Tarka – The Indian Science of Logical Analysis

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Abstract

Many schools of philosophy have sprouted in India opting different paths in exploring the reality – सत्यान्वेषणम्(satyAnvEshaNa).Even though the paths were divergent, the aim of many philosophies were converging towards attaining the true knowledge & thereby salvation.Nyaya/Vaisheshikadarshana is one such which emphasizes on the doctrine of logical reasoning.It is a scientific approach to put forward the view points, substantiate the arguments, do comparative analysis etc.before portraying the inference. The sages had steered this approach through their immense thought power which was followed in later times &grew into a new approach of philosophy. This is an attempt to understand, analyze & highlight the application of such practice.

Keywords: *tarka / Nyaya (Logic), pramANa (Means of true knowledge), dravya (Substance), padArtha (Category/Matter), Atma (Soul) & Moksha (Realisation/ Salvation).*

Introduction:

The term Nyayameansप्रमाणैर्थपरीक्षणम्(nyayabhashya 1.1.1) - examining-understanding through substantiation. For a substance to be cognized this methodology was adopted by many philosophers, it is not confined only to Nyayashastra. SankhyaNyaya, GoutamiyaNyayaetc reflect this approach in their respective philosophies. The quotes - "कणादंपाणिनीयंचसर्वशास्त्रोपकारकम्", "गौतमप्रथितंशास्त्रंसर्वशास्त्रोपकारकम्"- The shastras expounded by Sages KaNada (vaisheshika or Aphorism), PANini (ashtAdhyayI- Sanskrit treatise on grammar) &Gautama (Nyaya sutras), are of great contribution to other dogmas.

Panini's grammar concentrates on the *dhatu*(root of the word) which reduces the ambiguity &provides clarity, whereas the tarkashastra has set a path & approach for presenting the theory with proper reasoning. This formula is espoused by others which ascertain the feature सर्वशास्त्रोपकारकम्.

Approach of this Methodology

This methodology - school ofIndian logic, is not merely concerned with making arguments in terms of formal mathematics, but extends itself into a holistic approach which includes **natural science*** traditional aspects, permits *poorvapaksha*– critical analysis, provides rigor to the arguments& finally establishes its view – *sidhaanta.*

* ***Natural Science-*** *science concerned with the description, prediction, and*

understanding of natural phenomena, based on empirical evidence from observation and experimentation.

GoutamaMaharshi in the very first nyaya sutra (nyaya sutra 1.1.1) lists 16 categories. As per Nyayashastra, in order to gain tatvajnAna (understanding the veracity), initially one should have the knowledge of shodashapadArtha – 16 categories. The purpose of such categorization is to have solicitous explorations which in turn will provide precision in the process of learning.

The categories are

1. प्रमाणं – True means of Knowledge/proof
2. प्रमेयं – Object
3. संशयः - Doubt
4. प्रयोजनम्– Purpose / Aim
5. दृष्टातः - Illustration
6. सिद्धान्तः - Conclusion
7. अवयवः– Members of syllogism
8. तर्कः – Logical reasoning /confutation
9. निर्णयः – Decision/ascertainment
10. वादः –Argument /discussion
11. जल्पः - Dispute
12. वितण्डा - Complain
13. हेत्वाभासः - Misconception
14. छलः - Objection
15. जातिः– Analogue / sophisticated refutation
16. निग्रहस्थानम् – Point of regulation or defeat

According to Nyayabhashya commentary of Vatsaayana - " त्रिविधाचास्यशास्त्रस्यप्रवृत्तिरुद्देशोलक्षणंपरीक्षाच" , The nature of this shastra has three phases;

- उद्देश – "उद्देशस्तुनाममात्रेणवस्तुसंकीर्तनम्" ; -recognition/nomenclature,
- लक्षणम् – "लक्षणंतुअसाधारणधर्मवचनम्" ; - येनधर्मेणवस्तुस्वेतरेभ्यःसमस्तेभ्यःवस्तुभ्यःव्यतिरिच्यते, सएवधर्मःतस्यवस्तुनःअसाधारणधर्मःभवति; यथा – " गोःस्नास्नादिमत्वम् " – Peculiarity of a substance shall become लक्षणम्(lakshaNam) for its community (definition/ base for theclassification). The quality or identity should be defined in such a way that it should stand unique for that particular community.
- We can seen an illustraion from tarka sangraha of Annambhatta for better understanding. There to define लक्षणम्, Annambhatta says that the definition for a substance should not contain these errors ;

