Chapter II
Logical Reasoning in Indian Philosophy

Methodology and Logical Reasoning in Indian Philosophy may be used to refer to the structure and system of logic (Nyāya) that forms one of the six principal schools of Hindu Philosophy. In a still wider sense it refers to any logical doctrine propounded by Indian scholars.

The history of Indian logic covers at least 23 centuries, and the number of works by Indian logicians, published and unpublished, is vast. Those available in Western language or accessible in good editions constitute only a faction of this material. This chapter will present for five parts:

(1) Grammar, which was well developed by the time of the Sanskrit grammar of Pāṇini. Its sophisticated logical rules and techniques influenced almost all late scholarly developments in India.

(2) Mimāṃsaka, the most orthodox of the six philosophical schools of Hinduism. It dealt largely with problems of textual interpretation and faced a variety of logical problems in the course of its history.

(3) Vaisesika and Old Nyāya. Vaisesika, which also embodied a system of natural philosophy, provided a List of categories that set the frame-work within which logicians of the Old Nyāya school developed their systematic analyses of perception and inference.

(4) Buddhist logic, partly a reaction against the Old Nyāya. Some branches of Buddhist logic laid a foundation for formal logic and began to exclude extraneous considerations of ontology, epistemology, and psychology.
(5) New Nyāya, the final phase of Hindu logic, both challenged by Buddhist logic and substantially enriched by it. The New Nyāya began with the work of Gangesopadhyaya (thirteenth century A.D.) and continues to the present day.

For this chapter, lack of space prevents discussion of the role logic in the sciences and of the philosophical schools of the Vedānta, which dealt with logical topics, especially in the later developments within Advaita and Dvaita.¹

1. Grammar.

The earliest Indian Grammarians were mainly preoccupied with the phonology of the vedic language, a preoccupation that is reflected in the technical literature of the pratisakyas. With Pānini attention shifted to synchronistic description of spoken language (bhāsā). This led to the elaboration of various methodology and distinctions, of which several are of Logical reasoning.

The first is an economy criterion (the principle of laghava), which requires that the description of language omit superfluous element. “Grammarians rejoice over the saving of the length of half a short vowel as over the birth of a son”. For this reason abbreviations are used, and repetition is eschewed. Since the amount of repetition varies with the order in which grammatical rule are introduced, the order of exposition becomes a major problem of grammatical description. The grammarians generally preferred the shortest possible expressions. And the later logicians adapted the economy criterion to their specific needs by attempting to manipulate a relatively small number of elementary concepts. This did not result in

full-fledged axiomatic theories, but it produced various attempts to reduce complicated expressions to simpler forms.

For the sake of brevity, grammarians not only introduced numerous technical terms but also adopted particular methodology for referring to forms of the object language. The technical language thus constructed within the framework of ordinary Sanskrit developed into a meta-language, the language of grammatical instruction (upadesa). Special rule were required to delineate the domain of the meta-language and to prevent its elements' being considered elements of the object language. Such rules are themselves meta-rules (parribhāsa). For example, if the technical meta-linguistic term vrddhi denote, among other things, the sound ai, substitution of vrddhi means substitution of ai. Similar, an infix –a- may be accompanied by particular features, which are symbolized by the meta-linguistic indicatory sound –s-. The infix is therefore denoted by –sa-, and if –sa- has to be substituted, this mean that –a- is substituted. For instance, substitution of –sa- between tud- and –ti yields tudati, but not tudsati. Otherwise, if an element occurring in a rule is not a technical term, it belongs to the object language and denotes “its own form. For example, if agni (“fire”) has the suffix –eya-, the suffix must be attached to the from agn- itself. We clearly cannot add suffix to the embers, Patanjali wrote.2

The distinction made there is that between use and mention, which modern Western logicians express with the help of quotation marks. In Sanskrit, quotation is effectuated by the insertion of–iti- as the end of a citation. This facilitates reference to individual words of

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the object language, as well as to sentence or larger units of discourse. In later philosophy and logic, examples, conflicting views, and views of opponents are quoted in this way.

The grammarians referred to grammatical rule by means of the term *laksana*. Forms of the object language known from common usage (*loka*) are called *laksya*. In order to arrive at a grammatical description a *laksana* which is co-extensive with *laksana* has to be constructed. This is generalized in the *Nyaya* theory of definition, which studies the relations between the definiens (*laksana*) and the definiendum (*laksana*).

*Patanjali* introduced numerous other grammatical concepts with logical connotations like synonyms and homonyms. He also applied logical reasoning and methodology, such as the laws of contradiction ad contraposition. His practice of dealing with a grammatical problem by giving both an example (*udaharana*), and a counterexample (*pratyudaharana*) is a forerunner of the late practice of Discussing both *sapaksa* and *vipaksa* cases.

2. *Mimāmsā*

*Mimāmsā*³ literally means ‘investigation’ or ‘analysis’; it refers specifically to the analytic discussion of Vedic ritual. The *Mimāmsāsūtra*, the earliest treatise of the school, which is attributed to *Jaimini* and dated around the second century BC, is a compendium of debates about how rituals should be carried out; it resolves the debates by carefully analysing the language of the scriptural passages in which the rituals are enjoined. Thus, the school of *Mimāmsā* was

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first and foremost concerned with exegesis. It developed a system of rules of interpretation that were widely employed elsewhere in Indian philosophical and scientific literature.

