CHAPTER X
INDUCTIVE METHOD ACCORDING TO THE NYÀYA

I
DISCOVERY OF 'UNCONDITIONAL RELATION' AS THE AIM OF INDUCTION.

The Naiyáyikas, as we have seen, do not think like the Buddhists that 'the law of invariable concomitance' can be established only when the relation of causation (tadutpatti) or that of identity (tadatmya) is established. According to them, 'the law of invariable concomitance' is based on the natural relation between two entities or events. By natural relation, they mean 'unconditional relation'. Thus, the aim of induction, according to the Naiyáyikas, is to establish that a particular phenomenon is unconditionally accompanied by another phenomenon.

It may not be disputed that unconditional concomitance between two phenomena is invariable concomitance. But it may be pointed out, as the Carvakas do, that it is not possible to prove that a particular phenomenon is unconditionally accompanied by another phenomenon. The Naiyáyikas hold that the conclusion of inference is not only formally valid, but it is also materially true. The truth of the conclusion of inference depends upon the material validity of the content of 'vyāpti'. The unconditional relation between the two phenomena denoted by the terms 'hetu' and 'sādhya' form the basis of the truth of 'vyāpti' between them. The Naiyáyikas, therefore, have to show that there are methods by which it is possible to establish unconditional concomitance between two phenomena.

The Naiyáyikas hold that the knowledge of the natural concomitance between two phenomena can be obtained by perception, inference or testimony. But, in the ultimate analysis, perception is the source of all information regarding the external world. The Naiyáyikas think that by careful and systematic observation of two phenomena, one can know whether one of them is unconditionally accompanied by the other or not. Now, what is
the exact method of observation is by which the cognition of 'unconditional relation' between two phenomena can be obtained.

II

Vācāspati Mīśra on the Method of Induction

Vācāspati Mīśra describes the method of obtaining the knowledge of unconditional relation of one phenomenon with another phenomenon taking smoke and fire as the instances of the phenomena. His study of the process of induction is described below.

A person often perceives smoke and fire with wet fuel occurring together. One day, for the first time, a question regarding the nature of their concomitance suddenly crops up in his mind. He raises the problem: What exactly is the nature of the relation between smoke and fire? Is the relation conditional or natural? To be more precise and accurate, he splits the question into the following questions. Is the relation of smoke with the fire conditional and that of fire with smoke unconditional or is the relation of fire with smoke conditional and that of smoke with fire unconditional? At the outset he could not decide which of the two alternate interpretations of the observed phenomenon of the concomitance between smoke and fire is the correct one. In order to know the answers of these questions, he sets to observe the instances of smoke and fire. During the process of observation, he comes across such cases of fire as are completely unrelated to smoke and wet-fuel. He observes fire in the red-hot iron ball which had related neither with smoke nor with wet-fuel. Thus, he becomes sure that fire can exist in the absence of smoke. He concludes that fire as such is not accompanied by smoke. But the fire which is conjoined with wet-fuel is accompanied by smoke. Wet-fuel is the condition which determines the relation of smoke with fire. Wheresoever fire is observed as being
accompanied by smoke, it is also observed as being conjoined with wet-fuel. But wet-fuel is not always observed along with fire. Therefore, wet-fuel is the condition regarding the relation of smoke with fire.

Though fire is observed in the absence of smoke, smoke is never observed in the absence of fire. Therefore, it is concluded that except the very nature of smoke, there is nothing which can be regarded as the condition of its being accompanied by fire.

But why cannot we hold that smoke is accompanied by fire owing to some hidden condition and not owing to the nature of smoke as such? \(V_3^{\text{caspati Misra}}\) replies that the condition which is thought to be the determiner of the concomitance of smoke with fire in all the known cases of smoke should be varifiable (Yogyā). When we regard some thing as the cause or causal condition of a phenomenon, we should have definite idea of its nature. We can have definite idea only of that thing which has been perceived somewhere in the past. We cannot suspect the existence of a thing which is completely unknown. To hold that some completely unknown and unknowable thing lies hidden in the circumstance of an event and causes that event is utterly unscientific. To hold so would leave no scope for any scientific investigation.

So, if it is thought that smoke is accompanied by fire not due to its own nature but due to some hidden condition, the nature of that condition must be known definitely. It should be something which is knowable. If inspite of thorough search for a condition which is suspected to be lurking in the circumstances of smoke, it is not observed, it is established that there is no 'condition' which determines the occurrence of fire along with smoke. None of the things which are observed in the circumstance of smoke can be regarded as the condition of its concomitance with fire. Thus, as no 'condition' is observed in connection with the concomitance between
smoke and fire, it is established that smoke is accompanied by fire due to its very nature and not due to any other condition.

The knowledge that smoke is unconditionally accompanied by fire is not obtained by means of pure mental perception. The mind cannot have direct access to the external facts. It is only through the external senses that it comes in touch with the external objects. If mind could have access to external things directly, the blind and the deaf would also have the direct knowledge of the external things.

It is also not correct to hold that mental perception aided by repeated observation of the concomitance of smoke and fire yields the knowledge that smoke is naturally accompanied by smoke. To hold so would amount to accenting a fifth 'pramāna'. A perception cannot be called mental perception simply owing to the fact that mind is one of its factors, because in that case all perceptions, nay, all 'pramānas', would be called mental perception as mind is a necessary factor in all of them. Only the peculiar cause of a particular cognition is regarded as the 'pramāna'. In this case, repeated observation and not the mental perception would be the peculiar condition of cognition. Therefore, it would be regarded as a separate 'pramāna'.

Vācaspati Miśra thus holds that repeated observation is not the instrument of the cognition of 'unconditional relation'. The cognition of the 'unconditional relation' between two phenomena is the deliverance of a single observation. But this single observation is not necessarily the first observation. The single observation of the concomitance of two phenomena which delivers the cognition of the 'unconditional relation' between them is mostly preceded by several uniform observations of those phenomena. Thus, a single observation reinforced by the memory impressions of the repeated observations, produces the cognition of the natural or 'unconditional relation' between two phenomena.
If there arises any doubt as to the existence of some hidden condition it can be removed by hypothetical reasoning (tarka) in the following way. If there were a 'condition' in the circumstance of 'smoke' determining the fact of its being accompanied by fire, it must be perceived when vigorous search for it is made. But no condition is perceived. Therefore, there is no such 'condition'.

Thus, according to Vacaspati Misra the following are the six factors of inductive inquiry:-

1. Observation of concomitance between two phenomena and also non-observation of any contrary instances. Smoke is always perceived with fire. It is never perceived in the absence of fire.

2. Realisation of a problem. For example, is the smoke unconditionally accompanied by fire?

3. The memory-impressions left by the repeated observation of two phenomena occurring together.

4. Sudden realisation, while perceiving the two concomitant phenomena, that one of them is unconditionally accompanied by the other. For example sudden realisation while perceiving smoke and fire together, that the smoke is accompanied by fire by virtue of its being smoke and not by

* Vacaspati does not regard the sudden illumination as mental perception simply for the reason that to accept it would mean the recognition of a new source of knowledge. However, he is quite clear that it is not of the nature of perception based on the stimulation of the senses. For in that case, the first perception of smoke and fire would have produced the cognition that smoke is unconditionally accompanied by fire. It it, no doubt, a mental perception. It is sudden insight. But it is not purely a mental perception. It is a mental perception which is dependent on the sense-perception. This is clearly recognised by Jayanta.
virtue of any adventitious condition.

