NYAYA INFERENCE : DEUCTIVE OR INDUCTIVE

The purpose of this paper is to examine the veracity of the claim, made by some of the Indian thinkers like C.D. Sharma,[1] M. Hiriyanna[2] and Radhakrishnan,[3] that *Nyāya* Logic is deductive-inductive in character. I shall attempt to show that inferences in *Nyāya*, both of the old and the new schools, are not deductive - inductive in character, and those who have claimed it, have done it due to their misconception about the distinction of deductive and inductive inferences. To substantiate the position let me begin with the *Nyaya* doctrine of *Vyapti* in general.

There is no doubt that the *Nyāya* system has had a long history and its position and ways of formulating the doctrine of *Vyapti* have evolved considerably over the centuries. Nonetheless, both the schools of *Nyāya*, the old and the new, hold the view that *Vyāpti* is a logical ground of all valid inferential cognitions. One can see this from their conception of *paramarsa* itself. Ordinarily, the term *'paramarsa'* stands for cognition or knowledge in general. But in the *Nyāya* system it has a technical meaning. It is used to signify the cognition of *paksadharmatā* as qualified by *Vyapti* (*vyaptivisista paksadharmata jnanam paramarsah*).[4] *'Vyāpti'* is understood in terms of 'invariable concomitance of the probans (*hetu*) with the probandum (*sadhya*) and *'paksadharmatā'* in terms of 'the presence of the probans (*hetu*) in the subject (*paksa*). And, inference is, thus, defined as knowledge arising in and through *paramarsa*. Since *vyaptivisista* (that which is characterized by *vyāpti*) and *paksadharmatā* (the fact of being a feature of *paksa*) are the two essential components of *paramarsa* on the *Nyāya* account, they constitute necessary and sufficient conditions of valid inferential congnitions in the sense that no inference caan yield valid knowledge on the *Nyāya* account unless they are grounded on *vyāpti* and *paksadharmatā*. If this is so, and I believe it is, no inferences in *Nyāya* from the ground point of view could be said

to differ from one another. And as a result, there could be only two alternatives possible: Either inferences in *Nyāya* are deductive or inductive; but in no case they can be both deductive and inductive, since this possibility is ruled out by their characteristics. How this is ruled out by their characteristics. How this is ruled out by their characteristics, before discussing it, let me first of all remove a common misconception about the distinction of deductive and inductive inferences. Deductive and inductive inferences are generally defined as follows:

Deductive Inference

A valid deductive inference is one in which we always proceed either from the general to the specific or from the more general to the less general.

Inductive Inference

A valid inductive inference is one in which we always proceed either from the specific to the general or from the less general to the more general.

These definitions are misconceived definitions in my opinion. A valid deductive inference is not one in which we always proceed either from the general to the specific or from the more general to the less general. Because, there are many counter instances of valid deductive argument in which inferences are drawn neither from the general to the specific, nor from the more general to the less general but rather from the specific to the specific. Take, for example, the following argument:

Ram is a student.

Ram is intelligant.

Ram is an intelligent student.

This argument is a case of a valid deductive argument since its premises, if true, provide absolute guarantee for the truth of its conclusion; and yet it involves no inference either from the general to the specific or from the more general to the less general. Inference is rather

from the specific to the specific. All its premises and conclusion are specific. So, it is wrong to say that a valid deductive argument is one in which we always proceed either from the general to the pecific or from the more general to the less general. The given difinition of deductive inference cannot be used as criterion for characterizing inferences in *Nyāya* as deductive.

Likewise. valid inductive inference is not one in which we always proceed either from the specific to the general or from the less general to the more general. Because there are many counter instances of valid inductive argument in which inferences are drawn neither from the specific to the general nor from the less general to the more general. Inferences rather are drawn either from the specific to the specific or from the general to the specific or from the general to the general. Take, for example, the following arguments:

(1)
The class that Mr X taught yesterday was interesting.

∴ The class that Mr X will teach today will be interesting.

(2)
All classes that Mr X taught in the past were interesting.

∴ The class that Mr X will teach today will be interesting.