The school of Mīmāṃsā or Pūrva Mīmāṃsā grew out of the Indian science of exegesis and was primarily concerned with defending the way of life defined by the ancient scripture of Hinduism, the Veda. Its most important exponents, Śabarasvāmin, Prabhākara and Kumārila, lived in the sixth and seventh centuries AD. Its central doctrine was that the Veda is the sole means of knowledge of dharma or righteousness, because it is eternal. All cognition, it held, is valid unless its cause is defective. The Veda being without any fallible author, human or divine, the cognitions to which it gives rise must be true. The eternity of the Veda implies the eternality of language in general. Words and the letters that constitute them are eternal and ubiquitous; it is only their particular manifestations, caused by articulations of the vocal organs, that are restricted to certain times and places. The meanings of words, being universals, are eternal as well. Finally, the relation between word and meaning is also eternal. Every word has an inherent capacity to indicate its meaning. Words could not be expressive of certain meanings as a result of artificial conventions.

**Knowledge and reality**

According to Mīmāṃsā, any error in cognition derives from defects in the causes of the cognition. A conch shell, which is in fact white, appears yellow to someone whose eye is affected by jaundice; a notion derived from verbal testimony can be false if the witness is

4 Op., cit.
dishonest or incompetent. On the other hand, a cognition whose causes are not defective will necessarily be true. Thus, cognitions arising from the Veda must be true, because the Veda is eternal - it was never composed by anyone but has just been handed down from time immemorial, from generation to generation - hence they cannot have a defective cause. They are not in any way contingent on the knowledge and honesty of a fallible author.

Kumārila developed the theory of ‘intrinsic validity’ (*svatah prāmānya*) as a general epistemological theory. All cognitions, he argued, present themselves initially as true; they arise together with a sense of conviction that matters really are as they indicate. Cognitions are deemed false only when they are directly overturned by other cognitions or undermined by the discovery that their causes are defective. Cognitions of Vedic injunctions, indeed, are never effectively contradicted by other means of knowledge such as perception, inference or testimony, and, as stated, there can be no suspicion that their source is defective, for the Veda is eternal. Prabhākara held not just that all cognitions initially appear true but that all cognitions, strictly speaking, are true; there is no such thing as error. Every cognition apprehends something real. It is only our judgments, which combine cognitions together, that are mistaken. If he thinks ‘This conch shell is yellow’, it means he is not in fact misperceiving anything, correctly perceive the conch as ‘this’, and he correctly perceive the yellow colour, which is due to the jaundice afflicting my eye. It is only the attribution of the yellow to the conch instead of my eye that is wrong. The theory of intrinsic validity evoked a violent reaction from other Hindu, Buddhist and Jaina philosophers, who argued that a cognition can be considered valid.
only when it is confirmed by another cognition, in particular, a
cognition of the ‘causal efficacy’ (arthakriyā) of the object.

The Mīmāṃsā theory of intrinsic validity was conducive to
the adoption of realist positions on a variety of metaphysical issues.
Kumārila, along with most other Hindu thinkers, rejected the
idealism of the Yogācāra school of Buddhism. His principal argument
for realism was simply that the perception of the world as comprising
externally existing, physical objects must be considered valid unless
and until it is contradicted by other perceptions, in the way dreaming
is contradicted by waking consciousness. He also charged that the
Buddhist view of experience as comprising self-luminous moments of
consciousness - that is, cognitions that reveal, not external objects,
but their own inherent forms - violates the principle that the same
thing cannot function as both agent and object in the same act (in
this case, an act of cognition). More crucially, Kumārila held that we
are not aware of cognitions (jñāna) at all in experience; we do not, at
the time we perceive an object, also perceive a cognition. Our
awareness, rather, is completely absorbed in being aware of the
object. Hence, there is no basis for suggesting that object and
cognition are the same thing, for they never occur together. Kumārila,
then, was a direct realist. He believed that we only infer the existence
of a cognition (jñāna) as the cause of the fact that we have become
aware of an external object.

The Prābhākara School held, like the Buddhists, that
consciousness (samvitti) is self-luminous; it simultaneously reveals
the object, itself, and the knower. Yet it reveals itself always as the
conscious principle, never as the object, hence, contrary to the
Buddhist teaching, experience itself shows us that object and
consciousness are distinct. At the same time, ‘cognition’ (jñāna), in the sense of the act of mind which produces consciousness is only inferred.

The cognitions we have of objects as endowed with certain properties and being of certain types - as a white man, a walking cow, and so on - are true unless and until overturned by other cognitions. Moreover, such cognitions are perceptual and can be referred to as ‘conceptualized perceptions’ (savikalpaka pratyakṣa); they are caused by the contact of our sense organs with objects, though they are preceded by a moment of non-conceptualized perception (nirvikalpaka pratyakṣa) in which the various features of the object are not identified as particular types of features or named. Buddhist philosophers, on the other hand, held that conceptualized cognition is not perceptual but mainly involves an act of the imagination by which mentally constructed properties are projected onto things; it is a kind of illusion. Kumārila argued - once again appealing to the principle of intrinsic validity - that the enduring validity of most of our cognitions of objects as qualified by qualities, actions, universals, and so on suggests that in general they are not errors; if they were, they would always be overturned. The world is perceived as it is prior to language, and we speak about it in a certain way because of the way we perceive it.

The above teaching implies an acceptance of the reality of universals. Mīmāṁsā philosophers were at the forefront of the debate with the Buddhists over universals. While the Buddhists were nominalists, Hindu and Jaina philosophers held that universals must be posited to account for common notions and common terms, that is, the fact that we cognize various things as being of the same type and
refer to them by the same word. Kumārila in particular developed trenchant criticisms of the Buddhist theory that common concepts are just mentally constructed ‘exclusion classes’, the so-called *apohavāda*. The Bhāṭṭa view of universals was somewhat different from that of other realist schools, however, in that it considered universal and particular to be different aspects of one thing and not entirely distinct; the same thing is universal from one angle, particular from another. (It developed a similar view of nonbeing, abhāva: a thing is both what it is and what it is not. When we judge that a pot is not a cloth, we are apprehending a real, negative aspect of the pot. This tendency of Bhāṭṭa thought is believed by some to reflect the influence of Jainism.) Kumārila criticized the Nyāya-Vaiśesika notion that universal and particular are externally related to each other by virtue of ‘inherence’ (*samavāya*). The Prābhākara school, meanwhile, adopted the more conventional stance that universals are distinct from the individuals in which they inhere, but it worked out a more felicitous theory of inherence.

