowledge (pramanantarena). A middle term is contradicted when it leads to a conclusion, the opposite of which is proved to be true by some other pramana. This is illustrated by the argument 'fire is cool, because it is a substance.' Here the middle term 'substance,' which seeks to prove that fire is cool, is contradicted because we know from tactual perception that fire is not cold but hot. The fallacy of satpratipahsa, as explained before, is different from this fallacy of badhita because in the former one inference is contradicted by another inference, while in the latter an inference is contradicted by a non-inferential source of knowledge.'

1. Check your Progress

1. Write a note on all five fallacies

13.7 THE FALLACIES OF CALA, JATI AND NIGRAHASTHANA

Apart from the fallacies of inference, the Naiyayikas deal with certain other fallacies which occur in connection with the art of debate. These are called cala, jati and nigrahasthana. The fallacy of cala consists in using the same word to mean different objects in the course of a debate. It thus corresponds to the fallacy of ambiguity in Western logic. It is of three kinds, namely, vakcala, samanyacala and upacaracala. In vakchala or the fallacy of equivocation the same word is used in different senses. This is illustrated when one man says 'the boy is navakambala' (possessed of a new blanket), and another objects 'he is not nava-kambala (possessed of nine blankets). In samanyacala the same word is taken to mean an individual and the class to which it belongs, e.g. one man says this Brahmin is a learned man,' and

another objects 'all Brahmins are not learned men.' In upadrachala or the fallacy of figure of speech, a confusion is made between the figurative and literal senses of an expression, e.g. when one says 'the scaffolds cry out,' and another objects 'scaffolds cannot cry.'

Jati is the fallacy of irrelevance. In it a futile argument is based on some irrelevant consideration which does not really prove the conclusion. There are twenty-four kinds of jati or futile arguments. The first is called sadharmyasama, where an argument is based on some kind of similarity between two things, e.g. 'sound is eternal because it is incorporeal like the sky.' The second is vaidhanniyasama, where an argument is based on some kind of dissimilarity between two things. The utkarsasama, apakarsasama, varnyasama, avarnyasama, vikalpasama and sadhyasama are futile arguments in which the character of the minor term or the example is altered or they are unduly assumed without sufficient reason. The praptisama and apraptisama are futile objections based on the wrong implications of the coexistence between the middle and major terms or their absence. The prasangasama and pratidrstantasama are futile objections based on the ground that the given example has not been proved by a series of arguments, or that there is a counter-example. The anurpattisama is an objection based on the ground that the middle term of the given argument cannot exist in the minor term before it comes into existence. The samsayasama is an objection based on the doubt arising from a middle term with opposite examples. The prakaranasama is an objection based on the ground of a middle term which is related to both the sides of a controversy. The ahetusama is an objection which is based on the ground that the middle term is unintelligible in the three orders of time. The arthapattisama is an argument based on mere presumption. The aviesasama is an argument to prove the identity of all things on the ground of their having existence in common. The upapattisama is an objection based on the ground that there is a counter-argument to the given argument. The upalabhisama is the objection to a given argument based on the ground that we can perceive the truth of the conclusion even without the argument. The anupalabhisama is an argument to invalidate a given argument from non-perception, on the ground that non-perception

cannot be "perceived. The nityasama is an argument to prove the eternity of all non-eternal things on the ground that they are eternally non-eternal. The anityasama is an argument to prove the non-eternity of all things on the ground of their resembling a non-eternal thing in some respect or other. The karyasama is an argument opposed to a given argument from the nature of an effect, on the ground that an effect may have very different natures, and so cannot be taken to lead to a single conclusion.

The nigrasthanana, which literally means a ground of defeat, is a fallacy which is due either to a misunderstanding or to the want of understanding. It is said to be of twenty-two kinds. These are: pratijnahani or weakening one's proposition by adducing such examples as run counter to it; pratijntara or shifting the proposition; pratijnavirodha or contradicting the proposition; pratijnasannyasa or renouncing the proposition; hetvantara or shifting the ground; arthantam or shifting the topic; nirarthaka or the meaningless statement like abracadabra; avijnatartha or the unintelligible statement; apraptakala or the incoherent statement; aparthaka or the wrong order of the parts of an argument; adhika or the suppression of any part of an argument; adhika or the duplication of the middle term or the example; punarukta or the meaningless repetition of any part of an argument; unanubhasana or the refusal to answer a question; ajnana or ignorance of the proposition; apratibha or the inability to give a reply to the argument; viksepa or evasion of the argument; matdnujna or admission of the defect in one's argument ; paryyanuyojoyopeksana or overlooking a defect in the argument; niranuyojoyanuyoga or finding fault with the faultless; apasiddhanta or the deviation from an accepted position; and hetubhasa or the fallacy of the middle term.

It will appear from the above that some of the fallacies of chala, jati and nigrasthanana come under the inferential fallacies, while others are either semi-logical or non-logical fallacies. These relate either to the meaning of words and propositions or to the conduct of the parties concerned in any discussion. Hence any elaborate account of these three kinds of fallacies with their many subdivisions is not necessary in connection with the Nyaya theory of inference.

2. Answer to Check your progress-1

These are called cala, jati and nigrahasthana.

13.8 LETS SUM UP

In Indian logic the fallacies of inference are all material fallacies. An inference, therefore, becomes fallacious by reason of its material conditions. The Nyaya account of the fallacies of inference is accordingly limited to those of its members or constituent propositions, and these have been finally reduced to those of the hetu or the reason. For the purpose of proof an inference is made to consist of five members, namely, pratijna, hetu, udaharana, upanaya and nigamana. As such, the validity of an inference depends on the validity of the pratijna and other constituent parts of it. If there is anything wrong with any of its members, the syllogism as a whole becomes fallacious. Hence there will be as many fallacies of inference as there are fallacies of its component parts, from the first proposition down to the conclusion. So we may speak of the fallacies of the pratijna, etc., as coming under the fallacy of inference (nyayabhasa) But it must be admitted that the validity of an inference depends ultimately on the validity of the hetu or the reason employed in it. So also the members of a syllogism turn out to be right or wrong according as they elaborate a right or wrong reason. The fallacies of inference ultimately arise out of the fallacious reason. So the Naiyayikas bring the fallacies of inference under the fallacies of the reason (hetvabhasa) and consider a separate treatment of the inferential fallacies due to the propositum, example, etc. (pratijnabhasa, drstantabhasa) as unnecessary and superfluous.

