Inference as a Means of Valid Knowledge in Indian Epistemological Tradition

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Abstract

The article seeks to show that in traditional India, inference (*anumāna*) was an empirical device of intellectual activity that enabled access to knowledge that was not available to direct sensory reception. However, this was a useful tool, not just into the arsenal of the philosopher, but was relevant for producing reliable and systematic knowledge in all domains with which one negotiated with the outside world. It is not, therefore, surprising that most of the systems of Indian philosophy accept inference as a means of valid knowledge (*pramāṇa)*. There are elaborate discussions about the nature and structure of the process of inference in various orthodox and heterodox systems of Indian philosophy, but the most outstanding contributions are those of the Naiyāyikas and the Buddhists. It appears, from all this deep and mostly hair-splitting analysis, that the Indian mind had perfected the art of logical reasoning with a vigorous methodology, which probably strengthened the scientific climate of ancient India itself.

Key words: Buddhist philosophy, Inference, Logical reasoning*, Nayāyika, Pramāṇa.*

1. Introduction

Unfortunately one of the grey spots in the Indian intellectual tradition is the relative lack of methodological discussions in the otherwise impressive scientific treatises, but it is evident that most of the results arrived at in various spheres of knowledge systems like astronomy, mathematics, engineering, metallurgy , medicine, jurisprudence, aesthetics and Yoga were all based on genuine scientific approach in which inductive and deductive approaches were profusely followed. The methodological discussions which can be gleaned through in the available scientific treatises, however sparse they are, also strengthen this hypothesis. To cite some examples, both Manu (XII.105-106) and Yājñavalkya (I.3), who are the prominent orthodox law givers of ancient India recognize the importance of logical reasoning (*tarka*) in the comprehension of duty (*dharma*) from the Vedas and Kauṭilya, the statesman cum political philosopher gives an honoured place to the science of reasoning in his curriculum. It seems, from all this, that an analysis of the perceptions on inference scattered in various philosophical treatises will be a good beginning in a multi-pronged attempt to comprehend the rich epistemological tradition of ancient India.

Inference is the deductive knowledge generated from direct experience. A typical example is the statement "This hill has fire as it has smoke" in which we infer the presence of fire in the hill on the basis of the presence of smoke therein. This inference is prompted by the knowledge of the invariable concomitance (*vyāpti*), between fire and smoke, as "wherever there is smoke, there is fire". The invariable concomitance involves both inductive and deductive reasoning. The inductive element is in the generalization from known particulars to reach a universal principle. When the generalization is

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applied in a particular instance to warrant a definite conclusion, as when one infers fire on the basis of the perception of smoke, it is the deductive element which is manifested. The nature and content of inference vary from system to system in Indian philosophy, and there are interesting points of debate about the syllogistic structure, nature of invariable concomitance, fallacies and the nature of the inferred knowledge. Elaborate strategies are evolved in different systems to plug the possible loopholes in the inferential process so as to make inference foolproof. The present paper proposes to critically analyze the evolution of the concept of inference in various systems of Indian philosophy like Buddhism, Jainism, Nyāya-Vaiśeṣika, Mīmāmsā and Vedānta from historical and comparative perspectives.

Though it is possible to find stray thoughts related to inference and related epistemological issues in early Vedic literature, it is during the early post Vedic period that attitudes and perspectives crystallized into concrete epistemological thought. The impetus for this development evidently came from heterodox systems of thought like materialism, Buddhism and Jainism which staunchly opposed the Vedic authority with all the weapons available in their arsenal, as a result of which adherents of Vedic tradition were forced to develop their own methods of defense. Thus there were concerted attempts in orthodox camps to address such issues like the sources of valid knowledge and the means of verifying the validity of knowledge itself. The heterodox systems also spiritedly joined the ensuing debates. It is thus Indian philosophy became self conscious and adapted methods to defend the foundational tenets of their systems. Most of the systems accepted inference as a means of valid knowledge even though their concept of inference including its nature and structure differed substantially.

The term *anumāna* literally means 'after proof' and the term signifies knowledge derived from other types of knowledge, mainly perception and in schools following scriptural authority, verbal testimony. Among the various schools, it is the Nyāya system of logic which gives prominence to inference in a marked way, though the contribution of Buddhist schools is also substantial. The importance given by logicians of the Nyāya fold can be gauged from the statement that they are fond of substantiating the validity of even objects directly perceived. The *Nyāya* system was initially known as also *ānvīkṣikī* and Vātsyāyana, the author of *Nyāyasūtrabhāṣya* glosses the term *anvīkṣā* as *anumāna* or inference, maintaining that the chief aim of Nyāya is to elucidate *anvīkṣā* as a means of valid knowledge.