Mimāmsā philosophers - again in concert with other Hindu thinkers and against the Buddhists - defended the existence of the soul. An immortal soul is clearly implied by Vedic injunctions of certain sacrifices for the attainment of heaven. Kumārila argued that the existence of an unchanging self is established by the fact that I recognize myself as the subject of remembered experiences; hence I must have existed continuously from the past to the present. He also held the self to be essentially self-conscious; the Prābhākara, on the other hand, held that the self becomes manifest only in empirical consciousness and has no consciousness of its own.
Language and scripture

Mīmāmsā insisted on the eternality of the Veda on the grounds that its composition has not been observed, nor is there any memory of its having been composed by anyone in the past. Rather, we observe simply that it has been transmitted from generation to generation. What sense, however, can there be in suggesting that there could be a discourse that was never composed by anyone? Language surely always expresses the thoughts of intelligent beings, and depends on the articulation, by living speakers and writers, of symbols that are conventionally linked with certain meanings. Precisely such a view of language is what Mīmāmsā rejected; in its place, it defended the eternality (nityatva) of language in general.

Individual words themselves must be eternal, for we routinely recognize a word we use as ‘the same word’ we used before. We never utter new words but only the same ones over and over. Nor should it be thought that a word is perishable because it consists of momentarily heard sounds. Rather, articulated sounds (dhvani) serve only to evoke an awareness in the hearer of the eternal, ubiquitous word; they are not identical with the word itself. In particular, they are not its letters (varna) - Kumārila insisted, against the grammarian Bhartrhari, that a word, though eternal, is not an indivisible entity (sphota) but comprises a sequence of letters - for letters, too, are omnipresent and eternal. We also recognize a particular letter as ‘the same letter’ as before. It is cognized at a particular time and place due to an alteration in the ear brought about by a disturbance of the air caused by the vocal organs. The meanings of words are also eternal, according to Mīmāmsā, for they are universals.

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5 Op., cit.
But surely the conventions by which words are assigned certain meanings were fixed by intelligent beings at a certain time, in which case the Veda could not be altogether eternal? The Mīmāmsaka denied even this; rather, he held that a word does not refer to its meaning by virtue of a convention but rather by an inherent capacity (Śakti). Kumārila, in particular, argued that the connection of word and meaning cannot be a human construct. A uniform convention devised by humans could only be based on some underlying natural relationship, while diverse conventions observed by different users would render communication impossible. That uniform conventions were established by God at the beginning of time is precluded by doubts about the existence of God. Moreover, it would seem that the devising of conventions by anyone already presupposes the existence of language. Finally, in contrast to the custom with other conventional practices in ancient India, we do not recall the authors of particular conventions when we employ words. (The Mīmāmsā school holds that in the performance of rituals, for example, we do always recall their authors.) All we observe, in fact, is that we learn what words mean from our elders, who in turn learned the meanings from their elders, and so on; we never observe anyone originally establishing the meanings of common words such as ‘cow’. The Mīmāmsā saka, of course, was cognizant of the fact that other cultures used different words for things, but he insisted that only Aryas speaking proper Sanskrit used the correct words! Others use words that do not really mean what they think they mean and whose expressiveness derives only from similarity to Sanskrit words. The fact that there is a natural connection between word and meaning does not entail that everyone
must automatically know what a word means, either. Although the connection is natural, it still must be learned.

Nor, finally, is the meaning of a particular utterance dependent on the intention of the utterer. Mīmāṃsā rejected the view, propounded by both Buddhist philosophers and the Hindu Vaiśesika School, that verbal testimony is a form of inference, in the sense that we infer facts about the world from what a person says via the belief that what is said expresses the state of mind of the speaker. By contrast, Mīmāṃsā held that language of itself says things. We can, for example, understand what a sentence means without knowing who uttered it or whether that person is reliable or not. A speaker selects a certain pattern of words to express a thought just because those words already express a certain state of affairs. Bhātta and Prābhākara philosophers differed, however, on the matter of how the eternal meanings of individual words combine to form sentence meanings. The Bhātta view (the so-called abhihitānvayavāda) was that individual words first indicate their ‘own meanings’, which in turn combine into the sentence meaning; the Prābhākara view (the anvitābhidhānavāda) was that a word originally indicates a meaning that is modified by the other words with which it stands in syntactic relation in the sentence. The latter theory implies that a word never means exactly the same thing in any two sentences.

Logical reasoning and methodology

In continuation of the ritual sutras, Mīmāṃsā systematized the interpretation of vedic expressions by means of paribhāsa rules, which are often called nyāya. The early use of the term nyāna as synonymous with paribhāsa suggests that elements and laws of the
Nyāya system can be traced back to the discussions on problems of language and meta-language.

Whereas the grammarians were interested in problems of description (a feature that remains characteristic of most Indian logic and philosophy), the philosophers of Mimamsa were concerned primarily with prescriptions, they interpreted the majority of Vedic utterances as injunctions (vidhi). The logic analysis of proscriptions was further utilized in the legal literature of dharmasastra.

To gain an idea of some of the features of this analysis let,

\[ N(F(x)) \] denote the description “he shall look,”

Where, \( F(x) \) denotes the description “he look.”