(3)
All classes that Mr X taught in the past were interesting.

∴ All classes that Mr X will teach in the future will be interesting.

All these inferences are cases of valid inductive inferences since their premises, if true, provide a good reason or evidence (but not conclusive) for the truth of their conclusion; and yet none of them involves inference either from the specific to the general or from the less general to the more general. Their inference rather is either from the specific to the specific or from the general to the specific or from the general to the general. So, it is wrong to say that a valid inductive inference is one in which we always proceed either from the specific to

the general or from the less general to the more general. The given
definition of inductive inference cannot be used as criterion for charac-
terizing inferences in *Nyāya* as inductive.

The distinction between deductive and inductive inferences in
fact consists in regard to the relationship of their premises and conclusion,
not the way they proceed from one proposition (or a set of propositions)
to another proposition. The relation that holds between premises and
conclusion of a valid deductive argument does not hold good between
premises and conclusion of a valid inductive argument. Premises and
conclusion of a valid deductive argument always stand in the relationship
of implication or entailment. It is because of this reason their premises
with the negation of conclusion always imply a contradiction; and
provide absolute guarantee, if true, for the truth of conclusion. While in
the case of inductive argument the position is quite different. Premises
and conclusion of a valid inductive argument do not stand in the
ralationship of implication or entailment. Their relationship always
remains contingent. As a result, neither their premises with the negation
of conclusion imply a contradiction, nor a logical oddity of any sort. Their
premises never provide absolute guarantee, even if true, for the truth of
conclusion. Unlike a valid deductive argument, it is always logically
possible for the premises of a valid inductive argument to be true and the
conclusion false.   This gap is the distinctive mark of all inductive
arguments, as opposed to deductive ones. This is the reason why the
notion of 'validity' is used in each case in a different sense.

As deduction and induction differ from one another in regard to
the relationship of their premises and conclusion, the possibility of *Nyāya*
logic to be both deductive and inductive is completely reuled out. So the
question which now remains is this: Is *Nyāya* logic deductive or induc-
tive? It is, to my mind, neither. *Nyāya* logic is not a deductive logic since
its inferences do not possess the fundamental property of a valid
deductive inference. That is, their premises do not contain in them
implicitly or explicitly the information of their conclusions. In other
words, conclusions of *Nyāya* valid inferences, unlike deductive, always
contain new information in them other than their premises. This happens
because of their *vyāpti* relationship. *Vyāpti* (invariable concomitance) is
a necessary but non-analytic relation. As a result, the premises of *Nyāya*
valid argument with the negation of conclusion never imply contradiction

but logical oddity as opposed to valid deductive argument. This follows from the very nature of *vyāpti* itself. Had *vyāpti* been an analytic relation, the conclusions of Nyāya valid inferences would have not contained new information in them other than their premises. But since they do contain in them new information other than their premises on the *Nyāya* account, *vyāpti* relation holding between them cannot be said to be analytic. We cannot say that their premises with the negation of conclusion imply contradiction. This becomes quite explicit through the analysis of the *vyāpti* notion itself in the following way:

Needless to say that different *Nyāya* thinkers have defined the notion of *vyāpti* in different ways over the centuries from different points of view. Annambhatta, for example, defines 'vyāpti' in terms of a 'conncomitance-rule' and gives the example, 'where there is smoke, there is fire' in illustration of such a rule. In other words, for him 'where there is smoke there is fire' - such a rule (*niyama*) of concomitance (*sāhacarya*) is vyāpti (*Yatra yatra dhūmah tatra tatra agnih iti sāhacarya niyamah vyāptih*).[5] What he means is that *vyāpti* is the co-location of a probans (*hetu*) with a 'probandum (*sadhya*) that is not the negation of an absolute absence which has co-location with the probans'. (*Hetusamānadhi karanātyantā bhāva apratiyogisadhyasamānadhi karanyam vyāptih*).[6] Gangesa propounds the view that *vyapti* is the co-existence of the probans (*hetu*) with the probandum (*sādhya*) which is not deter mined by the det-erminant of the negation of the absolute non-existence which co-exists with the probans, but whose negation does not so co-exist. (*pratiyogya-samānādhi karana - yat - samanadhi karanatyantā bhāva-pratiyogitāvacchedakāvacchinnam yān na bhavati tena samam tasya sāmanadhi karanyam vyāptih*).[7] According to Udayana, *vyāpti* is the relation between the probans (*hetu*) and the probandum (*sādhya*) without any limiting adjunct (*Anaupadhikah sambandho vyāptih*).[8] This means, in other words, when the probans and the probandum are unconditionally related, we have *vyāpti*. While Vallabha defines 'vyāpti' in terms of a 'univrsal relation'. (*kārtsnyena sambandho vyāptih*).[9] For him it is the co-existence of the probandum (*sādhya*) with all instances of the probans (*hetu*). On the Vācaspati Misra's account, *vyāpti* arises from the very nature of the probans (*hetu*). It depends on the very essence of the probans, so that when the probans as such co-exists with the probandum (*sādhya*) as such, we have *vyāpti* (*svābhāvikah sambandho vyāptih*).[10] This is also the view of Varadarāja. But for Vātsyāyana *vyāpti* is any co-existence of the probans (*hetu*) with the probandum (*sādhya*) (*sambandhamātram*

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vyaptih).[11] In other words, whenever the *hetu* co-exists with the *sādhya*, we have *vyapti*. It is now quite obvious from the given illustrations that *vyapti* is formulated from varying viewpoints. But there is one thing common to all its various formulation which is, I think, undoubtedly held about the nature of *vyapti* that it is a necessary relation. It holds not only between two concepts, pervaded and pervader, but also propositions expressing them. Its necessity can be viewed and interpreted from three different angles: logical, epistemic and ontological. All these three angles are no doubt different and distinct but in the *Nyāya* theory of inference they are quite mixed and interconnected. Because of this reason the conditions of inference in *Nyāya* differ from the western one. All this is required for an inference to be possible and valid. On western view like that of B-Russell it is the logical condition, that is, a relation of implication or entailment between propositions which constitute premises and conclusion of inference. Epistemic condition is no condition, on this view, for an inference to be possible. We can validly infer one proposition from another proposition (or a set of propositions) without knowing one proposition to be true. But on the *Nyāya* account, apart from the logical condition the epistemic condition is also required for an inference to be possible and valid. No inference, on this veiw, is possible unless premises are related and known to be true. In other words, inferences, on the *Nyāya* account, are possible only when we have knowledge of *pakṣadharmatā* as qualified by *vyāpti*. Both *pakṣadharmatā* and *vyāpti* constitute the ground of inference. It is because of this reason the notion of `validity` is used in both the systems, *Nyāya* and western, in different senses. But since my concern in this paper is just to examine the nature of inference in *Nyāya* from the logical point of view, not epistemic or ontological, I shall not discuss them unless the discussion demands. From the logical point of view it can be said that *vyāpti* is, on the *Nyāya* account, a necessary relation but non-analytic. Its necessity is objective, not subjective. It holds not only between two concepts, pervaded and pervader but also propositions in which their use occurs. Consider, for example, the following argument as illustrated in *Nyāya* :

> All smoky objects are fiery.
> This hill has smoke.

∴ This hill has fire.

This is a valid argument. In it *vyāpti* relation holds not merely between smokeness and fireness, or smokeness and smoke or fireness and

fire or smoke and fire but also between propositions in which their use occurs, that is, premises and conclusion. The first premise is a universal proposition. It expresses *vyāpti* between smokeness and fireness. The second premise is a singular proposition. It expresses no *vyāpti* between hill and smoke. But it is related to the first premise by way of *vyāpti*. *Vyāpti* holds between smokeness and smoke. The conclusion is a singular proposition. It expresses no *vyāpti* between hill and fire. But the conclusion is related to both the premises by way of *vyāpti*. *Vyāpti* holds not only between smoke and fire but also between fireness and fire. Thus, there are many *vyāpties* holding between the two terms. Since these terms, pervaded and pervader, occur in premises and conclusion, *vyāpti* relation also holds between them. Had it not been so, inferences, on the *Nyāya* account, would have merely been from terms to term, not from propositions to proposition. But this is not so. Inferences in *Nyāya* proceed from propositions to proposition (*parāmarśa janyam jnānam anumitih*).[1] So *vyāpti* cannot be said to be merely a relation of terms. It is also a relation of propositions.