13.9 KEY WORDS

Hetvabhasa, : fallacies of the reason

pratijnabhasa, : inferential fallacies due to the propositum

drstantabhasa : inferential fallacies due to the example

13.10 QUESTIONS FOR REVIEW

1. Write a note on all five fallacies
2. Explain Chala, jati and nigrahasthana

13.11 SUGGESTED READING AND REFERENCES

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13.12 ANSWERS TO CHECK YOUR PROGRESS

1. Answers to Check your Progress-1

- Now the question is: What is a fallacious middle (hetu)? How are we to distinguish between a valid and an invalid middle?
- Literally speaking, hetvabhasa or the fallacious middle is one that appears as, but really is not, a valid reason or middle term of an inference. It appears as a valid ground of inference because it satisfies some of the conditions of a valid middle term. But on closer view it is found to be fallacious because it does not fulfil all the conditions of a valid ground of inference. ^
- As we have seen before, there are five conditions of the hetu or the middle term of an inference.
- First, the middle term must be a characteristic of the minor term (paksadharmata).
- Secondly, it must be distributively related to the major term, i.e. the major must be present in all the instances in which the middle is present (sapaksasatta).
- Thirdly, and as a corollary of the second condition, the middle term must be absent in all cases in which the major is absent (vipaksasattva).
- Fourthly, the middle term must not relate to obviously contradictory and absurd objects like the coolness of fire, etc. (abadhitavisayatva).
- Fifthly, it must not itself be validly contradicted by some other ground or middle term (asatpratipaksatva). Of these five conditions, the third does not apply to the middle term of a kevalanvayi inference, because it is such that no case of its absence or non-existence can be found. Hence, with regard to it we cannot say that

the middle term must be absent in all cases in which the major is absent. Contrariwise, the second condition does not apply to the middle term of a kevalavyatireki inference, since here the middle term is always negatively related to the major term. There is a universal relation between the absence of the middle and that of the major term. Of such a middle term we cannot say that wherever it is present the major must be present.

- It is only in the case of anvayavyatireki inferences that the middle term must satisfy all the five conditions. Hence it has been said that a valid middle term is one that satisfies the five or at least the four conditions as explained above. As contrasted with this an invalid middle term (hetvabhasa) is that which violates one or other of the conditions of a valid ground of inference (hetu). It may be employed as the hetu or the middle term of an inference, but it fails to prove the conclusion it is intended to prove. There are different forms of the fallacious middle according to the different circumstances under which it may arise.
- All fallacious middle terms have been classified under the heads of the savyabhicara, viruddha, prakaranasama or satpratipaksa, Sadhyasana or asiddha, kalatita and badhita. Kesava Misra observes that the fallacies of definition such as ativyapti or the too wide,' avyapti or 'the too narrow' and asamhhava or the false' also come under the fallacies of the middle term.

2. Answer to Check your Progress-1

- The fallacy of cala consists in using the same word to mean different objects in the course of a debate. It thus corresponds to the fallacy of ambiguity in Western logic.
- It is of three kinds, namely, vakcala, samanyacala and upacaracala. In vakchala or the fallacy of equivocation the same word is used in different senses. This is illustrated when one man says 'the boy is navakambala'

(possessed of a new blanket), and another objects 'he is not nava-kambala (possessed of nine blankets).

- In samanyacala the same word is taken to mean an individual and the class to which it belongs, e.g. one man says this Brahmin is a learned man,' and another objects 'all Brahmins are not learned men.' In upadrachala or the fallacy of figure of speech, a confusion is made between the figurative and literal senses of an expression, e.g. when one says 'the scaffolds cry out,' and another objects 'scaffolds cannot cry.'
- Jati is the fallacy of irrelevance. In it a futile argument is based on some irrelevant consideration which does not really prove the conclusion. There are twenty-four kinds of jati or futile arguments. The first is called sadharmyasama, where an argument is based on some kind of similarity between two things, e.g. 'sound is eternal because it is incorporeal like the sky.' The second is vaidhanyasama, where an argument is based on some kind of dissimilarity between two things. The utkarsasama, apakarsasama, varnyasama, avarnyasama, vikalpasama and sadhyasama are futile arguments in which the character of the minor term or the example is altered or they are unduly assumed without sufficient reason. The praptisama and apraptisama are futile objections based on the wrong implications of the coexistence between the middle and major terms or their absence. The prasangasama and pratidrstantasama are futile objections based on the ground that the given example has not been proved by a series of arguments, or that there is a counter-example. The anurpattisama is an objection based on the ground that the middle term of the given argument cannot exist in the minor term before it comes into existence. The samsayasama is an objection based on the doubt arising from a middle term with opposite examples. The prakaranasama is an objection based on the ground of a middle term which is related to both the sides of a controversy. The ahetusama is an objection which is based on the ground that the

middle term is unintelligible in the three orders of time. The arthapattisama is an argument based on mere presumption. The aviesasama is an argument to prove the identity of all things on the ground of their having existence in common. The upapattisama is an objection based on the ground that there is a counter-argument to the given argument. The upalabhisama is the objection to a given argument based on the ground that we can perceive the truth of the conclusion even without the argument. The anupalabhisama is an argument to invalidate a given argument from non-perception, on the ground that non-perception cannot be "perceived. The nityasama is an argument to prove the eternality of all non-eternal things on the ground that they are eternally non-eternal. The anityasama is an argument to prove the non-eternality of all things on the ground of their resembling a non-eternal thing in some respect or other. The karyasama is an argument opposed to a given argument from the nature of an effect, on the ground that an effect may have very different natures, and so cannot be taken to lead to a single conclusion.