In a formal representation of Mīmāṃsā discussions of the expression \( N(F(x)) \), use will be made of a symbol for negation, \( \sim \), which in combination with following;

prescriptions such as \( N \),
description such as \( F \), or
terms such as \( x \).

Mīmāṃsā explain the negation of an injunction is that the negation of \( N(F(x)) \) or “he shall look” is

\[ \sim N(F(x)) \] as “he shall - not look,”

where the negation is connected with the verb ending.

This case called prohibition (nisedha). Stressing the importance of verb ending is a distinctive feature of Mīmāṃsā, since the prescriptive force of injunctions is said to be expressed by the injunctiveness (lintva) of the verb ending.

In other contexts the negation of an injunction means that the opposite of the description underlying the injunction is enjoined. This kind of negation of “he shall look” is
N((~F)(x)) as “he shall not look,”

Here an activity opposed to looking (iksana-virodhi) is positively enjoined. The remaining possibility— that is, the negation of “he shall look” is

N(F(~x)) as “not-he shall look”

In Mimamsa both N((~F)(x)) and N(F(~x)) are classified as cases of paryudāsa (sometimes translated as “exclusion”). In later grammatical works an analogous distinction is made. Mimamsa recognized that the law of contradiction, which holds for nisedha, negations, need not hold for paryudāsa negations; that is, it is not necessary that

\(~(N \ (F(x)) \land N \ (F(x))).\)

These distinctions may lead to interesting variations on other logical laws. An example is provided by the law of double negation.

\((N \ (F(x)) \leftrightarrow (~N) \ F(~x),\)

exemplified by the equivalence between “five 5-toed animals are fit to be eaten” and “animals different from these (five 5-toed animals) are not fit to be eaten.”^6

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3. Vaisesika and Old Nyaya

The vaiśesika system was founded by Kanāda. It is so named in view of the fact that ‘viśesa’ as a category of knowledge has been elaborately discussed in it. The founder of this philosophy, we are told, was surnamed ‘Kanāda because he led the life of an ascetic and used to live on grains of corn gleaned from the field. His real name was Uluka. So the Vaiśesika philosophy is also known as the Kanāda or Aulkya system.7

The Vaisiska-sutra8 ascribed to kanada gives an enumeration of categories, which are called padatha – that is, a classification of the meanings (artha) of words (pada) or the things (artha) to which words after. The ambiguity of the term artha (like that of the English term”meaning” explains how this logical classification could have ontological implications as well. The categories are (1) dravya or substance, (2) guna or quality, (3) karma or action, (4) sāmānya or generality, (5) višeṣa or particularity, (6) samavāya or the relation of inherence and (7) abhāva or non-existence.

Dravya (“substance”)9

Dravya is the substratum of qualities and actions, and that in which a quality or an action can exist, but which is distinct from both. Without substance there can be neither quality nor action. It is also the constitutive or material cause (samavāyikārana) of other

composite things produced from it. Like as a cloth is a composite thing formed by the combination of a number of threads of a certain colour.

Substances was divided for nine kinds are
- earth or prthivī
- water or jala
- light or tejas
- air or vāyu
- ether or ākāsa
- time or kāla
- space or dik
- soul or ātmā
- mind or manas

The first five are called physical elements (pañcabhūta), since each of them possesses a specific or peculiar quality (viśesa guna) which is sensed by an external sense. The sense of smell is constituted by the element of earth, the sense of taste by water, the sense of sight by light, that of touch by air, and that of hearing by ākāśa.

Space (dik) and time (kāla) are, like ākāśa, imperceptible substances each of which is one, eternal and all-pervading. Space is inferred as the ground of our cognitions of ‘here’ and ‘there’, ‘near’ and ‘far’. Time is the cause of our cognitions of ‘past’, ‘present’ and ‘future’, ‘older’ and ‘younger’. Although one and indivisible, ākāśa, space and time are distinguished into different parts and thus conventionally spoken of as many by reason of certain limiting conditions (upādhi) which affect our knowledge of them. Thus the expression ‘the ether enclosed by a jar’, ‘that by a house’, ‘filled and empty space’, ‘the east and the west’, ‘a minute and hour and a day’
are due to the apparent distinctions, made by certain conditions, in what is really one ether, one space and one time.

The soul (ātmā) is an eternal and all-pervading substance which is the substratum of the phenomena of consciousness. There are two kinds of souls, namely, the individual soul (jīvātmā) and the supreme soul (paramātmā orĪśvara). The latter is one, and is inferred as the creator of the world. The former is internally or mentally perceived as possessing some quality when, for example, one says, ‘I am happy,’ ‘I am sorry,’ and so forth. The individual self is not one but many, being different in different bodies.

Manas, which is a substance, is the internal sense (antarindriya) for the perception of the individual soul and its qualities, like pleasure and pain. So, it is atomic and cannot be perceived.

_Guna_ (“quale”)^{10}

Guna is defined as that which exists in a substance and has no quality or activity in itself, depends for its existence on some substance and is never a constitutive cause of anything. There are twenty-four kinds of qualities such as:-

1. _rūpa_ or colour, there are different kinds of colour like white and black, red and blue, yellow and green.

2. _rasa_ or taste, such as sweet, sour, bitter, etc.

3. _gandha_ or smell, is of two kinds, namely, good and bad.

4. _sparśa_ or touch, is of three kind, viz. hot, cold and neither hot nor cold.

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5. śabda or sound, is of two kinds, viz. dhvani or an inarticulate sound (e.g. the sound of a bell) and varna or an articulate sound (e.g. a letter sound).

6. sakhā or number, is that quality of things for which we use the words, one, two, three. There are many kinds of number from one upwards.