According to the Naiyāyikas, and also Buddhists, inference is two-fold: that which is for one's sake (*svārthānumāna*) and that which is for the sake of others (*parārthānumāna*).The former is quite internal and does not require linguistic form at all. The latter is to persuade the listener to follow the logical steps in the inference of the given example, and hence necessarily couched in language. From this classification, it is evident that the linguistic form which is associated with inference in its syllogistic form is not an essential constituent of its structure. As pointed out by Hiriyanna, it is a rejection of the common Western verbal notion of logic (Hiriyanna, 1994). It is generally accepted that while Western logic emphasizes the formal accept of the syllogism, Indian logicians were more concerned with its material aspect. The Italian philosopher Croce brings out the importance of the distinction between *svārthānumāna* and *parārthānumāna* thus:

> Indian Logic studies the naturalistic syllogism in *itself* as internal thought, distinguishing it from the syllogism *for others*, that is to say, from the more or less usual, but always extrinsic and always accidental form of communication and dispute. It has not even a suspicion of the extravagant idea (which still vitiates our treatises) of a truth which is merely

syllogistic and formalist, and which may be false in fact. It takes no account of the judgement, or rather it considers what is called judgement and what is really the proposition as verbal clothing of language: it does not make the verbal distinctions of subject, copula and predicate; it does not admit classes of categorical and hypothetical, of affirmative and of negative judgments. All these are extraneous to Logic, whose subject is the constant: knowledge considered in itself.

M. Hiriyanna, 1994.

The syllogism of the Naiyāyikas is called 'five membered sentence' (*pañcāvayava-vākya)* and a typical instance of inferring fire from smoke in the hill has the following five steps

1. This mountain has fire

2. For it has smoke

3. Whatever has smoke has fire. e.g. the kitchen

4. This mountain has smoke which is invariably accompanied by fire.

5. Therefore this mountain has fire.

The Buddhists and the Mīmāmsakas do not accept all these five steps; The Mīmāmsakas stick to a three membered syllogism, arguing that either the first three or the last three alone are necessary. According to the Buddhists, the third and the fourth steps alone are sufficient (Sastri, 2001, p. 227). It can be seen that the first item and the last one are repetitions, but the Naiyāyikas argue that these are necessary steps in the formal process of inference to ensure that the *probans* consisting of smoke perceived by the person who makes the inference is qualified by the invariable concomitance that wherever there is smoke, there is fire. It is a formal synthesis of the major premise mentioned in the third sentence and the minor premise of the first sentence. This elaborated syllogism can be contrasted with the simpler Aristotelian syllogism which runs as follows:

All men are mortal

Socrates is a man

Therefore Socrates is mortal.

Here, it is the middle term which implicitly links the major and minor premises. On the other hand, in the Nyāya model, all the three terms are interlinked in the subsumptive reflection. The inductive cum deductive nature of the process of inference is evident from the general rule accompanied by the example (Hiriyanna, 1994, p. 257). It may be worth mentioning in this context that early Naiyāyikas restricted the inferential process to the sensory sphere, and believed that reasoning is from particulars to particulars, and it was probably Diṅnāga, the Buddhist logician who propounded the view that it is through the universal that the particular proceeds to particular (Sastri, 2001, p. 257).

The key concept of the inferential process is *vyāpti* or invariable concomitance which is expressed through the form 'wherever there is smoke, there is fire', on the basis of which one successfully infers the presence of fire in the hill due to the perceived presence of smoke. *Vyāpti* literally means pervasion and it is the universal nature of the relation which is hinted at by the term as it implies that the rule holds good anywhere, anytime. According to the Naiyāyikas, we arrive at the cognition of this relation between through frequent sight of both the smoke and fire in known instances. If we are to believe the representations in rival treatises, the Cārvākas did not accept inference as a means of valid knowledge as they suspected that invariable concomitance rests on very flimsy grounds. According to them, there is no sufficient ground to believe in the truth of the universal relation arrived through inductive reasoning (Sastri, 2001, p. 198). Even if it is conceded that observation of known facts warrant the assumption of invariable relation between, say smoke and fire, the Cārvākas content that there is no guarantee that it will hold

good in uninvestigated and unknown cases also. If it is argued that the relation is confined to essential features of universals unrelated to particulars, then inference will cease to be of any practical relevance as particulars are left out .The Cārvākas argue further that our belief in the validity of inference is only a psychological process and no logical certitude can be attached to it. This would explain the difference among rational philosophers themselves concerning even essential matters (Sastri, 2001, p. 190). One big loophole of this ingenious reasoning is that it itself, being arrived at through induction, validates the proposition it wishes to refute, that *vyāpti* or invariable concomitance is not valid.