It is quite evident from the illustrated argument that *vyāpti* relation is a necessary relation but it is neither a relation of inclusion nor identity. To say that two concepts, pervaded and pervader, are invariably co-extensive positively or negatively, equally or unequally is not to say that they are identical or one includes the other as a part of its meaning. Neither the concept of pervaded is identical with the concept of pervader, nor the concept of pervader includes the concept of pervaded as a part of its meaning. Had they been identical, we would have perceived fire when we perceive smoke and question of inferring fire from smoke would have not arisen. But the perception of smoke is not the perception of fire, nor the perception of smoke by itself implies the perception of fire (although the cognition of smoke leads to the cognition of fire in inferential sense) and the *vice versa*. So, neither the concept of smoke can be said to be identical with the concept of fire, nor can we say that what they signify is one and the same. Both the terms do have different meanings and refer to two different and distinct objects. Likewise, had the concept of pervaded (i.e. somke) been a part of the meaning of pervader (i.e. fire), valid inferences from pervader to pervaded would have been possible in unequally co-extensive cases too. But since valid inferences from pervader to pervaded (i.e. from fire to smoke) are not possibe, on the *Nyāya* account, in unequally co-extensive cases, it cannot be said that the concept of pervader includes the concept of pervaded as

a part of its meaning. From the mere analysis of pervader, we cannot infer pervaded. When we infer pervaded from pervader in equally co-extensive cases we do so in virtue of their *samavyāpti* relationship (the term '*sama vyāpti*' signifies two directional *vyāpti*) which is neither a relation of inclusion (partly or wholly) nor identity. To say that pervaded and pervader are co-extensive in both the ways is not to say that they are identical, nor one includes the other (partly or wholly) as a part of its meaning. *Vyāpti* relation is neither of them. And yet it is a necessary and objective relation on the *Nyaya* account. In other words, *Vyāpti* is a non-analytic relation. It is not a construction of human mind. The necessity of *vyāpti* is objective, not subjective. *Vyāpti* propositions (i.e., all smokey objects are fiery) are, thus, synthetic, necessary and objective proposi-tions. The necessity of *vyāpti* follows from its own nature, that is, invariability *(avinābhāvaniyama)*. But the terms, invariability and a priority, imply necessity but in quite different senses. So, *vyāpti* propo-sitions (though are synthetic and necessary) cannot be said to be synthetic a priori propositions in Kantian sense. The *Naiyāyikas* admit an extra-ordinary perception of *vyāpti* which holds between the entire domains of pervaded and pervader.

But then can we say that *vyāpti* relations are intrinsical? Surely not. *Vyāpti* relations are not intrinsical relations either on the *Nyāya* account because *vyāpti* relations are not grounded in the nature of the terms related, pervaded and pervader. Had it been so, the objects denoted by pervaded and pervader would have not existed apart from and independent of one another. But since the objects denoted by pervander (i.e. fire) and pervaded (i.e. smoke) do exist, as a matter of fact, apart from and independent of one another, their relation cannot be said to be intrinsical. To know one is not necessarily to know the other. The cognition of pervader is possible without the cognition of pervaded and the *vice versa*. We can perceive fire without perceiving smoke or smoke without fire. The perception of one does not require the perception of other. This is possible because they are extrinsically related. To say this is not to say that the relation of pervaded (i.e. smoke) and pervader (i.e. fire) is contingent. *Vyāpti* relation is an extrinsic relation, but not a contingent one. Extrinsicality is not opposed to contingency. It is opposed to intrinsicality. Extrinsicality and necessity are mutually compatible. Therefore, *vyāpti* relations can be extrinsic and necessary. There is no contradiction involved in it. Invariability *(avinābhāvaniyama)* implies necessity and universality but not in *a priori* or analytic sense. The

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pervaded and pervader can be related by *vyāpti* even if the meaning or the existence of the object denoted by one is not grounded in the other.