7. parimāna or magnitude, is that quality by which things are distinguished as large or small. It is of our kinds, viz. the atomic or extremely small, the extremely great, the small and the large.

8. prthaktva or distinctness, is that quality by which we know that one by which we know that one thing is different and distinct from another, e.g. a jar from a picture, a table from a chair.

9. samyoga or conjunction, is the union between two or more things which can exist separately, e.g. a book and a table. The relation between an effect and its cause is not one of conjunction, since the effect cannot exist without relation to the cause. Conjunction is of three kinds, according as it is due to motion of one of the things conjoined (as when a flying kite site on a hill-top), or to that of both the things (as when two balls moving from opposite directions meet and impinge). It may also be due to another conjunction. When the pen in my hand touches the table, there is conjunction between my hand and the table, brought about by the conjunction between my hand and the pen.

10. vibhāga or disjunction, is the disconnection between things, which ends their previous conjunction. Disjunction may be caused by the motion of one of the things disjoined, as when a bird flies away from a hill-top. Or, it may be due to the motion of both the things, as when the balls rebound after impact. It may also be caused
by another disjunction as when I drop the pen from my hand and thereby disconnect my hand from the table.

11. paratva or remoteness,
12. aparatva or nearness,
Both are each of two kinds, namely, the temporal and the spatial. As temporal, they mean the qualities of being older and younger, and as spatial, those of being far and near.

13. buddhi or cognition,
14. sukha or pleasure,
15. duhkha or pain
16. icchā or desire,
17. dvesā or aversion
18. prayatna or effort, is of three kinds, namely, pravṛtti or striving towards something, nivṛtti or striving away from something, and jīvanayomi or vital function.

19. gurutva or heaviness is the cause of the fall off bodies.
20. dravatva or fluidity is the cause of the flowing of certain substances like water, milk, air, etc.
21. sneha or viscidity is the cause of the adhesion of different particles of matter into the shape of a ball or a lump.
22. samskāra or tendency is of three kinds, viz. Vega or velocity which keeps a thing in motion, bhāvanā or mental impressions which help us to remember and recognize things, and sthitisthāpakatva or elasticity, by which a thing tends towards equilibrium when disturbed, e.g. a rubber garter.
23. dharma or merit means virtue is due to the performance of enjoined acts, leads to happiness.
24. adharma or demerit means vice is due to the forbidden acts, leads to misery.

*Kriya* ("action")\(^{11}\)

Kriya or action means physical movement, belongs to substance like a quality, but difference from both.

There are five kinds of action or movement, namely

1. utkṣepana or throwing upward is the cause of the contact of a body with some higher region, e.g. throwing a ball upward.

2. avakṣepana or throwing downward is the cause of the contact of a body with some lower region, e.g. throwing down a ball from a house-top.

3. ākuñcana or contraction, is the cause of such closer the contact of the part of a body as did not previously exist, e.g. clenching the finger or rolling up a cloth.

4. prasārana or expansion is the cause of the destruction of previous closer contact among the parts of a body, e.g. opening one’s clenched hand.

5. gamana or locomotion is kinds of action beyond above such as the walking of a living animal, going up of flames, etc.

*Sāmānya* ("generic or character")\(^{12}\)

Sāmānya is the class-essence corresponding to the class-concept or Western philosophers call ‘universal’. It means the genus, or aspect of generality or sameness. So, in case of difference of colour between one cow and another, both of them are found to have such a sameness that we call them cows. All objects around us, they are all

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\(^{11}\) Satischandra Chatterjee and Dhrendramohan, *An Introduction to Indian Philosophy*, seventh edition, p. 234.

perceived as sat or existing, is a sameness, which is found to exist in all the three things, dravya, guna and karma.

This highest genus sattā (being) is called parajāti (highest universals), such as the genus of dravya, of karma, or of guna, or still more intermediate jātis such as gotvajāti (the genus cow), nilatvajāti (the genus blue). The intermediate jātis or general sometimes appear to have a special aspect as a species, such as paśutva (animal jāti) and gotva (the cow jāti); here however gotva appears as a species, yet it is in reality nothing but a jāti. The aspect as species has no separate existence. It is jāti which from one aspect appears as genus and from another as species.

\textit{visesa} (“ultimate difference or particularity”)

Particularity (visesa) is the extreme opposite of the universal (sāmānya) postulated to explain the difference between atoms. We should not suppose that viśesa pertains to the ordinary things of the world like pots, chairs and tables. It is only when we come to the ultimate differences of the partless eternal substances that we have to admit certain original or underived peculiarities called viśesas. There innumerable particularities, since the individuals in which they subsist are innumerable. Whil the individuals are distinguished by their particularities, the latter are distinguished by themselves (svatah). Hence particularities are so many ultimates in the analysis and explanation of the differences of things. There cannot be any perception of them; like atoms, they are supersensible entities.

\textit{samavāya} (“inheritance”)

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13 Satischandra Chatterjee and Dhrendramohan, \textit{An Introduction to Indian Philosophy}, seventh edition, p. 237-238.
The inseparable relation of inherence, is a relation by virtue of which two different things such as substance and attribute, substance and karma, substance and sāmānya, kārana (cause) and kārya (effect), atoms and viśesa, appear so unified that they represent one whole, or one identical inseparable reality. This peculiar relation of inseparable inherence is the cause why substance, action, and attribute, cause and effect, and jāti in substance and attribute appear as indissolubly connected as if the are one and the same thing. Samyoga or contact may take place between two things of the same nature which exist as disconnected and may later on be connected (yutasiddha), such as when I put my pen on the table. The pen and the table are both substances and were disconnected; the samyoga relation is the guna by virtue of which they appears to be connected for a while. Samavāya however makes absolutely different things such as dravya and guna and karma or kārana and kārya (clay and jug) appear as on inseparate and independent category. This is not regarded as many like samyagas (contact) but as one and eternal because it has no cause. This or that object (e.g. jug) may be destroyed but the samavāyarelation which was never brought into being by anybody always remains.14

Later a seventh category, abhāva15 (“absence or non-existence”) was added, and this gave rise to a host of logical problems. Abhāva or non-existence is of two kinds, namely, samsargābhāva and anyoyābhāva. Samsargābhāva means the absence of something else. Anyonyābhāva means the fact that one thing is not another thing. Samsargabhāva is of three kinds, namely;

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14 Surendranath Dasgupta, A History of Indian Philosophy, Volume I, p. 319.
(1) prāgabhāva or antecedent non-existence is the non-existence of a thing before its production.