- The nigrasthana, which literally means a ground of defeat, is a fallacy which is due either to a misunderstanding or to the want of understanding. It

UNIT-14 BUDDHIST AND JAIN METHODS OF DEBATES

STRUCTURE

14.0 Objectives

14.1 Introduction

14.2 Debate In The Buddhist Canons

14.3 Good Versus Bad Debate In Caraka

14.3.1 Caraka's Account Of Good Debate

14.4 The Account Of Debate In The Jaina Canons

14. 5jaina Seven-Valued Logic

14.6 Lets sum up

14.7 key words

14.8 Questions for review

14.9 Suggested Readings

14.10 Answer to Check your Progress

14.0 OBJECTIVE

- Learn Buddhist way of debates
- Know Caraks' Method of debate
- Understand Jain way of debates

14.1 INTRODUCTION

Thematization of the debate, as well as organization of various concepts and categories that both constitute and differentiate good debates from bad ones, is itself an indication of the advance made in intellectual horizons and of the sophistication reached in logical abstraction.

14.2 DEBATE IN THE BUDDHIST CANONS

There were strictly formulated debates and controlled deductions in the early Buddhist canonical literature, the Abhidhamma. The Abhidhamma is a later elaboration of Buddhist philosophy out of the Matika, “matrix of the system” propounded in broad outlines in the Nikayas. Our concern here is with one particular text, the Kathavatthu, which belongs probably to the second century BC. It takes up more than two hundred disputed points and then argues each in turn, following a structured form of debate. The general procedure is this. The opponent is made to state a thesis, and it is then refuted by the Theravadin Buddhist, the proponent, following the logical rules of implication. The entire debate is rather prolonged and cumbersome, being divided into a primary debate and a varying number of secondary discussions, that simply check the meanings of the terms used in the original debate.

The primary debate, called vadayutti, consists of eight refutations, in fact four pairs, each pair being divided into an affirmation and a negation. Thus, the primary debate is called atthamukha “having eight openings.” Of the four pairs, the first forms a complete debate. The other three pairs are deviations of the first, derived by the addition of three such logical expressions as “everywhere,” “always,” and “in everything.” Thus,

- (1) “Is a b?” is qualified as
- (2) “Is a b everywhere?”
- (3) “Is a b always?” or
- (4) “Is a b in everything?”

It is significant to note that there was here an early awareness of what counted as a logical expression: “everywhere,” “always,” and “in everything.” Obviously, the options were secondary, being applied where appropriate. They introduced universality and Omni temporality in the proposition under consideration.

The debate used to be conducted in question-and-answer form. The question is asked: “Is a b?”, and the answer is given, either “yes” or “no.” If the answer is “yes,” it is asserted that a is b, or we may say that the statement “a is b” has truth value True. And if it is “no,” then it is denied that a is b, or, we will say, “a is b” has truth value False. The structure of each debate is divided into pentads (pancaka) and tetrads (catukka), one having five steps and the other four steps. However, this distinction is arbitrary, for both use the same principle of reasoning. The idea is first to obtain one truth (one “yes”) and one falsity (one “no”) by question and answer, and then formulate a conditional: If p then q. At the next stage, it is shown inconsistent to hold the antecedent true and the consequent false, and then the conclusion is stated as the refutation of the consequent implying the refutation of the antecedent, which was the original thesis, “a is b,” which the other side started with. Thus, formally the debate would be won by refutation. This applies indiscriminately to both the proponent and the opponent. The conditional is formed by substituting the predicate-term in “a is b” by its true synonyms or by equivocation (or by quibbling or by sophistry) or by something implied by it. Thus, it is obvious that, when the opponent to the Theravadin formulates a conditional by equivocation, he still wins, for the formal validity of his argument is not impaired thereby. Those modern scholars, who have remarked that the notion of formal validity did not at all enter into the minds of ancient Indian logicians, should ponder over this point. Strictly defined rules guided the discussion, and hence to win the Theravadin had to expose the equivocation or other tricks used by the opponent. I shall illustrate the point below.

Two disputants start a debate and in two stages they interchange their positions, one asking questions while the other answering. The first stage is called anuloma “the way forward,” while the second is called pratiloma “the way back.’ He who asks a question first sums up the argument by refuting the other. Here is an example from Kathavatthu:

I. the Way Forward (anuloma)

Theravadin: Is the soul known as a real and ultimate fact?

Puggalavadin: Yes.

Theravadin: Is the soul known in the same way as a real and ultimate fact is known?

Puggalavadin: No, that cannot be truly said.

Theravadin: Acknowledge your refutation:

- (1) If the soul be known as a real and ultimate fact, then indeed, good sir, you should also say, the soul is known in the same way as any other real and ultimate is known.
- (2) That which you say here is false, namely, (a) that we should say, "the soul is known as a real and ultimate fact," but (b) we should not say, "the soul is known in the same way as any other real and ultimate fact is known."
- (3) If the later statement (b) cannot be admitted, then indeed the former statement (a) should not be admitted either.
- (4) In affirming the former (a), while
- (5) denying the latter (b), you are wrong.

II. The Way Back (pratiloma)

Puggalavadin: Is the soul not known as a real and ultimate fact?

Theravadin: No, it is not known.

Puggalavadin: Is it not known in the same way as any real and ultimate fact is known?

Theravadin: No, that cannot be truly said.