F. 'Varka'-hypothetical reasoning by which the hypothesis of the unconditional relation between two phenomena is tested.

The first is the motivational condition of the inductive inquiry. The rest four are the factors of inductive method. The second and the fourth belong to the category of perception, the third to memory and the fourth to reasoning. Vaisnpati emphasises that of all these factors, it is the perception which is the instrument of the cognition of 'unconditional relation' between the two phenomena. Memory and reasoning are only the accessory processes.

His contention seems to be this that the realisation that the relation between the two given phenomena is unconditional is always in the form of sudden insight, and 'insight' is of the nature of perception as the modern Gestalt psychologists hold.

Repeated observation of the concomitance of two phenomena does not directly lead to the cognition that the concomitance is unconditional. There is no logical connection between the repeated observation of the two phenomena and the realisation that their concomitance is unconditional. The realisation of this fact is always in the form of sudden insight. It is, therefore, a single perception which yields this knowledge.

The sudden illumination of the 'unconditional relation' is generally preceded by the repeated observation of the phenomena. It is, thus, preceded by what is called by the modern psychologists as the process of 'loading up'. The hypothesis which is suggested in the mind can be tested by means of the method of difference and the method of hypothetical reasoning 'varka.' Then fire is eliminated from the circumstance of the smoke keeping other conditions constant, the smoke is not produced any more. This proves that the smoke cannot be produced in the absence of fire. If still the doubt persists that the smoke might be produced by
Some adventitious hidden condition, it can be removed by hypothetical reasoning (tarka).

Jayanta refers to three theories of induction which have been held by different logicians.

Some logicians hold that the natural relation of one phenomenon with another phenomenon is known by insight or mental perception. Jayanta himself subscribes to this theory. He explains this theory in the following way. A person who has perceived smoke along with fire and has never perceived it in the absence of fire may know by direct insight that the smoke is necessarily dependent on fire.

But how can a person know by direct mental perception that every smoke is dependent on fire without perceiving all the cases of smoke? Jayanta points out that in order to know that all the particular instances of smoke are accompanied by fire, it is not inscrutable to perceive all the particular cases of smoke. Then a person has retained with regard to a particular smoke that it is accompanied by fire by virtue of the fact of its being smoke, i.e., being the substratum of 'smokiness' (dhumarte) and not arising from any other condition. Then, there is no need to perceive all the instances of smoke. To know that a particular smoke is accompanied by fire by virtue of its being the 'substratum' of 'smokiness', is also to know that every instance of smoke is accompanied by fire as there cannot be a smoke which is not the 'substratum' of 'smokiness'? Thus, on the basis of the cognition that 'smokiness' as such is accompanied by 'fireness', we also know that every particular instance of smoke is accompanied by a particular instance of fire.
The 'universal' is a real entity. The generic property of 'smokeness' is different from all the 'substrata' in which it inheres. A particular 'substratum' in which the 'smokeness' resides by the relation of inherence is called smoke. Thus, 'smokeness' resides in every particular 'substratum' which is denoted by the word 'smoke.' Now, when it is known that the generic property of smoke (smokeness) as such is always accompanied by the generic property of fire (fireness), it is also known that every particular instance of smoke is accompanied by a particular instance of fire.

Ridhers also advocates the same view. He holds that invariable concomitance between smoke and fire is supposed by means of determining the relation between observation of the generic property of smoke and the generic property of fire. In order to apprehend the universal relation between smoke and fire, it is not necessary to observe all the individual instances of smoke. Then the natural connection between the 'universals' of 'smokeness' and 'fireness' is supposed, there remains no doubt as to the relation between the individual instances of these two 'universals.'

Some reject this theory of the method of cognizance a law of nature. They argue that the law of concomitance of fire with smoke means that whenever there is smoke there must be fire. It means that where so ever there is smoke there is fire and where so ever there is absence of fire there is absence of smoke. Thus, unless universality of concomitance of smoke and fire and that of the absence of fire and the absence of smoke is ascertained with certainty, the law of necessary relation of smoke with fire cannot be established. Now, on the basis of the cognition of the relation of universal smoke (smokeness) and the universal fire (fireness), the universality of the relation of agreement between smoke and fire can be established, but it cannot be established in the same way that the absence of fire is universally accompanied by the absence of smoke.
as there are no negative 'universals' such as 'non-fireness' and 'non-smokeness'. The law of the concomitance between fire and smoke means that the concomitance is necessary and universal. Unless it is proved that smoke is non-existent at all these places where fire is non-existent, it cannot be proved that 'smokeness' is necessarily accompanied by 'fireness'. But as the number of such places where fire may be non-existent is indefinite, it is not possible to ascertain with certainty that smoke is non-existent at all those places where fire is non-existent. If there were negative 'universals' such as 'non-fireness' and 'non-smokeness', it would have been possible to establish it. But there are no such 'universals'. Hence, on the basis of the cognition of relation between 'smokeness' and 'fireness', it cannot be established that smoke is necessarily and universally accompanied by fire.

Some thinkers hold that the cognition that every instance of smoke is accompanied by fire is obtained by means of supersensuous perception (yogic pratyakṣa). They think that the cognition of an empirical law cannot be accounted for by any other hypothesis except the hypothesis of 'Yogic' perception.

It is evident that this theory is dogmatic. To say that a law is cognised by yogic perception means that it is cognised in some mysterious way. This is no explanation of the cognition of a law. This theory, therefore, has been rejected by most of the Indian Logicians.

Kumārila Bhatta holds that a law of concomitance (vyāpti) is established by means of repeated observation of co-presence of two phenomena. Repeated observation of co-presence of two phenomena establishes the relation of co-presence between the generic essence of one phenomenon and that of another phenomenon. By observing smoke and fire together repeatedly it is established that 'smokeness' is necessarily related with
It is thought by the Māmaśakas that the cognition of the concomitance of the absence of fire along with absence of smoke (vyatirākā) is not necessary for establishing necessary relation between smoke and fire. The cognition of the relation between 'smokeness' and 'fireness' is the sufficient basis for inferring fire from smoke. The cognition of co-presence of smoke and fire obtained by means of repeated observation is strengthened by the non-observation of any contrary instance. Smoke has never been observed in the absence of fire. Keeping in view the non-observation of any contrary instance of the concomitance of smoke with fire, one should not doubt the occurrence of any such instance in future.

The Prabhakara's theory of induction slightly differs from the above theory. Prabhakara holds that the conjunction of smoke with fire is perceived along with the perception of the instances of smoke and fire. Conjunction is a quality; Smoke and fire are substances. A quality cannot be perceived independently of the substances with which it is related.

So, while perceiving smoke and fire together, the conjunction between them is also perceived. But how do we know that this conjunction between smoke and fire is universal? The Prabhakara maintains that this is also known by the same perception by which the conjunction is cognised. The universality of a conjunction means that it is not conditioned by time and place. That the conjunction between smoke and fire is not determined by place and time is also cognised by perception. Prabhakara holds that while we perceive an object, we also perceive the time and place as its qualifications. While perceiving smoke and fire together in a kitchen, though we perceive the conjunction between them, and also the place and time as their qualifications, we do not apprehend that the conjunction between smoke and fire is determined by the place and the time. Hence, their conjunction is natural. It is not conditioned by time and place. It is the first
perception of the concomitance of smoke and fire that cognises the uniform relation of smoke with fire. The first perception of smoke and fire together is the 'pramāṇa' the instrument of the cognition that smoke is unconditionally accompanied by fire. The proof of the unconditionality of this concomitance is supplied by the further repeated observation of the concomitance of these two phenomena.