(2) dhvamsābhāva is the non-existence of a thing on account of its destruction after production, and

(3) atyantābhāva or absolute non-existence is the absence of a connection between two things for all time; past, present and future, e.g. the non-existence of colour in air.

All kinds of samsargābhāva can be expressed by a judgment of the general form ‘S is not in P.’ whereas anyonyābhāva can be expressed by a judgment like ‘S is not P.’

The partial similarity between these categories and those of Aristotle is easily explained by the common Indo-European syntactical background. A common grammatical background also explains the controversy over the concepts of jati and class, which led to discussions between realists (notably in Mimamsa) and nominalists (notably the Buddhists). According to Nyaya logicians jati is related to each individual (vyakti) through inherence. It may be noted here that suffixes forming abstract terms, such as –tva and –ta ("-ness"), are more easily used in Sanskrit than in other Indo-European language. In logical texts a common expression for “the pot is blue” is, in literal translation, “(there is) blueness of the pot.” Although “blueness” can in there in many substances, “blue” inheres in one substance only. For this reason guna, exemplified by :blue” but not By “blueness,” is translated as “quale” (inhabing in one substance) rather than as “quality”(inhering in many).
Nyāya

The Nyāya philosophy was founded by the great sage Gotama who was also known as Gautama and Aksapāda. Accordingly, the Nyāya is also known as the Aksapāda system. This philosophy is primarily concerned with the conditions of correct thinking and the means of acquiring a true knowledge of reality. It is very useful in developing the powers of logical thinking and rigorous criticism in its students. So we have such other names for the Nyāya philosophy as Nyāyavidyā, Tarkaśāstra (i.e. the science of reasoning), and Ānviksikī (i.e. the science of critical study).16

Nyāya – sūtra

As the Nyāya-sūtra is the foremost work on Nyāya-śāstra, a full summary of its doctrines is given here. Aksapāda says that supreme felicity, summum bonum (niḥśreyasa), is attained by the true knowledge of the sixteen categories treated in his Nyāya-sūtra. The categories are enumerated as follows:-

(1) The means of right knowledge (pramāna), (2) the object of right knowledge (prameya), (3) doubt (samśaya), (4) purpose (prayojana), (5) example (drstānta), (6) tenet (siddhānta), (7) members (avayava), (8) confutation (tarka), (9) ascertainment (nirnaya), (10) discussion (vāda), (11) wrangling (jalpa), (12) cavil (vitandā), (13) fallacy (hetvābhāsa), (14) quibble (chala), (15) analogue (jāti), and (16) the point of defeat (nigrahasthāna).17

16 Satischandra Chatterjee and Dhrendramohan, An Introduction to Indian Philosophy, seventh edition, p. 163.
(1) The means of right knowledge (pramāna)\textsuperscript{18}

Perception (pratyakṣa), inference (anumāna), comparison (upamāna), and word or verbal testimony (śabda), are the means of right knowledge.

Perception is the knowledge which arises from the intercourse of a sense with its object, being determinate, unnameable, and non-erratic.

Sense – includes the mind. The knowledge of the soul, pleasure, pain, etc., is produced by their intercourse with the mind which, according to the Bhāsyā 1-1-4 of Vātayāna, is a sense-organ.

Determinate – this epithet distinguishes perception from indeterminate (doubtful) knowledge; as for instance, a man looking from a distance cannot ascertain whether there is smoke or dust. His knowledge, which is of a doubtful character, is not perception.

Unnameable – signifies that the knowledge of a thing derived through perception has no connection with the name which the thing bears. It arises in fact without the aid of language.

Non-erralic – In Summer the sun’s rays coming in contact with earthly heat (vapour) quiver and appear to the eyes of men as water. The knowledge of water derived in this way is not perception. To eliminate such cases the epithet non-erratic

Inference is knowledge which is preceded by perception, and is of three kinds, viz. ‘a priori,’ ‘a posteriori,’ and ‘commonly seen.’

A priori (pūrvavat) is the knowledge of effect derived from the perception of its cause, e.g. one seeing clouds infer that there will be rain.

\textsuperscript{18} Satis Chandra Vidyabhusaa, \textit{A History of Indian Logic}, , p. 54-56.
A posteriori (śesavat) is the knowledge of cause derived from the perception of its effect, e.g. one seeing a river swollen infers that there was rain.

Commonly seen (sāmānyato drsta) is the knowledge of one thing derived from the perception of another thing with which it is commonly seen or seen together, e.g. seeing a beast possessing horns, one infers that it possesses also a tail, or one infers the presence of water from the presence of cranes.

Comparison is the knowledge of a thing through its similarity to another thing previously well known.

A man hearing from a forester that a bos gavaeus is like a cow resorts to a forest where he sees an animal like a cow. Having recollected what he heard he institutes a comparison, by which he sees is bos gavaeus. This is knowledge derived through comparison.

Word or verbal testimony is the instructive assertion of a reliable person.