Puggalavadin: Acknowledge the rejoinder:

- (1) If the soul is not known as a real and ultimate fact, then indeed, good sir, you should also say: it is not known in the same way as any other real and ultimate fact is known.
- (2) That which you say is false, namely, that (a) we should say "the soul is not known as a real and ultimate fact," and (b) we should not say "it is not known in the same way as any other real and ultimate fact is known."
- (3) If the latter statement (b) cannot be admitted, then indeed the former statement (a) should not be admitted either.
- (4) In affirming (b) while
- (5) denying (a), you are wrong.

The logic on which the summing up is based is virtually the same in either case. Hence both are credited with formal validity. Both are exploiting a well-known definition of implication, according to which ‘if p then q’ means ‘not both p and not q.’ It is true, of course, that the propositions or terms are not represented here by symbolic letters, p, q, and so on.

For our purpose, we may transcribe the argument as follows:

I. The Way Forward

(1) If A is B, then A is C;

-therefore

(2) not both: (A is B) and not (A is C);

-therefore

(3) if not (A is C), then not (A is B).

II. The Way Back

(1) If A is not B, then A is not C;

therefore

(2) not both: (A is not B) and not (A is not C);

therefore

(3) if not (A is not C), then not (A is not B).

1. Check your Progress

1. Buddhist Method of debate

14.3 GOOD VERSUS BAD DEBATE IN CARAKA

Caraka's (circa 100 AD) mentions two-fold classification of philosophical debate in the Caraka-samhita (III.8.27 ff.). The first kind is called by Caraka sandhaya sambhasa, ‘amicable debate’ or discussion which used to be held between fellow scholars who were friends. The second kind is called vighya

sambhasa, a “hostile debate” which used to be held between disputatious philosophers. This was not very different from a verbal wrangling. The former was in a spirit of “co-operation” (confer sandhaya) while the latter was in a spirit of opposition (compare vighya).

The “amicable” debate should be held, according to Caraka, with a person who is learned, and endowed with admirable qualities, such as modesty, generosity, power to speak clearly and convincingly, and lack of selfishness or self-glorification. One need not be afraid of defeat in such a debate for one may learn the truth about the subject matter under discussion. Besides, in such a debate, if one defeats the other, one need not take pride or feel overjoyed. One should not speak ill of the other, nor should one stupidly stick to a view which is decidedly one-sided (ekanta). In such a debate one should not speak about something one does not know well. And above all, one should respect the opponent.

The “hostile” debate is however very different. One may indulge in it, says Caraka, provided one can gain something or further one's cause. But before one enters into such a debate, one should carefully examine the good and bad points of the opponent as well as one's own. The good points of a debater are learning, knowledge, memory, talent or imaginative power, and power to deliver a speech. The bad points are anger, lack of equanimity, fear, lack of memory, and inattention. Caraka warns that these good and bad points of the proponent, as well as of the opponent, should be carefully weighed before one commits oneself to debate in the hostile manner.

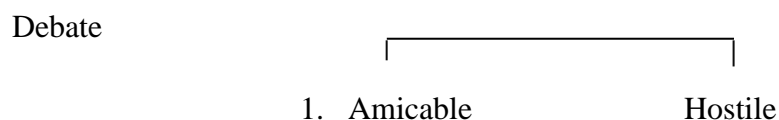
Not only the attributes of the opponent but also of the assembly before which this debate will take place must be examined carefully. Opponents, says Caraka, are of three kinds: one of superior intelligence, one of inferior intelligence and one of equal intelligence equal, that is, with the debater. The assembly is usually of two kinds: an intelligent assembly and one that is not so. The assembly, from another point of view, can be divided into three kinds: friendly, hostile, and indifferent. Caraka says that, faced with a hostile assembly, even if it consists of people who are learned, knowledgeable, and intelligent, one should not enter into a “hostile” debate. The same is true of a hostile assembly comprised of unintelligent or stupid (mudha) people.

However, if the assembly is friendly or even indifferent, and at the same time unintelligent, then one may enter into a “hostile” debate with an opponent who is not famous and not liked by great people. Such an opponent can be defeated even without much skill in the art of the question-and-answer process in a debate. In other words, the debater may use different tricks, physical and verbal, to carry the assembly with him and declare that the opponent is defeated because he lacks both knowledge and practice.