The notion of *vyāpti* is also different from the notion of material implication or entailment. The notion of material implication is a truth functional notion. It does not involve in it the notion of necessity. It merely expresses relation between the truth values of two statements without their being necessarily connected. But to say this is not to say that the notion of necessity is not captured in extensional logic. In extensional logic, the notion of necessity is captured in terms of tautology. Every valid argument in extensional logic corresponds to a tautology. Tautologous statements are analytic and *a priori* statements. They are true in all possible situations by virtue of their structure or form opposed to contingent statements. Take, for example, the statement form of tautology, P V ~P. This statement form is true in all its interpretations (in the system of extensional logic) because of its form or structure, not because of the actual truth value of P. Its truth can be ascertained and known on *a priori* ground, independent of experience and fact, through the mere analysis of its logical form. The form of tautology is the form of analytic statement. This is quite obvious from the following equivalent expressions:

P V ~ P = ~ P V P (by commutation)

~P V P = P ⊃ P (by the difinition of material implication)

The expression P ⊃ P is a statement form of identity. The forms of identity statements are the froms of analytic statements. Analytic statements repeat themselves. They do not say any new thing about the world. Their truth can be ascertained just by mere analysis of the symbols contained in them on *a priori* ground. But the notion of *vyāpti* is not a truth functional notion. *Vyāpti* relation is a relation of terms, pervaded and pervader, not merely a relation of propositions. Its necessity is grounded in the reality, not in the logical or formal structure of *vyāpti* proposition. As a result, the truth of *vyāpti* proposition cannot be ascertained and known independent of reality and experience like tautologous statements. So, it would be wrong to say that inferential necessity in *Nyāya* is a tautologous necessity. *Vyāpti* necessity is not a tautological necessity, nor the notion of *vyāpti* is identical with the notion material implication. *Nyaya* logic is different from extensional (or propositional) logic. The

notion of *vyāpti* is also different from the notion of entailment. The notion of entailment in logic is formulated in various ways. Some logicians identify this notion with the notion of strict implication or logical implication or formal implication and some logicians maintain the distinction between them saying that the latter involves merely the notion of deducibility in it, while the former involves, besides the notion of deducibility, inner meaning connection. Russell uses the notion of formal implication in a quite a different way from the notion of entailment or strict implication. For him fromal implication is the class of material implication, which he expresses in the form of (x) $(\varphi \, x \supset \psi \, x)$. Whatever the formulation of entailment may be, there is one thing common to all its variations which, I think, is undoubtedly held that it involves in it the notion of necessity opposed to material implication and expresses an inner logical connection between the propositions it relates, a relevance of one proposition to the other. Its necessity cannot be captured by any truth functional operator. Entailment is a modal notion and modal notions are different from truth functional notions of propositional logic. It does not depend upon the truth or falsity of the propositions it relates. It depends upon their inner logical structure or form. So, to say that 'p entails q' is to say that q is logically deducible from p. The notion of deducibility involvess in it the notion of analyticity in stronger sense, than the tautological necessity of extensional logic. But *vyāpti* relation is not an analytic relation (neither in strong nor in weak sense of 'analyticity'). To say that pervaded and pervader are related by *vyapti* is not to say that the latter is a logical deduction of the former. Deducibility is different from *vyāpti*. The necessity involved in deducibility is analytic. But the necessity involved in deducibility is analytic. But the necessity involved in *vyāpti* is synthetic. Syntheticity is not opposed to necessity. It is opposed to analyticity. Necessity is opposed to contingency, not analyticity. So, *Nyāya* notion of inferential necessity based on *vyapti* is neither a necessity of extensional logic in tautological sense, nor is it a necessity of modal logic. In other words, *Nyāya* logic is neither extensional (or propositional) logic, nor is it modal logic. The *Naiyāyikas* cannot be accused of committing the fallacy of circularity or *petitio principii*. This could have been the case had *vyāpti* been an analytic relation. But since *vyāpti* relations are non-analytic, inferences in *Nyāya* cannot be said to suffer from deductive weakness.