The Bāṭṭa and the Prabhākara agree with each other so far as they hold the unconditional character of a concomitance is proved by repeated observation. The Naiyāyikas criticise this theory. Jayanta points out that the possibility of the occurrence of a contrary instance in future, even if no such instance has been observed in the past, cannot be denied. Moreover, 'vyāpti' the necessary law of concomitance between two things which may correspond to 'hetu' and 'sādhyā' in a particular case of inference cannot be proved unless it is proved that the thing taken to be 'hetu' is necessarily absent where the thing taken to be 'sādhyā' is absent.

The necessary relation between 'hetu' and 'sādhyā' is stated in the following way: The 'sādhyā' occurs where the 'hetu' occurs and where the former does not occur the latter also does not occur. The first part of the law is called 'Anyāya' while the second part is called 'vyatireka'. Both of them are the essential ingredients of the law. But repeated observation of co-presence of two phenomena can establish the first part only. Unless the cognition of this part is supplemented by the cognition of the second part, it cannot be regarded as the cognition of a law which is universal as well as necessary. Thus, according to Jayanta the validity of the hypothesis that an event is unconditionally accompanied by another event cannot be proved without the method of difference.
Gangesā thinks that though repeated observation of two phenomena together is useful in induction, it is not an indispensable factor of induction. In certain cases, a single observation of two phenomena together backed by complete absence of the knowledge of the existence of one without the other is sufficient to establish the relation of invariable concomitance between them. For example, a single observation of co-existence of savour and colour attended by the absence of knowledge of the existence of savour without colour is sufficient to establish that whatever has savour has colour, though the repeated observation of the co-existence by itself is not sufficient to establish that whatever possesses colour also possesses savour. Thus, repeated observation of two phenomena as co-existing or co-occurring cannot be the sufficient proof of their invariable concomitance.

Of the repeated observations, each one cannot be the cause of the cognition of invariable concomitance as there is nothing which unites them together. Each observation is perishable. It perishes before the other observation arises. Even the memory impressions cannot serve as unifying factor of the repeated observations. The memory impressions left by the observation of one particular event can arouse the recollection of that event only. The individual facts are observed separately, similarly they are also recollected as isolated from one another. We recollect the fire perceived in the kitchen separately from the fire perceived at some other place. But in making the generalisation that whatever possesses smoke also possesses fire, we unite all the cases of smoke. The memory impressions themselves are incapable of producing unity among the ideas of the different instances of smoke observed.

Moreover, the term repeated observation is ambiguous. It may mean the observation of the same fact repeatedly at different places, or
observation of the different instances, or observation of the same instance many times. In whatever way we interpret 'repeated observation' it cannot be regarded as the instrument of the cognition of 'vyāpti'. The observation of the co-existence of colour and savour is sufficient to produce the cognition that whatever has savour has colour. The observation of several instances of two phenomena is not necessary to obtain the cognition of 'vyāpti'.

In some cases of the cognition of 'vyāpti', there is no observation of many instances of the two phenomena. For example, in obtaining the cognition of 'vyāpti' between 'jarness' and 'substanceness', there is no possibility of observing their several instances. They are 'universals' and therefore, there is no possibility of their instances. A 'universal' is only one entity. It is also not correct to hold that the observation of two phenomena on several times yields the knowledge of 'vyāpti' between them as it cannot be decided that how many times two phenomena should be observed in order to ascertain that there is 'vyāpti' between them. One may observe a pen on the ground a hundred times, but this cannot prove 'vyāpti' between them. Therefore, repeated observation cannot be regarded as the proof of 'vyāpti'. Thus, according to the Naiyayikas, repeated observation of two phenomena together is neither the source of the cognition that the concomitance is unconditional nor the proof of the truth of the hypothesis that the concomitance is unconditional.

Jayanta supports the theory which holds that 'vyāpti' is cognised by means of mental perception preceded by sense-perception and refutes the objections put forward against it. It was argued that the negative aspect (vyātireka) of a law of invariable concomitance could not be established by mental perception preceded by sense-perception as there were no negative 'universals'. Therefore, it was suggested that 'yogic' perception should be

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The term 'vyāpti' here means our empirical law.
regarded as the means of establishing 'vyāpti'.

Jayanta points out that there is no need to frame the hypothesis of 'yogic' perception as the means of cognising 'vyāpti', as it can be explained adequately without such a hypothesis. The non-existence of negative 'university' universals' such as 'non-fire etc. does not hamper the realisation of the negative aspect (vyāptireka) of 'vyāpti'. It is realised in the same way in which its positive aspect (anvayā) is realised.

'Anvaya' means that where there is the thing denoted by 'hetu' term, there is the thing 'sādhya' denoted by 'sādhya' term. 'Vyatireka' means that where the thing denoted by 'sādhya' term is non-existent the thing denoted by 'hetu' term is also non-existent. If hetu and 'sādhya' are positive entities, being pervaded of the former by the latter is 'anvaya'. While being pervaded of the counter-absence of the latter by the counter-absence of the former is vyatireka. For example, in the case of vyāpti of fire on smoke, being pervaded of smoke by fire is 'anvaya' and being pervaded of the absence of fire by the absence of smoke is 'vyatireka'. But if the absence of smoke is to be inferred from the absence of fire, being pervaded of the former by the latter would be 'anvaya', while being pervaded of the counter-positive of the absence of smoke viz. smoke, by the counterpositives of the absence of fire (fire) would be called 'vyatireka'. What is regarded as the relation of 'vyatireka' in the case of inferring (fire from smoke, would be regarded as the relation of 'anvaya' in connection with the inference of absence of smoke from the absence of fire. Now just as the relation of 'anvaya' in the latter case is established by observation, similarly the relation of 'vyatireka' in the former case is also established by means of observation. According to the Naiyāyikas, the sense-organ which can perceive a thing can also perceive its absence.
is accompanied by fire by virtue of its being smoke, similarly by observing the absence of fire along with the absence of smoke at such places as a lake, it is established that smoke is non-existent by virtue of its nature as smoke at all the places where fire is non-existent. Thus, the observation of co-presence and co-absence of smoke and fire, followed by the insight that the smoke is accompanied by fire by virtue of its being smoke, it is established that smoke is invariably accompanied by fire.

Jayanta, thus, emphasises that the necessary and universal character of concomitance of one phenomenon with another phenomenon can be known by mental reflection on the data gathered from observation of their co-presence and co-absence.

IV

GANGEśA ON THE METHOD OF INDUCTION

Gaṅgeśa distinguishes the problem of making a generalisation from the problem of establishing absolute certainty of the validity of that generalisations. He regards 'vyāpti' as a general and necessary proposition. When we state a general proposition, we affirm or deny a predicate of the entire denotation of the subject. Now, unless we have the cognition of the entire denotation of the term we cannot assert a general proposition. How do we obtain the cognition of the entire denotation of a term? Gangesa frames the hypothesis of 'sāmānya-laksāma pratyāsatti' to account for the cognition of the indefinite number of the instances of a universal of which we assert or deny in a general proposition.

But every generalisation is not valid. How then, is the validity of a particular generalisation established? To this Gaṅgeśa answers that the cognition of co-presence of two phenomena aided by the knowledge of the absence of any contrary example establishes the validity of the general
proposition which states the invariable concomitance of a phenomenon with all the instances of another phenomenon. If doubt still persists regarding the certainty of the generalisation it can be removed by the method of 'reduction ad absurdum' (tarka).