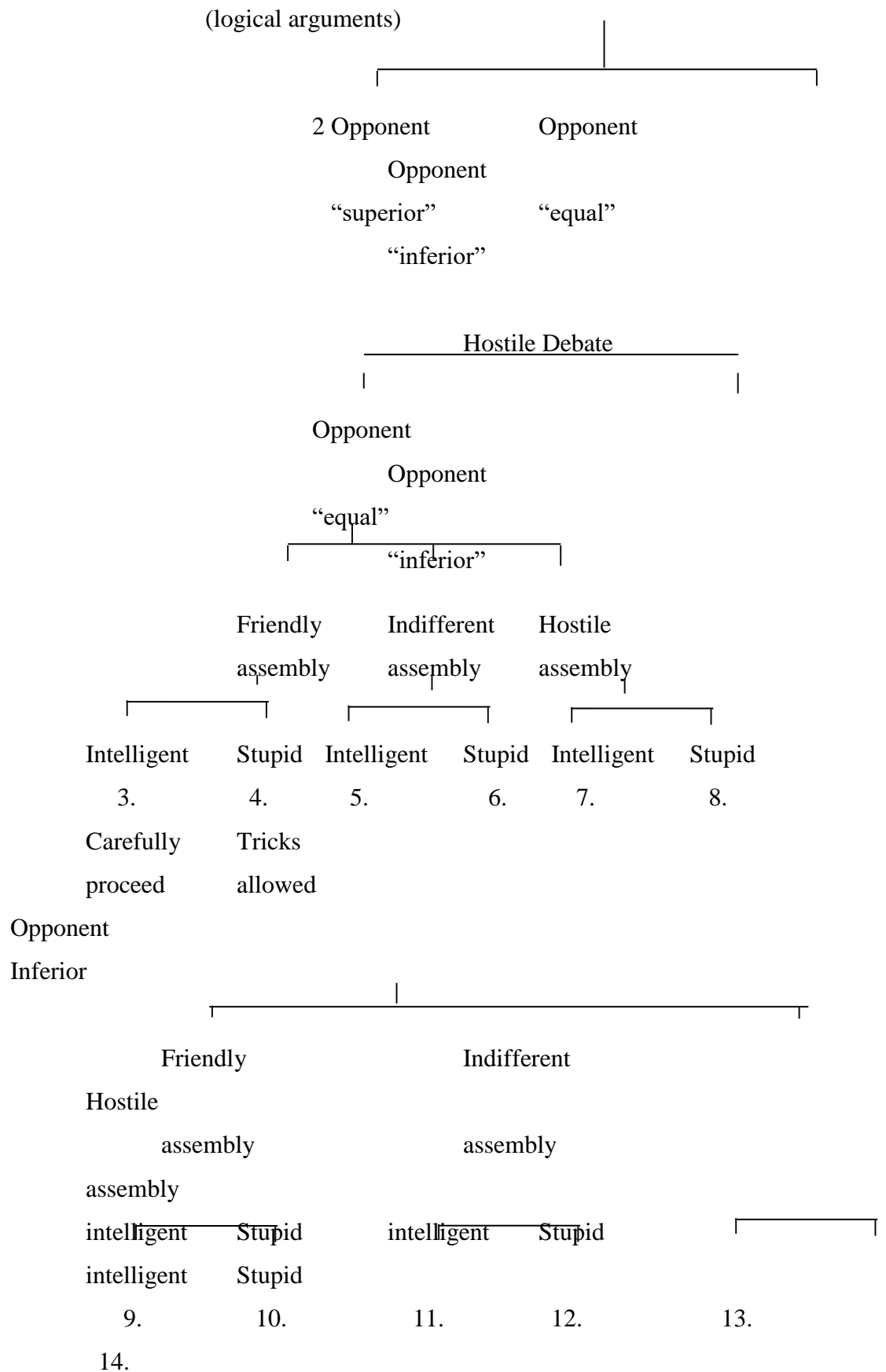
According to some, one may debate in a hostile manner with an opponent of superior intelligence. But the considered advice, according to Caraka, is not to enter into such a debate with a person of superior intelligence. With the inferior or the equal, one may debate before a friendly assembly. In an indifferent, but intelligent (and learned), assembly, the debater should carefully examine the merits and shortcomings of the opponent, and then, avoiding the areas where the knowledge of the opponent is deemed superior, he should quickly move to the area where the opponent lacks knowledge or expertise and defeat him there. After stating this strategy, Caraka lists some of the ways by which an “inferior” opponent can be vanquished. For example, if the opponent lacks learning, he can be defeated by the utterance of a long quotation from a well-known text; if he lacks knowledge, then by uttering sentences with difficult words in them; if he lacks talent, then by means of words with multiple meaning; if he is afraid or nervous, then by frightening him further, and so on. All this may not be thought to have much to do with logic as such, but, as the history of logical thinking in India is partly to be traced in the history of the debate tradition, we can see some relevance here. Caraka's classification of debate generates fourteen varieties in all, which can be summarized in Figure 2.1.

Figure 2.1

Caraka's Classification of Debate



Notes



Having classified debate in the above manner, Caraka goes on to describe the categories or concepts that should be known by anybody entering into a debate. This list is rather elaborate (consisting of 44 items) and not very systematically ordered. It includes such concepts as that of the “defeat situation” or clincher of the issue in a debate, which is called a *nigrahasthana*, and along with it several of its subvarieties as well. A more systematic account of the categories related to the concept of debate is to be found in the *Nyayasutras* (circa 150 AD), which appears to be a crystallized version of what we find in Caraka. This, however, may or may not settle the problem of chronological priority between the two texts in favor of Caraka. For, although most of the terms are the same, and their descriptions similar, Caraka's *Caraka-samhita*, being primarily a medical text, might have recorded an earlier stratum in the development of the “science of debate” (*vivada-sastras*). The “hostile” debate, which has been subdivided into thirteen or fourteen types above, is taken up again by Caraka, who now divides it into two main types, *jalpa* and *vitanda*. As these two terms are too technical to be straight-forwardly translated into English, I shall call the first the “j-type” hostile debate and the second the “v-type” hostile debate. The *Nyayasutra* also uses the same two terms, and Caraka's characterization of these two agrees with that of the *Nyayasutra*, as we will see presently. For Caraka, the j-type is a debate where two theses are explicitly stated (such as one saying “There is after-life” while the other saying “There is no after-life”), and defended by citing reasons along with the refutation by each of the other with the help of some further independent reasons. The v-type is said to be a special variety of the j-type where only the refutation of the opponent is achieved, but no establishment of one's own position is attempted. The *Nyayasutra*, as we will see, gives a more refined definition of these two, systematically connecting them with other technical concepts, in terms of which the entire theory of debate has been articulated there.

14.3.1 Caraka's Account Of Good Debate

It is significant to note that Caraka distinguishes between the statement or articulation of the thesis, that is, a (pro)position which is to be proved or established such as "the soul is eternal," and the establishment or proving of (1) that thesis with the help of (2) the reason, (3) an example, (4) showing the relevance of these two (reason and example) to the present thesis, and (5) re-stating the thesis now as a proven conclusion. In Caraka's terminology this is called *sthapana*, its nearest analogue in the West, in the context of logic, would be "demonstration." The thesis is called the *pratijna* (the same term is used in the *Nyayasutra*) and it is defined as the (verbal) statement of what is to be proven. The "demonstration" includes five articulated steps, called figuratively its "limbs" (*avayava*) in the *Nyayasutra*. Having thus distinguished "demonstration" from "articulation of the thesis," Caraka developed the concept of "counterdemonstration" (*prati-sthapana*), which likewise includes five steps (the same five as in a demonstration), but now used to establish a contradictory thesis, such as "the soul is not eternal." The idea is that if proving 'A is B' involves articulation of the five steps (which is very much like a proof-procedure in its primitive form), then disproving it would amount to repeating the procedure with the contradictory thesis "A is not B." Caraka makes a significant comment in explaining the concept of "reason" as part of the demonstration.