‘A reliable person’ is one (a rsi, ārya or inleccha) who as an expert in a certain matter is willing to communicate his experiences of it. Suppose a young man coming to the side of a river cannot ascertain whether the river is fordable or not, and immediately an old experienced man of the locality, who has no enmity against him, comes and tells him that the river is easily fordable: the assertion of the old man is to be accepted as a means of right knowledge called word or verbal testimony.

Word is of two kinds, viz (1) that which refer to matter which is seen, e.g. a physician’s assertion that one conquers heaven by performing horse-sacrifices.
Rumour (aitihya), presumption (arthāpatti), probability (sambhava), and non-existence (abhāva), are not separate means of right knowledge as they are including in the four stated above.

*sabda* (“verbal knowledge”). Other schools adds other means of valid knowledge; for example, *Mimāmsa* added *anupalabhi*, which denotes the faculty that perceives *abhāva* (“absence”). However, according to Vatsyayana the absence of a thing is established by the same means of knowledge as its presence. Later logicians analyzed the perception of absence of a thing in terms of perception of the locus of the thing’s absence. The third pramana, *upamana*, is invoked when a person who has heard what a rhinoceros is sees a wild animal and recognizes it as a rhinoceros by identifying it with the denotation of the concept he knows. The last pramana, *sabda*, which in other systems was needs to safeguard the authority of revelation, was applied by logicians of the *Nyaya* system to any statement made by an expert (*aptavacana*). In the course of the development of *Nyaya*, logical research was increasingly devoted to perception and inference.

(2) the object of right knowledge (prameya)\(^\text{19}\)

The soul (ātmā), body (śsrīra), sense (indriya). Objects of sense (artha), intellect (buddhi), mind (manah), activity (pravṛtti), fault (dosa), transmigration (pretyabhāva), fruit (phala), pain (duhkha), and emancipation (apavarga), are the (principal) objects of right knowledge.

Desire, aversion, volition, pleasure, pain and cognition are the marks of the soul.

These are the qualities of the substance called soul.

\(^{19}\) Satis Chandra Vidyabhusan, *A History of Indian Logic*, p. 56-58.
Desire is a sign which proves the existence of “soul.” A soul, having experienced pleasure in a certain thing, desires again to acquire it through recognition of the same. Aversion is another sign, inasmuch as the soul feels aversion against a thing from which it suffered pain. Similarly volition, etc., are also signs of the soul. The existence of soul is thus, according to the Nyāya-bhāṣya and Nyāya-vārtika, 1-1-10, proved on the basis of recognition involved in our desire, aversion, etc. The soul is an eternal entity which is from time to time connected with a body suitable to its desert is completely exhausted, our soul, freed from transmigration, attains emancipation or release (moksa).

The body is the site of gestures, senses and sentiments.

Body is the site of gestures inasmuch as it strives to reach what is desirable and to avoid what is hateful. It is also the site of senses for the latter act well or ill, according as the former is in good or bad order. Sentiments which comprise pleasure and pain are also located in the body which experiences them.

The nose, tongue, eye, skin and ear are the senses, which are produced from elements.

Earth, water, light, air and ether – these are the elements. The nose is of the same nature as earth, the tongue as water, the eye as light, the skin as air, and ear as ether.

Smell (odour), taste (savour), colour, touch and sound which are qualities of the earth, etc., are objects of the senses.

Smell which is the prominent quality of earth is the object of the nose, taste the prominent quality of water is the object of the tongue, colour the prominent quality of light is the object of the eye,
touch the prominent quality of light is the object of the skin, and sound the quality of ether is the object of the ear.

Intellect is the same as apprehension or knowledge.

The mark of the mind is that there do not arise in the soul more acts of knowledge than one at a time.

It is impossible to perceive two things simultaneously. Perception does not arise merely from the contact of a sense-organ with its object, but it requires also a conjunction of the mind. Now, the mind, which is an atomic substance, cannot be conjoined with more than one sense-organ at a time, hence there cannot occur more acts of perception than one at a time.

Activity is that which makes the voice, mind and body begin their action.

There are three kinds of action, viz. bodily, vocal, and mental, each of which may be subdivided as good or bad.

Bodily actions which are bad are: - (1) killing, (2) stealing, and (3) committing adultery.

Bodily actions which are good are: - (1) giving, (2) protecting, (3) and serving.

Vocal actions which are bad are:- (1) telling a lie, (2) using harsh language, (3) slandering, and (4) indulging in frivolous talk.

Vocal actions which are good are:- (1) speaking the truth, (2) speaking what is useful, (3) speaking what is pleasant, and (4) reading sacred books.

Mental actions which are bad are:- (1) malice, (2) covetousness, and (3) skepticism.
Mental actions which are good are:- (1) compassion, (2) generosity, and (3) devotion.

Faults are those which cause activity. They are affection (attachment), aversion, and stupidity. Transmigration means rebirths. As already explained, it is a series of births and deaths. Birth is the connection of a soul with a body which includes the sense-organs, mind, intellect and sentiments. Death is the soul’s separation from them.

Fruit is the thing produced by activity and faults. It is the enjoyment of pleasure of suffering of pain. All activity and faults end in producing pleasure which is acceptable and pain which is fit only to be avoided.

Pain is that which causes uneasiness. It is affliction which every one desires to avoid. The Sanskrit Sūtra defining “pain” may also be translated as follows: Pain is the mark of hindrance to the soul.

Emancipation of release is the absolute deliverance from pain.

A soul, which is no longer subject to transmigration, is freed from all pains. Transmigration, which consists in the soul’s leaving one body and taking another, is the cause of its experiencing pleasure and pain. The soul attains emancipation as soon as there is an end of the body, and consequently of pleasure and pain.