When we perceive a smoke, we also perceive its generic property 'smokeness' which inheres in it. The cognition of the generic property 'smokeness' obtained while perceiving a particular instance of smoke is also accompanied with the cognition that there is an indefinite number of instances, the universal, 'smokeness'. This is what the Naiyayika means when he says that an individual perceives a particular instance of smoke, it cognises all the instances of smoke in their generic aspect through the cognition of smokeness embodied in the perception of a particular instance of smoke. Our eyes have direct contact with the smoke and smokeness which inheres in it. But they cannot have direct contact with the remote instances of smoke. Still we have perceptual cognition of all the instances of smoke in their generic aspect. Thus, we have the cognition of all the smokes in their generic aspect and the cognition is presentative in nature.

The contact of sense-organ with all the smokes is regarded non-sensuous (alaukika) and is called 'sāmānyalakṣaṇa' because 'sāmānyas' cognised as the qualification of the object with which our sense-organs are connected is the connecting link between the mind and the indefinite number of the instances of smoke.

It should be remembered that through the cognition of 'smokeness', all the smokes are cognised in their generic aspect only. They are cognised only as the substrata of smokeness which is perceived by direct sense-contact, while perceiving a particular smoke. It means that when we perceive an instance, we know what a smoke in general is and also that there is an indefinite number of the instances of smoke which as smoke e.g. substrata.
of 'smokeness' are not different from the smoke perceived.

Now, just as the perception of 'smokeness' is normally integrated with the perception of particular smoke, similarly the perception of all the instances of the smoke in their generic aspect is also integrated with it. When we perceive a particular instance of smoke we not only know that this is a smoke but we also know what a smoke in general is. 'Samanya-laksana' perception is not a distinct kind of perception, different from the normal determinate perception, but is only a characteristic of a determinate perception. All determinate perceptions possess this characteristic.

\[ \text{Sāmānyalaksana Pratyāsatti} = \text{SLP} \]

The 'Sāmānyalaksana-pratyāsatti' is the basis of establishing a general real proposition which is the ground of inference. 'Vyāpti' is a general real proposition. The 'vyāpti' of fire on smoke means that all the smokes are accompanied by fire. It does not mean that 'smokeness' is accompanied by 'fireness'. The Naiyāyikas, specially Gāṅgeśa and his followers, emphasise the denotative nature of 'vyāpti'. He points out that unless we hold that all the instances of smoke are accompanied by fire, how can we infer fire from the hilly smoke (smoke perceived on the hill) as the 'vyāpti' between smoke and fire is not already obtained. The 'vyāpti' between smoke and 'fire' means that all the smokes are concomitant with fire or all the places which are smoky are fiery. How can we establish 'vyāpti' in this form, if we do not accept the 'samanya' laksana pratyāsatti? All the smokes cannot be perceived by the ordinary sense-object contact. And unless we have the idea of all the smokes we cannot say anything about them.

* Of the three kinds of extra-ordinary contact, the 'yogaja samākarsa' is the only unusual contact because, it depends upon the extra-ordinary power of the perceiver. But the Jhanalaksana sannikarṣa and sāmānyalaksana sannikarṣa are the normal characteristics of a determinate perception. They are called alaukika because they are non-sensuous in nature.
Somebody may argue that the law of uniformity of nature may be postulated and on the basis of this law one can hold that what is applicable to the known cases of smoke will also apply to the unknown cases, as they are of the same nature.

The Naiyāyika would ask how do we know that there are instances of the smoke other than the instance perceived and that there are instances of the smoke other than the instance perceived and that those unperceived instances of smoke as the instances of smoke, i.e., the substrata of 'smokeness' are not different from the present instances.

The Carvākas have argued that there is no proof for holding that a future event will resemble the present event. Events change their characteristics according to the time and place of their occurrence. Therefore, we cannot argue that as all the known cases of smoke are accompanied by fire, so smoke, in future, will also be accompanied by fire. The theory of 'Saṃānyalakṣaṇa' pratyāśatti meets this objection. The essential similarity among all the instances of smoke in their generic aspect is not merely a matter of postulation. It is a fact which is established by perception involving the cognition of the generic property 'smokeness' as inhering in all the smokes. Once it is established that a given instance of smoke is accompanied by fire by virtue of its being the 'substratum' of 'smokeness', we can know by means of 'Saṃānyalakṣaṇa pratyāśatti' that not only this smoke but every smoke viz every 'substratum' of the smokeness as such is accompanied by fire. Just as the perceptual cognition that this is a smoke is accompanied by the cognition that there are other instances of smokeness and, as instances of smokeness they are not different from the given instance, similarly the cognition that the given smoke is accompanied by fire by virtue of its being the 'substratum' of smokeness is also integrated with the cognition that every smoke, e.g., every 'substratum' of 'smokeness' is accompanied by fire.
The Mīmāṃsakas and the Vedāntins do not accept the theory of 'sāmānyā-lakṣāṇa pratyāsatti'. They hold that induction establishes the necessary relation between two universals e.g. smokeness (dīrṇatva) and (vaiśīṇītva) firmness and such a relation between two universals is the basis of inference.

But 'vyāpti' in this form cannot serve as the ground of inference. We can deduce a particular conclusion from 'vyāpti' only when it is interpreted as a general proposition. The Mīmāṃsakas and the Vedāntins hold that 'vyāpti' in its denotative aspect can be inferred from its connotative aspect - The proposition that all smokes are accompanied by fire can be inferred from the proposition that 'smoke is accompanied by fire by virtue of its being smoke'.

We have seen that Jayanta, also holds that the cognition that smoke is accompanied by fire by virtue of being smoke is the basis of holding that all the smokes are accompanied by fire. But according to him the cognition that every smoke is accompanied by fire obtained from the cognition that smoke is accompanied by fire by virtue of being smoke cannot be regarded inferential in nature. It is perceptual in nature. This point has been clearly elucidated by Gangesā.

'Smokeness' is not identical with the substrata of 'smokeness'. Therefore, the cognition of 'smokeness' is not identical with the cognition of all the 'substrata' of 'smokeness' viz all the smokes. Nor can we deduce the latter from the former as there is no middle term between 'smokeness' and 'the substrata' of 'smokeness'. Thus, if all the smokes, the 'substrata' of 'smokeness', are not cognised by perception, they cannot be cognised by any other means and unless we have an idea of the instances which are not observed, we cannot assert or deny anything of them. We cannot even experience any kind of doubt regarding them. But this is a fact of experience that there arises a doubt in our mind regarding the invariability of concomitance between smoke and fire.
It is obvious that there cannot be any doubt regarding the present smoke which is directly perceived along with fire. Only the remote objects can be the objects of our doubt. But how can we raise doubt about the remote if things, we have no idea of them. In order to account for doubt experienced with regard to the relation of invariable concomitance between smoke and fire, it is necessary to have the cognition that there are other instances of smoke which are not perceived by the external senses. How can this cognition be obtained? Gaṅgasa realised this problem and solved it by his theory of 'sāmānyalaksana-pratyāsatti.' If we keep the above analysis of the problem in mind, we can appreciate the following remark of Viśvanātha.

Without accepting the 'sāmānyalaksana-pratyāsatti' how can we establish a'vyāpti' - a general real proposition?