The "reason" is what causes the apprehension or recognition of the object or the fact to be proven. Thus, it is the evidence on the basis of which something, some truth, is recognized or "established as proven." This shows the ambiguity in the earlier writings of two terms *pramana* and *hetu*. They were sometimes interchangeable. The former is, etymologically speaking, that by which something is known, while the latter is that by which something is established or demonstrated to be so. The means of establishing something to be so can also be a means for knowing something to be so. Hence the two

may, on occasion, coincide. But gradually they came to be separated, as it was realized that the former is connected with epistemology, that is with

evidence and the acquisition of knowledge, and hence has a broader role to play, while the later can be restricted to “logic,” for example, to the context of an argument based upon an inference or of the “demonstration” of such an argument to convince the others. This separation, apparently reflecting an advance in logical studies, was partially realized in the Nyayasutra, where two interrelated categories, pramana “means of knowledge” and prameya “objects of knowledge” (the knowables), were put at the top of a list of sixteen categories. The rest, for example, the fourteen other categories, were concerned exclusively with method, or philosophical methodology as it is sometimes called now-a-days. In fact in the Nyayasutra, there was a two-fold transformation: partial establishment of the pramana-vidya, the study of knowledge and its evidence-cum-instrument; and transformation of the early debate categories into a more pervasive and acceptable philosophical methodology. Dinnaga took his cue from Aksapada, and while criticizing Vatsyayana he established a full-fledged sastra called pramana-sastra, the study of knowledge and its evidence-cum-instrument that was roughly equivalent to epistemology in the West.

In a different place, Caraka says that all concepts can be divided into two, real and unreal, and there are four ways by which we can “examine” them: verbal testimony, perception, inference, and causal inquiry (yukti). This fourfold method of “examination” (pariksa) is endorsed in the context of establishing whether the concept of atman or the self is real or unreal. Testimony is explained as the statements of reliable persons, those who are learned and devoid of any fault in their character. Perception is the cognition of the present, which arises out of a fourfold contact between the self, the mind, the senses, and the objects. Inference is preceded by perception and is related to any object, past, present, or future. Causal inquiry (yukti) is that cognition by which different causal factors leading to a particular effect, such as the harvest or building a fire, are determined. In the same context, Caraka calls these four also “pramanas” (instruments of knowledge). The definition of perception is similar to that found in the Vaisesika-sutra. That of inference is reminiscent of Nyayasutra 1.1.5. The distinction between inference and yukti is not very clear. Caraka simply implies that knowledge

of the causal factors is given by this instrument of yukti (induction?), so that people may produce the intended effect by bringing together (yoga) these relevant causal factors. It is significant to note that in the chapter on debate, when the instruments of knowledge are again listed, we have five: testimony, perception, inference, tradition, and analogy. Here yukti is conspicuous by its absence. Tradition is explained as the traditional authority or the scriptures, from which we derive knowledge. Analogy is self-explanatory. From a logical point of view, however, the examples of inference are the most interesting.

14.4 THE ACCOUNT OF DEBATE IN THE JAINA CANONS

In Jaina canonical literature, we have not only a number of kinds of technical vocabulary connected with logic and debate but also an interesting classification of hetu or logical reason. The ambiguity of the term hetu is already foreshadowed in the Sthananga sutra 338 (circa 100 BC). Here the term hetu, “reason,” is used in three alternative senses, and in each sense it is classified into four types. First, it is identified as meaning the “reason” used by a debater. The four different types of “reason” in debate give us four different types of rejoinder:

- (1) Yapaka is a rejoinder (mostly an improper one) put forward to “kill time.” The debater is trying to think of a proper answer but, as it takes time to find a good reason, he tries to stall the opponent with an improper rejoinder which the opponent will have to take some time to figure out.
- (2) Sthapaka is a proper rejoinder which establishes the position. The debater now hits upon the right reason, the right reply.
- (3) Vyamsaka is quibbling in a debate. The debater does not know the right rejoinder and hence picks out a word in the thesis of the opponent and quibbles. "He has (a) new (= nava) book," says one. "He does not have nava (= nine) books, only one," says the other.

Since the word nava is a homonym and may mean either “new” or “nine” depending upon the context, the debater starts quibbling.

- (4) Lusaka is a rejoinder where the debater "calls the bluff" of the opponent who is quibbling in the above manner.

Second, the term hetu, “reason,” is used in the sense of being epistemic evidence by which the thesis may be established. This is again of four kinds: perception, inference, analogy, and testimony. Recall our previous reference to the early conflation of the notion of pramana “evidence” with hetu “reason,”

which can be seen again here. Third, the hetu "reason" may be classified in the following four formal ways:

- (1) This is, because that is
- (2) This is not, because that is
- (3) This is, because that is not
- (4) This is not, because that is not.

The above four forms of argument are given here in their exact translation from Prakrit. A point to note here is that “not” is consciously separated as a logical word, and four varieties are reached by the use of such a logical word either in the premise (evidence) or in the conclusion. In other words, a positive evidence (a presence) may yield a positive conclusion or even a negative conclusion. Similarly, a negative evidence (absence of something) may yield a positive or a negative conclusion. We will see such patterns again in other texts. Another important point to note is that this is perhaps the first time such argument patterns are given using pronouns which are surrogates for modern variables. The argument pattern in India was usually given in terms of concrete examples, viz, "there is smoke, therefore there is fire" (the hackneyed example of the Indian logicians). This feature, which was nothing

more than a stylistic device, had misled some Indologists and modern writers in Indian logic to surmise that the Indian logicians were not consciously aware of the underlying forms of the argument or their generalization in logic. They were, according to this view, concerned with particular examples and at most regarded them as types. Although the

Indians did not use symbols, I believe it would be wrong to construe that they were unaware of the formal side or the concept of generalization in logic. The above is a counter-example to such a view, where variables, that is, pronouns, are consciously used.