But when we say that inferences in *Nyaya* are non-deductive in character, from this it does not follow that they are inductive inferences. *Nyāya* inferences are not inductive inferences too, becasue they are grounded in *vyapti* and *vyāpti* admits of no gap between premises and conclusion of a valid argument, which is the fundamental distinctive property of all inductive inferences. Inductive inferences always admit of gap between their premises and conclusion. It is because of this reason their premises neither provide absolute (or conclusive) guarantee for the truth of their conclusion nor do they, with the negation of their conclusion, imply any contradication or logical oddity. While in *Nyaya* the position is different. *Nyāya* inferences do not suffer from the inductive weakness. A false conclusion in *Nyaya* inference does not validly folllow from its true premises because of their *vyapti* relationship opposed to inductive inference. *Vyapti* relations are necessary relations. As a result, premises of *Nyāya* valid argument (if true) always provide absolute guarantee (not in deductive sense) for the truth of their conclusion without containing in them implicitly or explicitly the information of conclusion. This is a fundamental distincitive mark of *Nyaya* logic in my opinion which is neither a mark of deductive nor inductive logic. Therefore, any attemp to characterize inferences in *Nyaya* as deductive or inductive would be a gross mistake.

C.D. Sharma[15] opines that inferences in *Nyaya* are deductive-inductive in character. However, he holds the view that the *Nyāya* syllogism does not involve inference either from the universal to the particular or from the particular to the universal. It involves inference from the particular to the particular through the universal. Consider, for example, the following argument as illustrated in *Nyaya*.

1. This hill has fire. (*pratijñā*)

2. Because it has smoke. (*hetu*)

3. Whatever has smoke has fire e.g., an oven. (*udāharan*)

4. This hill has smoke which is invariably associated with fire. (*upanaya*)

5. Therefore this hill has fire. (*nigamana*)

This argument is, on his account, a deductive-inductive argument but it involves inference from the particular to the particular through the

universal, that is, *vyāpti* proposition "whatever has smoke has fire". The example illustrates the truth that the universal proposition is the result of a real induction based on the law of causation. In other words, when we perceive the specific instances of smoke as related to fire several times positively and negatively without exception, we infer thereby that whatever has smoke has fire which is, in his opinion, nothing but an inductive generalization based on the law of causality. Out of the five propositions, two are redundant. We may easily leave out either the first two or the last two which are essentially the same. The first concides with the fifth and the second with the fourth. If we leave out either the first two or the last two, we find that it resembles the Aristotelian syllogism. But, on his view, the whole argument cannot be characterized to be deductive and formal only becuase it also involves inductive process. The universal *vyāpti* proposition 'whatever has smoke has fire' results from the specific instances of smoke as related to fire. This line of argument is, to my mind, not only based on the misconceived notions of deductive and inductive inferences (which we have already seen) but also misunderstanding of *Nyāya's* notions of universal (*sāmānya*) and particular (*viśeṣa*). According to *Nyāya*, universals and particulars are two distinct and different realities. To say this is not to say that they are unrelated and belong to two different worlds. Universals and particulars do not belong to two different worlds on their view. Universal is not a collection of particulars, nor their relation is relation of whole and parts. Universal and particular are two differerent categories according to them. So, to identify one with the other is to commit a mistake . Consider, for example, *vyāpti* proposition 'whatever has smoke has fire'. This proposition is a universal proposition. It expresses *vyāpti* relation between the two universals, smokeness and fireness. But it does not express *vyāpti* relation between universal and particular (i.e. smokeness and smoke or fireness and fire) even if they are related. Becuase universals do not include in them, according to *Nyāya*, particulars though they inhere in particulars. To say that universals inhere in particulars is not to say that they form a part of particulars. Universals do not form a part of particulars on the *Nyaya* account. They are two different and distinct entities. Since, according to the *Naiyāyikas*, universals and particulars are two distinct and different realities, smokeness and fireness cannot be said to be a mere collection of particular smokes and fires. Nor can we say that they are constructed by our mind on the basis of particulars. If it were so, the *Naiyāyikas* would