The Naiyāyikas contention is quite clear, though some writers on Indian logic have created confusion regarding the theory of 'sāmānyalaksana pratyāsatti.' Some writers of Indian logic think that a universal e.g. 'smokeness' is cognised by 'sāmānyalaksana pratyāsatti.' But this seems to be a mistake. 'Pratyāsatti' means direct connection. It is a synonym of the term 'sannikāra.' Thus, 'sāmānyalaksana pratyāsatti' means 'sāmānya' as the connection between the mind and the 'substrata' of the 'sāmānya.' More appropriately it means the cognition of the 'sāmānya' as the connection between the cognised 'sāmānya' and its substratum in general. A 'sāmānya' is not cognised by 'sāmānyalaksana pratyāsatti.' It is cognised by the external sense-organ through 'sām yukta samaveta - sannikāra.' When a person perceives a particular smoke, he also perceives 'smokeness' (dhūmatva) as inhering in that particular smoke. Unless a person directly grasps the 'substratum' of 'smokeness' along with the 'smokeness', he cannot know that the given object is a smoke. For the Naiyāyikas, 'smokeness' is a real entity. It is to be known by the external

*S.S. Barlingay: An Introduction to Indian Logic. P. 168*
sense-organ. It is not an 'a priori' element. What is that which is cognised through the cognition of a 'sāmānyā'? The Naiyāyika answers that through the cognition of a 'sāmānyā' we cognise the substratum of that 'sāmānyā' in general. The term 'this' in the proposition 'this is smoke' refers to the 'substratum of smokeness'.

When we cognise a particular instance of smoke, we also cognise what a smoke in general is. Thus, the cognition that 'this is a smoke' is not only the cognition of 'this particular thing' as smoke but it also includes the cognition of smoke in general. It is by virtue of the cognition of 'smokeness' included in the cognition that this is a smoke, that we cognise what a smoke in general is. Thus, the determinate perception of a smoke implicitly involves the cognition that there are other instances of smoke and that every particular instance of smoke as smoke is not different from the given smoke.

When the Naiyāyika says that through the cognition of 'smokeness' (dhūmatva) all the smokes are cognised, he does not mean that all the smokes with their specific characteristics and spatio-temporal relations are cognised. They simply mean that all the smokes as smoke are cognised by 'sāmānya-laksana-pratyāśatti'. As a matter of fact the adjective 'all' is misleading. The Naiyāyikas simply mean that we cognise through the direct perceptual cognition of smokeness, that there are innumerable instances of smoke and as instances of smoke, they are alike.

Thus, when we perceive a smoke, we not only know that it a smoke, we also know what smoke in general is. Similarly, when we perceive a fire, we not only know that it is a fire, but we also know what a fire in general is. When a person perceives a particular smoken along with a fire, he is sure that the given smoke is connected with the given fire. But when he perceives a smoke, he also knows through SLP that there are other instances of

\*SLP = Śāmānyalaksana-pratyāśatti
smoke and that every instance of smoke as smoke is not different from
the given smoke. Now, unless it is proved that the smoke is connected
with fire by virtue of its being smoke, the person who perceives the
connection of a given smoke with a given fire, will doubt that the other
instances of smoke are connected with fire. Such a doubt regarding the
connection between the unobserved instances of smoke and the unobserved
instances of fire cannot be explained without accepting that when a person
perceives a particular smoke, he is also conscious of the fact that there are
other instances of smoke. When by means of 'tarka' etc., it is finally proved
that 'the present instance of smoke' is connected with fire by virtue of its
being a smoke it cannot be doubted that every smoke is connected with fire.

To have the idea that there are indefinite instances of smoke and that
there are indefinite instances of fire is not to have the knowledge of
'vyāpti' between smoke and fire. To know 'vyāpti' between 'smoke' and 'fire'
means that every particular instance of smoke is accompanied by fire. Whether
each and every individual smoke is accompanied by fire, or each and every
individual fire is accompanied by smoke cannot be decided by perception
involving SLP. The problem of determining unconditional relation between
smoke and fire is different. It is not answered by the hypothesis of SLP.

This problem is solved by the method of induction which is stated by
Gāṅgāśa as follows:—

"Invariable concomitance is known by the observation of con-comitance
and the absence of knowledge of non-concomitance aided by hypothetical
reasoning which removes doubts about suspected conditions (upādhi)."

The observation of one single instance of A in the absence of B is
enough to check the occurrence of the cognition of 'vyāpti' of B on A.
Therefore, the first important condition for obtaining the cognition of
'vyāpti' of B on A is the complete absence of knowledge of the existence of A
in the absence of 3. But this is not enough. In order to obtain the cognition of 'vyāpti' of A on B, it is also essential to have the cognition of their co-existence. The cognition of co-existence of A and B is obtained by the method of double agreement. When we perceive A, we also perceive B. When we do not perceive B we also do not perceive A. Thus, by observing A along with B and absence of A along with absence of B, it is known that they co-exist. The knowledge of co-existence of A and B can serve as the basis of the cognition of 'vyāpti' of B on A, when it is coupled with the absence of knowledge of the existence of a single instance of A in the absence of B.

'Vyāpti' of B on A cannot be established merely by observing B along with A repeatedly. For establishing 'vyāpti' of B on A what is necessary is that A is never observed without B. When there is comobete absence of the knowledge of the existence of A without B, a single observation of the concomitance of A and B may suggest that the concomitance is invariable. In some cases, there may be doubt regarding the certainty of the hypothesis of the invariable concomitance between two phenomena suggested by their observed concomitance in the absence of knowledge of any contrary instance. The doubt may be tested by the joint method of agreement and difference. However, in some cases, there may be doubt regarding the correct application of the joint method of agreement and difference. Such a doubt regarding the application of the joint method of agreement and difference can be tested by the method of 'reductio ad absurdum'. For example, smoke is never observed as being produced without fire, (vyabhicārāgraṇa). Where smoke is observed fire is observed, where fire is not observed, smoke is not observed, (sahacārāgraṇa). Thus, it is known that smoke is invariably accompanied by fire. However, the knowledge is yet hypothetical till it is proved by the method of joint agreement and difference.

Wherever we observe smoke, we observe fire. When from the circumstances
of a smoke, the fire is eliminated keeping other things constant, the fire ceases to be produced. Thus, it is proved that the smoke is accompanied by fire by virtue of being smoke and not by virtue of any adventitious condition. How can we say with certainty that the method of difference is used correctly? In the circumstance of smoke, there may be some hidden condition which may be the cause of smoke. When we eliminate the fire from the circumstance of smoke it may be that this hidden condition is also eliminated. The method of difference is no safeguard against the possibility of some hidden condition. Thus, what is proved to be the unconditional concomitance between two phenomena may in fact be only conditional concomitance.

The Naiyāyika would argue that when the method of difference is used repeatedly and the conclusion comes out to be the same, there remains no ground for doubting the correctness of the method. However, if still some doubt persists, it can be removed by the method of reductio ad absurdum (Tarka).

The method of 'tarka' consists in assuming an hypothesis which is just opposite to the proposition the validity of which is to be tested and drawing a conclusion therefrom. When it is found that the conclusion so drawn comes in clash with the established laws, it is proved that the hypothesis assumed is false. Therefore, its opposite is true.

Suppose, we want to test the validity of the proposition that the smoke is invariably accompanied by fire. We presume that this proposition is false. Then, the proposition that smoke occurs in the absence of fire must be true. But it is obviously false as it comes in conflict with the law of causation. Smoke is produced by fire. To hold that smoke can occur in the absence of fire is to hold that the smoke can be produced by something other than fire. This amounts to accept plurality of causes. But law of causation and plurality of causes are contradictory.
CRITICISM OF 'TARKA' BY THE CARVĀKAS.