- अतिव्याप्तिः – Going beyond the frame of definition,
- अव्याप्तिः – Not including its own community
- असम्भवः – Impossible / Completely different

for instance, to define a cow;

- If it is defined as an "animal with four legs" then the error is अतिव्याप्तिः because there are many other animals with four legs so its going beyond its community.
- If we define the cow based on the colour saying "the animal with brown skin" then this definition fails to include the cows which are black, white etc in its colour complexion.
- If it is defined as ऐकशफत्वम्– "Animal with unbifurcated hoof", the hoof similar to horseshoe. This is totally impossible because cows will never have ऐकशफत्वम्

So finally cow can be defined with its unique identity - " गोःस्नास्नादिमत्वम् " - the sagging skin below the neck. This is the unique feature found only in this animal community.

Also the discussion about understanding the term "गो" (cow) is explained in the paspashAnhika of Mahabhashya– detailed discussion on shabdhashastra(grammar) by sage Patanjali.

- परीक्षा – "लक्षितस्यलक्षणम्उपपद्यतेनवाइतिविचारःपरीक्षा" to examine whether attainment is in accordance with its true definition.

Also in the tarka shastra of Annambhatta in order to have authentication the following four are considered as pramANam (Source of true knowledge).

- प्रत्यक्ष्यप्रमाणम्(pratykSHa)– साक्षात्कारिप्रमाकरणंप्रत्यक्षम्.
- अनुमानप्रमाणम् (anumaana) – अनुमितिकरणंअनुमानम्, तत्रपरामर्शजंज्नानंअनुमिति:
- उपमानप्रमाणम् (upamaana) – उपमितिकरणंउपमानम्सज्ञा
- शब्दप्रमाणम् (shabda) – आप्तवाक्यम्शब्द:

प्रत्यक्ष्यप्रमाणम् – This is further divided into two types;

- सविकल्पक – savikalpaka
- निर्विकल्पक (nirvikalpaka).

These are mostly based w.r.t the knowledge gained out of sense organs.

अनुमानप्रमाणम् -

More intresting is the instance of technical languauge observed in this pramANam.

अनुमानंद्विविधम्, - स्वार्थंपरार्थञ्च. (anumAnaPramANam is further classified in two types ; swArtHa&paraartHa)

स्वार्थानुमानम् - स्वार्थंस्वार्थानुमितिहेतुः, स्वयमेवभूयोदर्शनेनयत्रयत्रधूमस्तत्रतत्रअग्निरितिमहानसौव्याप्तिंगृहीत्वा, पर्वतसमीपंगते, पर्वतेधूमंपश्यन्व्याप्तिंस्मरति " यत्रयत्रधूमःतत्रतत्रअग्निरिति" (*yatra yatra dhumaha tatra tatra agnihi*)तदनन्तरंवन्हिव्याप्यधूमवानयंपर्वतःइतिज्ञानंउत्पद्यते. एतत्स्वार्थानुमानम्.

- *swaarthaanumaanam means analysis based on his own prior experience. The illustration taken here is fire & smoke.A person who has observed smoke due to fire in kitchen (while cooking, using firewood as fuel) once*

observes the smoke in the moutain. He recollects his prior experience of kitchen. If smoke is present then fire should exist & thus infers the presence of fire.