have not dadvoated the existence of universals as distinct and different from particulars. They would have said that universals are nothing but a collection of particulars or mental constructions. But this they do not say. They rather say that universals are distinct and different from particulars and are as real as particulars. Therefore, smokeness and fireness cannot be said to be a collection of particular smokes and fires respectively, nor can we say that they are construction of our mind. If universals, on the *Nyaya* account, are not a collection of particulars, nor are they construction of our mind, *vyāpti* proposition 'whatever has smoke has fire' cannot logically be obtained from the conjunction of specific instances of smoke as related to fire through inductive generalizations nor can we interpret it in terms of them. Above all, the *Nayāyaikas* never say that *vyāpti* propositions are derivable through inductive process. What they rather suggest is that through inductive process *vyapti* can be known and discovered. And to know or to discover *vyāpti* through inductive process is not to derive it from it. It is knowable, according to the *Naiyayikas*, through *sāmānyalaksna* and the knowledge of *samanyalaksna* is a kind of extraordinary perception. Whether the *Nyaya* theory of extraordinary perception is sustainable or not is not a subject matter of the present discussion. But what is important to note here is that their theory of *vyāpti* is no way grounded in induction. Induction rather is based on it. Therefore, it would be incorrect to say that *vyāpti* proposition 'whatever has smoke has fire' results from the specific instances of smoke as related to fire through inductive reasoning. No *vyapti* propositions are, on the *Nyaya* account, inductively generalized proposition, If so, the illustrated argument of *Nyaya* cannot legitimately be characterized as deductive-inductive.

The position that *Nyaya* logic is inductive is untenable from another point of view also. To arrive at a valid inferential knowledge, according to *Nyāya*, one must have knowledge of *paksadharmatā* as qualified by *vyāpti* or *parāmarśa*. If so, a valid inferential knowledge of universal *vyāpti* 'whatever has smoke has fire' would be possible only when we know that the specific instances of smoke and fire are related by way of *vyāpti* or else we cannot validly derive universal *vyāpti* proposition 'whatever has smoke has fire' from the specific instances of smoke and fire. But the admission of this position would amount to accepting that universal *vyāpti* proposition results from the specific

vyapti propositions and inference is from one set of *vyapti* propositions to another, which means *vyapti* proposition 'whatever has smoke has fire' is not the result of the so-called inductive generalization even if it is known and discovered through its positive and negative specific instances or the inductive process. The ground of *vyapti* lies in reality on the *Nyaya* view. When it is known and discovered through inductive process, it is not done by way of derivation because any valid derivation (in the *Nyaya* sense) always presupposes the cognition of *vyapti*. It is rather done by way of the cognition of its specific *vyapti*. Moreover, inductive generalization does not involve in it the notion of necessity. It involves the notion of probability. As a result, *Nyaya* account of *vyapti* proposition cannot be identified with inductively generalized proposition since the notion of *vyapti*, according to the *Naiyayikas*, involves the notion of necessity which any inductively generalized proposition fails to capture. *Vyapti* proposition cannot be said to be based on the law of causality because causal relation iteself is a kind of *vyapti* relation on the *Nyaya* account. All causal relations are relations of *vyapti*, but not the *vice versa*. All *vyapti* relations are not causal relations, for example, the relation of universal and particular. Smokeness and smoke are related by way of *vyapti* but their relation is not a causal relation. It is rather a relation of inherence (*samavaya*). To say this is not to say that *vyapti* relation is identical with relation of inherence. All relations of inherence are relations of vyapti but all *vyapti* relations are not relations of inherence, i.e., causal relation. Smoke and fire are related by way of *vyapti* but one does not inhere in the other. Neither smoke is inherent in fire, nor is fire inherent in smoke.

In fact, '*vyapti*' is a generic term. It includes in its meaning all relations that invariably connect their terms of relation; no matter what they are. It is because of this reason that in *Nyaya* valid inference the acceptance of premises with negation of conclusion always imply logical oddity (but not in the sense of contradiction) opposed to the so-called inductive inferences.

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