The Carvaka warns the Naiyāyika that his appeal to the law of universal causation involves an unwarranted assumption.

It is simply assumed by the Naiyāyika that all events are causal. Unless there is definite proof to justify this assumption, it will be treated as a conjecture having no logical significance. There is no method by which the law of the uniformity of causation can be proved. To make an attempt to prove it by induction would, obviously beg the question. Moreover, Tarka being deductive in nature, is based on some vyāpti to prove the validity of which another Tarka is required, thus to ad infinitum.

REFUTATION OF THE ARGUMENT OF THE CARVĀKA BY THE NAiYĀYIKA.

The Naiyāyika argues that there is a limit of doubt which is determined by its direct clash with the practical exigencies of life. The Carvaka thinks that even the law of universal causation can be doubted. But the whole run of life becomes impossible if the law of universal causation is denied or doubted. If it is doubted that every effect has a definite cause, then man should not search for food when he is hungry and should not utter sentences to impart some information to others. As a matter of fact, all the tendencies of man to perform activities presuppose the law of universal causation. Whenever a person is hungry, he looks for food. Whenever he wants to produce smoke, he looks for fire. Thus, belief in the law of causation is the very basis of life.

What is the cause of what is determined by the empirical method of double agreement. The very fact that whenever a person desires to produce smoke, he looks for fire shows that he is sure that production of smoke depends upon some cause.

The cause of smoke is known by the method of double agreement. The
Carvaka, who doubts the law of causation and the law of the universality of causation also confidently looks for fire when he intends to produce smoke. It is true that man is led to perform certain activities even on the basis of doubtful knowledge of certain things. Even doubt regarding the existence of a thing which a man needs urgently leads him to perform an activity to realise that thing. But there is a difference between the mode of mental attitude and behaviour when we are sure that a thing really exists and when we are doubtful regarding its existence. If a person looks for fire confidently in order to produce smoke but still says that he doubts that smoke will definitely be produced by fire, his doubt is not genuine. The Naiyayika, thus, concludes that there is no ground for doubting the existence of the law of universal causation. Gaengesa in his "Tarka grantha", has tried to show that even doubt regarding something is also caused. Doubt which has no cause is meaningless.

VII

REFUTATION OF UDAYANA'S ARGUMENT BY SRIRHARSHA

Srirharsa, the author of Khandanakhandakhadya, urges that it is impossible to remove the possibility of error in framing a universal proposition on the basis of experience. Refuting Udayana's argument, he says that the whole of the argument can be rebutted just by changing certain words of Udayana's Karika. The following two couplets contain his argument.

"tasmadasa-bhir apyasminnarthe na kaalu duspatha
tvaddathaiivanyathah karam aksaranii kiyantyapi kh.kh.44
vyaghato yadi sankasati na cecchasmakatastaraam
vyaghatavadhiraasamka terkah sankavadhiih kutii" 29 kh.kh.45

The first sloka means that just by changing certain words of the Karika of Udayana, his argument can be refuted. The second sloka expresses this change and thereby refutes his argument. The following is the Karika of Udayana.
"Samka ced anumasti eva necec gaṁkṣa tatastaram
vyāghatavdhir āsamkṣa tarkaj samkāvadhimatah"

"If there be doubt, there is inference, still more if there be no doubt.
Discussio ("Tarka") is allowed by all to stop fears since fear is limited
by direct inconsistency."

Śrīharṣa replaces, 'śamkace danumāstyaeva' by 'vyāghate vadi śamkāsti'
and 'tarkaj śamkā vadhijpatp.h' by tarkaj śamkāvadhiḥ kutāḥ'.

If the knowledge of a universal proposition is not consistent within
the practice of man-kind, there is reason to doubt the validity of the
proposition otherwise the contradiction cannot be explained. If there is
no contradiction, then also the doubt regarding the universality of the
relation between the reason and the consequence stands because the śamkā
doubt as such is not contradicted. Now, then, can it be held that the doubt
regarding the validity of a universal proposition can be maintained so long
as it does not contradict the actual practice of the doubter? And then, how
can it be held that the doubt can be removed by the hypothetical reasoning
(tarka)? Contradiction between the actual practice and the doubt is
impossible if there is no 'doubt'. Thus, contradiction presupposes 'doubt'.

It is, therefore, self-contradictory to say that 'where there is contradiction
between doubt and actual practice, doubt does not exist.' And if there is
no contradiction, then, there is all the more possibility of doubt. Hence,
the hypothetical reasoning which is supposed to remove doubt cannot do so.
Thus, the universal proposition upon which the hypothetical reasoning is
based is itself doubted.

If we doubt the validity of a universal proposition and thereby
contradict our own practice, the 'doubt' becomes self-contradictory. The
very fact that (doubt) regarding the validity of a universal proposition
comes in conflict with the actual mode of practice is a check on 'doubt'.

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The same has been expressed by Udayana by saying 'vyāghatāvadhirāṣṭāṅkā' — that doubt is checked by its contradiction with actual practice.

Sriharsa asks: 'What is the meaning of 'vyāghatā'-conflict?' If a man has any doubt that the smoke can be produced by fire, then in order to produce smoke, he will not unhesitatingly be set on looking for fire. If he does so, then his doubt regarding that proposition is not genuine because doubt and such confident attitude reflected in his behaviour cannot go together. The same (the contradiction between doubt, and the confident behaviour) is expressed by the word-'vyāghatā'!

Sriharsa draws our attention to this fact that conflict or contradiction presupposes the existence of two things. If there is just one thing, there is no possibility of there being any conflict or contradiction regarding it. Then it is maintained that there is conflict or contradiction between maintaining doubt regarding the proposition that fire is the cause of smoke and the confident behaviour of the doubter of looking for fire to produce smoke, it should be acceptable to all that this conflict or contradiction becomes impossible if either of these two factors is non-existent. The conflict, thus, presupposes the existence of both the things. Sriharsa, therefore, says that if there is conflict or contradiction regarding 'doubt' then doubt must exist otherwise the conflict becomes impossible. It means that the conflict or contradiction cannot serve as the check on the occurrence of doubt because it presupposes the doubt.

As the doubt regarding the validity of the universal proposition based upon experience cannot be removed completely by any means, so (tarka) hypothetical reasoning which is based upon such a universal proposition cannot be of any avail in this respect.
Gangesa quotes Ariharsa's second sloka in his book on 'tarka' (Tarkapancarana) and refutes it. He tries to show that the contradiction which presupposes 'doubt' cannot check it or remove it. But this is not held by the Naiyayika-Udayanacarya. It is not the conflict or contradiction between doubt and the doubter's activity which checks the doubt. It is the activity of the doubter (svakriya) which proves the absurdity of the 'doubt'. What Udayana intends to say is only this that only that 'doubt' is legitimate which does not contradict the doubter's own activities. There should be no two opinions on this point.

If a person doubts the validity of a universal proposition and yet behaves contrary to it, it shows that his doubt is not genuine. In other words, he does not, in fact, doubt the validity of that proposition. Ariharsa simply distorts Udayana's original argument.

Gangesa urges that 'doubt' can also be removed by showing its conflict with the doubter's activities. It is well known to everybody that doubt can be removed by definite observation.