2. Check your Progress

1. Jain Method of debate

14. 5 JAINA SEVEN-VALUED LOGIC

A more serious criticism of Jainism is that if the senses change, and if the indexicals are differently interpreted, we get a new and different proposition entirely, and hence the result would not be an affirmation and denial jointly of the same proposition. If this is conceded then the main doctrine of Jainism is lost. It is not truly an *anekanta*, which requires the mixing of the opposite values. This critique, serious though it is, can also be answered. This will lead us to a discussion of *saptabhangi*.

The philosophical motivation of the Jainas is to emphasize not only the different facets of reality, not only the different senses in which a proposition can be true or false, not only the different determinants which make a proposition true or false, but also the contradictory and opposite sides of the same reality, the dual (contradictory) evaluation of the same proposition, and the challenge that it offers to the doctrine of bivalence or realism.

Let us talk in terms of truth predicates. The standard theory is bivalence, that is, two possible valuations of a given proposition, true or false. The first step taken by the Jainas in this context is to argue that there may be cases where joint application of these two predicates, true and false, would be possible. That is, given certain conditions, a proposition may be either (1) true, or (2) false, or (3) both true and false. If there are conditions under which it is true and there are other conditions under which it is false, then we can take both

sets of these conditions together and say that given these, it is both. This does not mean, however, the rejection of the law of contradiction. If anything, this requires only non-compliance with another law of the bivalence logic, that of the excluded middle (the excluded third). It requires that between the values, true and false, there is no third alternative. The law of contradiction requires that a proposition and its contradictory be not false together. This keeps the possibility of their being true together open. Only the law of excluded middle can eliminate such a possibility. This is at least one of the standard interpretations of the so-called two laws of bivalence logic. In a non-bivalence logic, in a multiple valued logic, the law of contradiction is not flouted, although it disregards the excluded third. The Jainas likewise disregards the mutual exclusion of yes and no, and argues, in addition, in favor of their combinability in answer to a given question. We have shown above how such opposite evaluations of the same proposition can be made compatible and hence combinable.

It is the sameness of the proposition or the propositional identity that is open to question here. If the change of determinants, of point of view, of the indexical element, introduces a different proposition, then change of truth-values from true to false could not be significant enough. However, we may claim that the proposition, whatever that is, remains the same and that it has both values, true and false depending upon other considerations. This would still be a non-significant critique of the classical standard logic of bivalence. The Jainas therefore go further, in order to be true to their doctrine of “precarious” evaluation (akulavada), and posit a separate and non-composite value called “avaktavya” (“inexpressible”), side by side with true and false. I shall presently comment on the nature of this particular evaluation. First, let us note how the Jainas get to their seven types (ways) of propositional evaluation. If we admit combinability of values, and if we have three basic evaluable predicates (truth-values), true, false and “inexpressible” (corresponding to yes, no and “not expressible by such yes or no”) then we have seven and only seven alternatives. Writing “+,” “-“ and “o” for the these values respectively, the seven alternatives are:

+ , - , +- , o , o+ , o- , o+- .

For the proper mathematical symmetry, we may also write:

+, -, 0, +-, 0+, -0, 0+-.

This is following the principle of combination of these basic elements, taking one at a time, two at a time and all three. The earlier arrangement reflects the historical development of the ideas. Hence in most texts, we find the earlier order. The “inexpressible” as a truth-like predicate of a proposition has been explained as follows. It is definitely distinct from the predicate “both true and false.” For the latter is only a combination of the first two predicates. It is yielded by the Jaina idea of the combinability of values or even predicates that are mutually contradictory. Under certain interpretations, such a combined evaluation of the proposition may be allowed without constraining our intuitive and standard understanding of contradiction and consistency. “It is raining” can be said to be both true and false under varying circumstances. However, the direct and unequivocal challenge to the notion of contradiction in standard logic comes when it is claimed that the same proposition is both true and false at the same time in the same sense. This is exactly accomplished by the introduction of the third value “inexpressible,” which can be rendered also as paradoxical. The support of such an interpretation of the “inexpressible” is well-founded in the Jaina texts. Samantabhadra and Vidyananda both explain the difference between the “true and false” and the “inexpressible” as follows: the former consists in the gradual (kramarpana*) assigning of truth-values, true and false, while the latter is a joint and simultaneous (“in the same breath”) assigning of such contradictory values (c.f. saharpana). One suggestion is that the predicate is called “inexpressible” because we are constrained to say in this case both “true” and “false” in the same breath. Something like “true false” or “yes-no” would have been better, but since these are only artificial words, and there are no natural language words to convey the concept that directly and unambiguously flouts non-contradiction. The Jainas have devised this new term “inexpressible” to do the job a new evaluation predicate, noncomposite in character, like “true” and “false.”

This metaphysical predicate “inexpressible” as a viable semantic concept has been acknowledged in the discussion of logical and semantical

paradoxes in modern times. Nowadays, some logicians even talk about "para-consistent" logics, where a value like "both true and false simultaneously" is acknowledged as being applicable to the paradoxical propositions, such as "this sentence is false" or "I am lying." The third value is alternatively called "paradoxical" or "indeterminate" (this is to be distinguished from "neither true nor false" which is also called "indeterminate;" see Priest 1979). With a little bit of ingenuity, one can construct the matrices for Negation, Conjunction, Alternation, and so on, for the system. The Jainas, however, do not do it.