The Mīmāmsakas of the Bhāṭṭa school meet this objection with the argument that inference is really from particulars to particulars and any appearance on the contrary could be explained away. The Naiyāyikas postulate a supra sensory (*alaukika*) type of perception to explain the deductive process through which the invariable relation is arrived at (Sastri, 2001, p. 206). Thus when one comes to have visual perception of smoke and fire, all particular smokes and fires are brought under its purview through the contact called generic (*sāmānyalakṣaṇā*). Accordingly, the relationship assumed between the perceived smoke and fire are extended to instances of smoke and fire not directly perceived *Siddhāntamuktāvalī*, 1:65). On the other hand, Buddhist logicians like Dignāga and Dharmakīrti conceive of the relation in a negative way insisting that the *probans* should not exist in the absence of the *probandum* and describe the relation as invariance or *avinābhāva* (Sastri, 2001, p. 207). They reject the skepticism aired by Cārvākas and maintain that a general statement relating two things or events should be admitted to be true, when it is based on a universally accepted principle and made ground for everyday activity (Hiriyanna, 1994, p.200). They refer to the maxim that doubt is limited until it leads to self contradiction or

absurdity in practical absurdity (*vyāghātāvadhirāśaṅkā*). However, the Buddhists are keen to limit invariable concomitance to cases wherein the relationship is logically demonstrable. Accordingly, they maintain that two objects are invariably related only when they are having the relationship of identity (*tādātmya*) as in the case of copper and metal or causality (*tadutpatti*) as in the case of smoke and fire. To illustrate, one can infer that if the given thing is copper, it is also a metal, on the basis of the relationship of identity. Similarly, one can infer fire from smoke on the basis of causality, as smoke is caused by fire. The insistence on either of these relations means that the Buddhists do not consider the inference of one object from another, even if they are, for all practical purposes, concomitant, as in the case of the presence of horns in an animal which has cloven hoofs.

The Naiyāyikas further plug loopholes in faulty reasoning through their meticulously conceived concept of faulty reason (*hetvābhāsa*) which like the western notion of fallacy, results in wrong conclusion. The main difference between *hetvābhāsa* and fallacy is that while the former is used in the sense of a defective conclusion or interpretation resulting from a defective process of thinking, the latter is a defective reason. The term *hetvābhāsa* literally means a 'semblance of reason' and in it, usually the defective *probans* appears very much similar to a valid probans. The five fallacious *probans* accepted by the Naiyāyikas are the following.

1. Variable (*savyabhicāra*). Here the *probans* is not conclusive as it is not invariably related to the *probandum*. It is further classified into three, viz. common (*sādhāraṇa*), uncommon (*asādhāraṇa)* and inconclusive (*anupasamhārin*).

a) Common: Here the *probans* is common to instances of examples and counterexamples alike and hence not capable of proving the *probandum*. Example: "This mountain has

fire, as it is knowable". Here knowability is common to a lake also, which has no fire

b) Uncommon: Here the *probans* exists only in the subject and not anywhere else and hence is not convincing. Example: "Fire is hot, as it is fire". Here fireness, the *probans* is found only in the subject (*pakṣa*), and neither in similar example (*udāharaṇa*) nor counter example (*vipakṣa*)

c) Inconclusive: Here the *probans* has neither positive nor negative examples. Example: "All things are transient, since they are knowable". Here there is no example available to demonstrate the invariable concomitance as all objects fall within the purview of the subject (*pakṣa*)

2. The adverse reason (*viruddha*). Here the *probans* is invariably concomitant with the very absence of the *probandum*. Example: "The road is dry as it has been raining"

3. The Opposable reason (*satpratipakṣa*). Here the *probans* can be countered by an equally patent fact which proves just the contrary. Example: "This man is healthy since he is fat". Here the contrary can be proven with another fact like his age.

4. The unestablished reason (*asiddha*) has an unproven aspect about it. It is divided into three: Having an unestablished substratum (*āśrayāsiddha*), unestablished in itself (*svarūpāsiddha*) and unestablished in respect of its concomitance (*vyapyatvāsiddha*)

a) The reason with unestablished substratum: Example: "Sky-lotus is fragrant, since it is a lotus, like a lotus in the lake". Here we cannot establish the existence of an entity called sky lotus and the proposition hence becomes faulty.

b) Reason unestablished in itself: "Cotton is heavy since it is a metal". Here the quality of being a metal does not exist in the subject and hence the reason is defective.

c) Unestablished in respect of its concomitance: Here the *probans* is accompanied by an adventitious condition (*upādhi*) which is pervasive with the *probandum*. In other words, the *probans* requires the condition that it is accompanied by another agent to ensure the presence of the *probandum*. An example would be "This mountain has smoke since it has fire". Now, fire itself does not guarantee the presence of smoke. It requires the presence of the adventitious condition of contact with wet fuel (*ārdrendhana-saṃyoga*) for proving the presence of smoke.

2. Conclusion

To conclude, it can be seen that Indian logicians had perfected the concept of inference plugging all loopholes for faulty reasoning and making it a tool for argumentation and substantiation. We do not know how far the methodology followed in the philosophical texts was followed in empirical sciences, but the fund of knowledge available must have definitely enriched the armory of scientists of all hues. As pointed out earlier, we see glimpses of the logical process envisaged in treatises related to jurisprudence, astronomy, medicine and some other systems of knowledge and these should be probed into, to reconstruct the intellectual history of India.

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