Ariharsa's argument runs as follows:

The conflict or contradiction between 'doubt' and the doubter's activity presupposes doubt. It means the contradiction is impossible if the doubt does not exist. As the conflict or contradiction exists, so doubt also must exist, otherwise there could be no conflict.

Gangesa points out that if this is so, then the doubt that the visible object is a man or a post should not be removed by the definite observation of the object. But the doubt is removed when it is definitely cognised as 'man' by perceiving it as possessed of such specific characteristics.
as hands, head etc. A definite observation of an object is contrary to the doubtful cognition of that object. Because the definite observation is contrary to the doubtful cognition, therefore, the former repels the latter. If both were unrelated cognitions it would not be possible to repel one by the other. Because these are two conflicting cognitions, the doubtful cognition is repelled by the certain cognition.

But Śrīhāra points out that the conflict between the certain observation and the doubtful cognition presupposes the existence of both of them. Thus, the doubtful cognition can never be repelled by the exact and certain cognition. If the correct and definite observation does not contradict the doubtful cognition, the latter continues as it is. If it is thought that there is contradiction between the former and the latter, even then both of them must be existent because contradiction is a relation between the two separate things and it would be impossible if either of them is absent.

If this is what Śrīhāra means, then according to his even light would not repel darkness because both are contradictory and contradiction presupposes the existence of the two things.

It seems that Śrīhāra is trying to distort Naiyāyikas position intentionally. He is confusing formal relation or logical relation with factual relation. Formally, contradiction is a relation between two ideas. A relation presupposes the existence of two factors in which it exists. Contradiction is relation between two ideas. The contradiction between the ideas of light and darkness presupposes both these ideas. It is fallacious to argue that because the contradiction between the idea of light and the idea of darkness presupposes both these ideas, it also presupposes the actual existence of light and darkness at the same place. In reality, contradiction of one thing by the other means the repulsion of
the former by the latter. Light contradicts darkness, because darkness and light cannot exist at the same place. Therefore, they are called contradictory. The objects which can exist together e.g. a chair and table in a room cannot be said to be contradictory. So contradiction is not a physical relation. Factually, it means repulsion of one thing by another thing or the relation between a thing and its absence. It is a logical relation between the ideas of two such things as cannot exist together. According to Sriharsa's explanation of the relation of contradiction, removal of erroneous knowledge of correct knowledge should not be possible. But Sriharsa being an Advaita Vedanta must accept it.

Gangesa, therefore, want to show that if Udayana's statement 'vyaghata-vadhrita-saṅkā' is interpreted that the contradiction between the doubt and the confident behaviour of the doubter proves the non-existence of the former, there is no fallacy.

Sriharsa raises another objection. Even if the law of causal relation is accepted it is impossible to determine that fire is the cause of all forms of smoke. It should be acceptable to the Naiyāyikas, that different kinds of fuel produce different kinds of fire. So just as there are different forms of fire which are produced by different causes, similarly smoke may also be produced by different causes. Fire is produced by charcoal. It can be produced by wood. It is true that one particular kind of fire can be produced by one particular cause alone. Of all these causes none can be regarded as the cause of fire as such. Similarly, a particular kind of smoke may be produced by fire. But there may also be some other kind of smoke which may be produced by a cause other than fire. So the proposition that fire is the cause of smoke as such will remain doubtful. Consequently, the hypothetical reasoning (tarka) that if the smoke could exist without fire, it would be caused by fire cannot be upheld. The reasoning could be valid only if it
were proved that the fire was the cause of smoke as such. But it is impossible to prove this. Therefore, this hypothetical reasoning cannot remove the doubt regarding universal relation of the hetu with the Sadhya. This is also one of the objections of the Čārvāka. In Tarkadidhiti, Raghunātha mentions this objection.

In reply to this, he points out that when we observe the relation of smoke with fire in different instances, we determine that smoke as such is caused by fire. The objection that smoke may be produced by some cause other than fire has no logical basis. When it is proved by observation and experiment that when smoke exists fire also exists, there remains no ground to doubt the validity of the proposition that smoke as such is caused by a thing qualified and limited by fireness. All people who want to produce smoke look for fire. In order to decide the issue, it should be clearly known what is meant by smoke? Which object or substance is called smoke? A substance which rises upward in the form of clouds and blackens the objects upon which it falls and is produced by wet-fuel in conjunction with fire is called smoke. Any thing which does not possess all these characteristics is not smoke. An object which is not produced by such conditions as the wet-fuel conjoined with fire cannot be called smoke.

The Čārvāka may argue that it may be possible that in some unknown case smoke may be produced by some cause other than fire. Naiyāyika would say any such thing as is not produced by fire would not be called smoke. Just as steam and some other gases are not smoke, so anything which is not produced by fire cannot be called smoke. How can the same identical thing be produced by different causes? One effect is produced by one cause alone. And one cause can give rise to one effect only. What is known as smoke can be produced by fire alone. Therefore, the smoke is the necessary sign of the existence of fire.
Indian Logicians regard inference as the means of obtaining true knowledge regarding some fact.

Vyāpti or the law of concomitance of the Śādhyā with hetu is the logical ground of the validity of inference.

The Carvaka denies the logical validity of inference as a means of obtaining indubitably true knowledge. However, he does not deny the use of inference in practical life. He calls it just probability 'sambhāvanā'. He however, emphasises that the practical necessity of any method of cognition should not be confused with the question of its logical necessity. He holds that from the logical point of view whatever can be empirically verified does not exist and whatever can be empirically verified exists. As Vyāpti is considered as the universal relation of Śādhyā with hetu which can never be ascertained definitely by any empirical method, inference should not be regarded as a source of indubitably true cognition. Our sense-experience is limited to the present only. All the remote events and phenomena are beyond the grasp of the senses. Therefore, vyāpti, universal concomitance of Śādhyā with hetu can never be cognised by perception. It cannot be obtained by inference as it will involve the fallacies of regressus ad infinitum and petitio principii. Supposition (upamāna) yields particular propositions on the basis of similarity. The Vedic texts deal only with the question of the desert of our actions.

Arthāpatti also presupposes universal relation between two phenomena. Therefore, there is no method, by which vyāpti can be obtained.

The Naiyāyikas maintain that vyāpti can be realised by means of observation of agreement in presence and agreement in difference between two phenomena. The validity of this method of double agreement, if doubted, can
be verified by the deductive method, the *reductio ad absurdum* form of reasoning (tarka).

Though the Naiyayikas have rejected the Buddhist concept of Vyapti as causal relation, however, they have clearly admitted the law of causation as the basis of induction. Tarka is an appeal to the law of causation.

But the Carvaka has tried to show that even the law of universal causation which has been accepted as the basis of induction is an unwarranted assumption. There is no proof for the validity of the law of causation and the law of the universality or uniformity of causation.

The Naiyayikas have tried to show that all attempts to show invalidity of inference and induction are suicidal as every attempt to prove invalidity of inference itself involves inferential reasoning which must necessarily be based upon some universal proposition or vyapti. Therefore, no body can absolutely doubt the validity of vyapti. Moreover, doubt is a form of indefinite knowledge. It is just a sort of mental conflict between the cognition that a particular thing exists and the cognition that it does not exist. What the carvaka calls as probability (sambhāvani) is nothing but doubt. Doubt which is a sort of mental conflict between the idea of the existence and the idea of non-existence regarding a particular thing is impossible if either of the two conflicting ideas is never experienced. Thus, doubt regarding the validity of the invariable concomitance of any two phenomena is impossible if invariable concomitance of any two phenomena is never experienced. Thus, to doubt invariable concomitance is to believe in the existence of invariable concomitance. The Naiyayikas contention seems to be that it is possible to doubt the existence of the law of invariable concomitance regarding certain cases. But it is impossible to doubt the existence of the law of invariable concomitance as such.