I shall now emphasise the significant difference between the philosophical motivations of the Jainas and those modern logicians who develop multiple-valued logics or the para-consistent logic. First, the logicians assign truth to the members of a certain set of propositions, falsity to another set, and the third value, paradoxicality to the "problem" set, that is, the set of propositions that reveals the various versions of the Liar paradox and the other paradoxes. The Jainas on the other hand believe that each proposition, at least each metaphysical proposition, has the value "inexpressible" (in addition to having other values, true, false, and so on). That is, there is some interpretation or some point of view under which the given proposition would be undecidable so far as its truth or falsity is concerned, and hence could be evaluated as "inexpressible." Likewise, the same proposition, under another interpretation, could be evaluated "true," and under still another interpretation, "false."

Second, my reference to the non-bivalence logic or para-consistent logic, in connection with Jainism, should not be over-emphasized. I have already noted that Jaina logicians did not develop, unlike the modern logicians, truth matrices for Negation, Conjunction, and so on. It would be difficult, if not totally impossible, to find intuitive interpretations of such matrices, if one were to develop them in any case. The only point that I wanted to emphasize here is to show that the Jaina notion of the "inexpressible," or the notion of anekanta in the broader perspective, is not an unintelligible or an irrational concept. Although the usual law of non-contradiction, which is by itself a

very nebulous and vague concept, is flouted, the Jainas do not land us into the realm of illogic or irrationality.

Last but not least, the Jainas in fact set the limit to our usual understanding of the laws of noncontradiction. There are so many determinants and indexicals for the successful application of any predicate that the proper and strict formulation of the ways by which this can be contradicted (or the contradictory predicate can be applied to the same subject) will always outrun the linguistic devices at our disposal. The point may be stated in another way. The notion of human rationality is not fully exhausted by our comprehension of, and the insistence upon, the law of non-contradiction. Rational understanding is possible of the Jaina position in metaphysics. In fact, one can say that the Jaina *anekanta* is a meta-metaphysical position, since it considers all metaphysical positions to be spoiled by the inherent paradoxicality of our intellect. Thus, it is a position about the metaphysical positions of other schools. It is therefore not surprising that they were concerned with the evolution of propositions, with the general principle of such evaluations. In this way, their view rightly impinged upon the notions of semantics and problems with semantical paradoxes. And above all, the Jainas were non-dogmatic, although they were dogmatic about non-dogmatism. Their main argument was intended to show the multi-faceted nature of reality as well as its ever elusive character such that whatever is revealed to any observer at any given point of time and at any given place, would be only partially and conditionally right, ready to be falsified by a different revelation to a different observer at a different place and time. The Jainas think in our theoretical search for understanding reality, this point can hardly be overstated

14.6 LETS SUM UP

In this unit we discussed about the Buddhist methods of *vadavyutti*. We also learnt about the Caraka's accounts of good and bad debate. The Jain logical method mentioned in scripture as well as *anekant*, the multi valued logic.

14.7 KEY WORDS

“avaktavya” :“inexpressible”

vadayutti: The primary debate

14.8 QUESTIONS FOR REVIEW

1. What is difference between Buddhism v/s Jainism?
2. What are The Teachings of Lord Buddha?

14.9 SUGGESTED READINGS

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- *Pramāṇa-samuccaya (Compendium on epistemic means of cognition)* by Dignāga. Edition: Original Sanskrit text lost. English translation: first chapter, Hattori 1968; second chapter, Hayes 1988 ch. 6; fifth chapter, Hayes 1988 ch. 7. Reference: PS chapter.verse
- *Pramāṇa-vārttika (Gloss on epistemic means of cognition)* by Dharmakīrti. Edition: Pandeya 1989. English translation: first chapter to verse 38 with autocommentary, Hayes and Gillon 1991 and Gillon and Hayes 2008; first chapter verses 312 -- 340 with autocommentary,

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14.10 CHECK YOUR PROGRESS

1. Answer to Check your Progress

1. The primary debate, called *vadayutti*, consists of eight refutations, in fact four pairs, each pair being divided into an affirmation and a negation. Thus, the primary debate is called *atthamukha* “having eight openings.” Of the four pairs, the first forms a complete debate. The other three pairs are deviations of the first, derived by the addition of three such logical expressions as “everywhere,” “always,” and “in everything.” Thus,

(1) “Is a b?” is qualified as

(2) “Is a b everywhere?”

(3) “Is a b always?” or

(4) “Is a b in everything?”

- It is significant to note that there was here an early awareness of what counted as a logical expression: “everywhere,” “always,” and “in everything.” Obviously, the options were secondary, being applied where appropriate. They introduced universality and Omni temporality in the proposition under consideration.

2. Answer to Check your Progress-1

- First, it is identified as meaning the “reason” used by a debater. The four different types of “reason” in debate give us four different types of rejoinder:

- (1) Yapaka is a rejoinder (mostly an improper one) put forward to “kill time.” The debater is trying to think of a proper answer but, as it takes time to find a good reason, he tries to stall the opponent with an improper rejoinder which the opponent will have to take some time to figure out.
- (2) Sthapaka is a proper rejoinder which establishes the position. The debater now hits upon the right reason, the right reply.
- (3) Vyamsaka is quibbling in a debate. The debater does not know the right rejoinder and hence picks out a word in the thesis of the opponent and quibbles. "He has (a) new (= nava) book," says one. "He does not have nava (= nine) books, only one," says the other. Since the word nava is a homonym and may mean either “new” or “nine” depending upon the context, the debater starts quibbling.
- (4) Lusaka is a rejoinder where the debater "calls the bluff" of the opponent who is quibbling in the above manner.
 - Second, the term hetu, “reason,” is used in the sense of being epistemic evidence by which the thesis may be established. This is again of four kinds: perception, inference, analogy, and testimony. Recall our previous reference to the early conflation of the notion of pramana “evidence” with hetu “reason,” which can be seen again here. Third, the hetu "reason" may be classified in the following four formal ways:
 - (1) This is, because that is
 - (2) This is not, because that is
 - (3) This is, because that is not
 - (4) This is not, because that is not.