परार्थानुमानम् – यत्तुस्वयंधूमादग्निन्मनुमायपरंप्रतिबोधयितुंपञ्चावयववाक्यंप्रयुज्यतेतत्परार्थानुमानम्. यथा – पर्वतोवन्हिमान्, धूमवत्वात्, योयोधूमवान्ससवन्हिमान्, यथामहानसम्, तथाचअयम् , तस्मात्तथेति-

अत्रप्रतिज्ञा –हेतु-उदहरण-उपनय-निगमनानि, पञ्चावयवाः ,

पर्वतःवन्हिमान्(*parvatovahnimaan)*इतिप्रतिज्ञा

धूमवत्वात् (*dhoomavatvaat*)इतिहेतुः

योयोधूमवान्ससवन्हिमान्(*yo yo dhoomavaan sa sa vanhimaan*) इतिउदाहरणम्

तथाचायं (*tathaacha ayam*) इतिउपनयः

तस्मात्तथेति(*tasmaat tathaa*) निगमनम्

In paraartha-anumaanam, a person who infers the presence of fire due to smoke expalins this to other person using five technical terms; they are-

pratijnaa - (*parvatovahnimaan) cognition– "Mountain is firey"*

hetu – (*dhoomavatvaat*) *– based on the smoke witnessed.*

udaaharaNam – (*yo yo dhoomavaan sa sa vanhimaan*) *example – smoke should be accompanied by fire.(as observed in the case of kitchen)*

upanaya – (*tathaacha ayam*) *similarly (as explained in udaaharaNam) mountain should also be firey.*

nigamanam – (tasmaat tathaa) Hence mountain is firey.

The formulation of these statements expresses the knowledge of pervasion & a specific way of approach.

- उपमानप्रमाणम् (upamaana)

Based on the co-relation between subject & its nature if a person gains the knowledge about a subject it is known as upammana. For instance, a persondoes not know about a subject i.e. *gavaya -a species of ox, seen in the forest*. He/she upon looking at it based on its *samjna-nature*recognizes the animal as *go sadrushogavayaha- similar to the family of ox/cow.*The knowledge obtained by such thought process is known as upammana.

- शब्दप्रमाणम् (shabda)

आप्तवाक्यम्शब्दः, आप्तस्तुयथार्थवक्ता.

shabda is defined as aaptavaakyam. Information by aapta - a person who provides the credible information.

From the above illustrations it is evident that to understand the process of logical analysis or reasoning one should have basic knowledge about few technical terms. These technical terms are so defined in order to avoid ambiguity. It seems that the propagators of this analysis have deliberately considered the

instances which even common people could understand.

Salvation according to Nyayashastra

Many philosophies of India speak about aatma –the soul, janana-maraNa the birth & death, paramaatma – the supreme power &mOkSHa – the salvation.

Tarka or Nyayavaisheshika is not an exception to this. These schools propagate that; until we understand the matter/substance properly we cannot gain the knowledge about the soul, supreme power etc, without which attaining salvation is not possible.

According to Gautamarishi'sNyayashastra& its commentary, न्यायशस्त्राध्ययनेनपदार्थानंतत्वज्ञानम्भवति, तथातेनआत्मसाक्षात्कारः, तेनचमोक्षप्राप्तिः which means by learning nyayashastra one can gain the true knowledge about the substances, thereby can understand aatma& then attain salvation.

Understanding through right means will negate erroneous interpretations, this in turn provides us the knowledge to judge the correctness of action performed in our daily life, upon practicing this one would stick to righteous path & hence attains salvation.

"दुःखजन्मप्रवृत्तिदोषमिथ्या-ज्ञानानाम्उत्तरोत्तरापायेतदनन्तरापायादपवर्गः" -Nyayasutra 1.1.2. This substantiates the above statements.

Conclusion

The systematic & structured study of conditions & depiction of inference from the content can be termed as logical analysis. This methodology was followed from ancient times.

Apart from aastikadharshan (philosophies having faith in vedas), even in Jainism, Buddismetcanumaanam- depicting inference based on logical reasoning is considered as one of the means to obtain true knowledge (pramANam).

This methodology abstracts from the content of the propositions and deals only with their logical form. Hence it is the method of scientific analysis which also helps in obtaining & accepting indirect proof. Knowledge derived from perception, comparison, inference, verbal authentication (aaptavaakya) etc are considered for such analysis.

This scientific approach evolved in Indian to characterizeunambiguously the logical structure of any complex jñāna in a technical language.

Even though the logical discussions are not completely different from metaphysical & epistemological topics, the religious concepts such as salvation etc are subject to different perceptions, the methodology used in this approach is universal. Thus it can be applied & extended for various explorations.

References:

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