The Carvaka emphatically asserts that no amount of sophistry will
defeat him. He urges that he is not indulging in doubt just for the sake of doubt. He raises doubt regarding the certainty of the empirical laws very sincerely and seriously. All the ingenuity of his opponent to defeat him by means of formal arguments will prove futile. If the logician wants to win the point, he should prove that there is a method by which the universal laws regarding the natural phenomena can be established with such certainty as it may be impossible to raise any doubt regarding them. The law of universal causation, which the Naiyāyika has regarded as the basis of the certainty of our cognition of a particular law obtained by the method of double agreement supported by Tarka is itself an uncertain assumption. If the very basis of induction is doubtful, there cannot be any possibility of obtaining certain cognition of a particular law of concomitance by means of induction.

The Naiyāyikas, Vācaspati Misra, Udayanācārya, Gangesa and others have tried to prove that the law of universal causation cannot be doubted as to doubt it would mean to doubt the very basis of life-activities. All the activities of man are based upon his faith in the law of universal causation. This faith in the law of universal causation is evinced by all people including the sceptics (Carvaka) in their behaviour. How can a person sincerely maintain a doubt which contradicts his own behaviour? As the law of causation is the basis of life-activities and to doubt it is contrary to the activities of all rational beings, it is certain that there is law of universal causation and no body can doubt it without contradicting his own mode of behaviour.

All this discussion shows how minutely the problem of induction has been analysed by the Indian Logicians. Certainly we cannot say that they have been able to solve the problem of Induction. Even the modern Western Logicians cannot claim that they have solved this problem.
The Naiyāyikas have given one possible solution of the problem of Induction. Certainly, the solution is far from being perfect. To say that belief in the existence of law of causation is the basis of all our practical activities does not prove the logical certainty of that belief. Logical necessity is not identical with practical exigencies. The absolute certainty of a cognition can be proved either by means of observation or by showing the contradiction involved in its contradictory.

The Cārvakas are perfectly right in asserting that the law of universal causation cannot be proved by means of perception. The argument of the Naiyāyikas based on the pragmatic considerations, no doubt, has some plausibility. But it is not wholly convincing. The denial of law of causation or doubt regarding it no doubt is contrary to the practice of man, but there is no contradiction in holding it. There is no self-contradiction in maintaining that there is no law of causation. A person who unreflectively believes in the law of causation while trying to solve some practical problem of his life, may realise while philosophising over the question that there is no proof for the certainty of the law of causation which he has been holding irresistibly.

We have seen how the Buddhist Logicians refuted the doctrine of plurality of causes and established the law of uniformity of causation. The Naiyāyikas simply repeat the Buddhist arguments for the law of uniformity of causation. Though the Naiyāyikas criticise the Buddhist method of induction and does not hold that a valid universal proposition is necessarily dependent upon the discovery of causal relation as advocated by the Buddhists, yet they are ultimately forced to accept that the law of causation is the basis of the certainty of a general proposition. What the Naiyāyikas have emphasised is simply this that the law of uniformity of nature is not necessarily dependent upon the law of causation. According to the Naiyāyikas, the former is more
fundamental than the latter. They do not deny that the law of causation is the basis of induction. In some cases, the law of causation is the direct basis of induction. But ultimately, even the law of causation is based upon the law of uniformity of nature. Thus, instead of the law of causation, the law of uniformity of nature should be regarded as the basis of induction.

The law of uniformity of nature is more general than the law of causation. The former includes the latter. But the former is not identical with the latter, as there are uniformities of co-existence, co-occurrence, co-inherence, etc., in addition to the uniformity of succession which is known as the uniformity of causation.

The Buddhist-Logicians hold different view regarding the relation between the law of uniformity of nature and the law of causation. According to them, the law of causation is more fundamental than the law of uniformity of nature. The latter is implied in the former. Thus, the discovery that a phenomenon is the effect of another phenomenon is the sufficient basis of asserting that the former is universally accompanied by the latter. The Naiyāyikas argue that to establish the causal relation between the two phenomena means to establish the relation of uniformity of succession. The causal relation cannot be established without first establishing the uniformity of succession.

The Buddhists, however, hold that the establishment of causal relation does not presuppose the establishment of the uniformity of succession. It is the uniformity of succession which is necessarily implied in the causal relation. The observation of two phenomena A & B together repeatedly may be the basis of the formation of the hypothesis that one of them is the cause of the other. This hypothesis that B is the effect of A can be verified by the deductive method. If B were not the effect of A, the former would have occurred in the absence of A. But B is never observed in the absence of A.
A is eliminated from the situation in which B is occurring, B ceases to occur. This method conclusively proves that B is the effect of A. Once it is proved that B is the effect of A, it can be generalised that wheresoever there is B, there must be A, as an effect cannot occur without a cause.

Tarka, which is regarded by the Naiyāyikas as the final proof of the universality and certainty of a proposition is not different from the above reasoning of the Buddhist. According to them, the general proposition that wheresoever there is smoke, there is fire is formed on the basis of the observation of smoke along with fire and non-observation of smoke in the absence of fire. But the certainty of proposition which is based on the method of double agreement can be doubted. This doubt can be removed by the following reasoning:-

To hold that smoke may occur without fire would contradict the causal relation between them. If smoke occurs without fire it would occur without its cause. The Buddhists would point out that this reasoning has no meaning unless it is first proved that smoke is the effect of fire.

But the Naiyāyikas refuse to accept that the discovery of causal relation is the basis of establishing a universal and certain proposition. Tarka simply proves the validity of generalisation. In simple terms, it means that a generalisation is valid because it is based on the discovery of causal relation. The Naiyāyikas' method of induction, thus, suffers from the defect of inner contradiction.

Moreover, if any one doubts the validity of the proposition that wheresoever there is savour, there is colour, how would the Naiyāyikas remove it? He cannot, here, resort to the argument of reductio ad absurdum which they use in the case of the relation between smoke and fire. There is no absurdity of contradiction involved in holding that there may be savour (rasa) without colour (rūna). The Naiyāyikas may offer the following argument to prove
that savour is necessarily accompanied by colour! Savour is repeatedly observed along with colour. The former is never observed without the latter. Thus, it is established that savour is invariably accompanied by colour. This universal proposition could be false only if savour were observed in the absence of colour. But it has never been observed.

In reply to this argument, the Buddhist rightly point out that the above reasoning would be valid only if it were proved that there is some necessary relation of savour with colour. Without, first holding that the savour has necessary relation with colour, it cannot be proved that the former can never exist without the other.

But how would the Buddhist establish the invariable concomitance of colour with savour? The Buddhist would explain it as an instance of causal relation. While according to the Naiyāyikas, there is the relation of co-existence between savour and colour according to the Buddhists, there is the relation of succession between them. According to their theory of momentary existence, each moment of colour is followed by a moment of savour. Causal relation means nothing but the relation of succession. Thus, the universality of the relation between savour and colour can be explained by the Buddhist on the basis of causal relation. Similarly most of the cases which are regarded by the Naiyāyikas as the cases of co-existence, are regarded by the Buddhists as the cases of succession and hence that of causal relation. Co-existence of two things according to the Buddhists means the superimposition of two concepts on the same point of reality. This they call as the relation of identity.