(3) doubt (samśaya)\textsuperscript{20}

\textsuperscript{20} Satis Chandra Vidyabhusaa, A History of Indian Logic, p. 58-59.
Doubt, which is a conflicting judgment about the precise character of an object, arises from the recognition of properties common to many objects or of properties not common to any of the objects, from confliction testimony, and from irregularity of perception and non-perception.

(1) Recognition of common properties – e.g. seeing in the twilight a tall object we cannot decide whether it is a man or a post, for the property of tallness belongs to both.

(2) Recognition of properties not common – e.g. hearing a sound, one questions whether it is eternal or not, for the property of soundness abides neither in man, beast, etc., that are non-eternal, nor in atoms which are eternal.

(3) Confliction testimony – e.g. merely by study one cannot decide whether the soul exists, for one system of philosophy affirms that it does, while another system states that it does not.

(4) Irregularity of perception – e.g. we perceive water in the tank where it really exists, but water appears also to exist in a mirage where it really does not exist. A question arises, whether water is perceived only when it actually exists or even when it does not exist.

(5) Irregularity of non-perception – e.g. we neither perceive water in the radish where it really exists, nor on dry land where it does not exist. A question
arises, whether water is not perceived only when it
does not exist, or also when it does exist.

(4) purpose (prayojana)\(^{21}\)
Purpose is that with an eye to which one proceeds to act.
It refers to the thing which one endeavors to attain or avoid.
A man collects fuel for the purpose of cooking his food.

(5) example (drstānta)\(^{22}\)
An example is the thing about which an ordinary man and an
expert entertain the same opinion.
With regard to the general proposition “wherever there is
smoke there is fire,” the example is a kitchen is which fire and smoke
abides together, to the satisfaction of an ordinary man as well as an
acute investigator.

(6) tenet (siddhānta)\(^{23}\)
A tenet is a dogma resting on the authority of a certain
school, hypothesis, or implication.
The tenet is of four kinds owing to the distinction between ‘a
dogma of all the schools’ (sarva-tantra), ‘a dogma peculiar to some
school’ (prali-tantra), ‘a hypothetical dogma’ (adhikarana), and ‘an
implied dogma’ (abhyupagama).
A dogma of all the schools is a tenet which is mot opposed by
any schools and is claimed by at least one school.

\(^{22}\) Op. cit.
The existence of five elements or five objects of sense is a tenet which is accepted by all the schools.

A dogma peculiar to some school is a tenet which is accepted by similar schools, but rejected by opposite schools.

“A thing cannot come into existence out of nothing” – this is a peculiar dogma of the Sāmkhyas.

A hypothetical dogma is a tenet which if accepted leads to the acceptance of another tenet.

“There is a soul apart from the senses, because it can recognize one and the same object by seeing and touching.” If you accept this tenet you must also have accepted the following:- (1) That the senses are more than one, (2) that each of the senses has its particular object, (3) that the soul derives its knowledge through the channels of the senses, (4) that a substance which is distinct from its qualities is the abode of them, etc.

An implied dogma is a tenet which is not explicitly declared as such, but which follows from the examination of particulars concerning it, e.g. the discussion whether sound is eternal or non-eternal presupposes that it is a substance.

(7) members (avayava)\(^\text{24}\)

The member (of a syllogism) are signalized by a proposition (pratijñā), a reason (hetu), an explanatory example (udāharana), an application of the example (upanaya), and a statement of the conclusion (nigamana).

A proposition is the statement of what is to be proved, e.g. the hill is fiery.

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A reason is the means for proving what is to be proved through the homogeneous or heterogeneous (affirmative or negative) character of the example, e.g. because it (the hill) is smoky. Here “smoke” is the reason.

A homogeneous (or affirmative) example is a familiar instance which implies that this property is invariably contained in the reason given, e.g. Whatever is smoky is fiery, as a kitchen. Here “kitchen” is a familiar instance which possesses fire, and implies that fire invariably contained in the reason given.

N.B. – An affirmative example may according to the Nyāya-bhāṣya, 1-1-36, be defined as a familiar instance, which being similar to the minor term (subject) possesses the property of that term as co-present with the reason.

A heterogeneous (or negative) example is a familiar instance which is devoid of the property to be proved, and which implies that the absence of this property is incompatible with the reason given, e.g. Whatever is not fiery is not smoky, as a lake.

Here the lake is a familiar instance which is known to be devoid of fire, and implies that absence of fieriness is incompatible with the smoke, which is the reason.

Application is the winding up, with reference to the example, of what is to be proved as being so or not so.

Application is of two kinds: (1) affirmative, and (2) negative. The affirmative application, which is expressed by the word “so,” occur when the example is of an affirmative character. The negative application, which is expressed by the phrase “not so,” occurs when the example is of a negative character.

Affirmative application – “So” is this hill (smoky).
Negative application – This hill is “not so” (not smoky).

Conclusion is the re-statement of the proposition after the reason has been mentioned.

It is the confirmation of the proposition after the reason and the example have been mentioned.

Conclusion – Therefore the hill is fiery.

The five members may be fully set forth as follow:-

(i) Proposition – This hill is fiery.
(ii) Reason – Because it is smoky.
(iii) Example – Whatever is smoky is fiery, as a kitchen (homogeneous or affirmative).
(iv) Application – “So” is this hill (smoky) – (affirmative).
(v) Conclusion – Therefore this hill is fiery.

(8) confutation (tarka)25

Confutation, which is carried on for ascertaining the real character of a thing of which the character is not known, is reasoning which reveals the character by showing the absurdity of all contrary characters.

Is the soul eternal or non-eternal? Here the real character of the soul, viz. whether it is eternal or non-eternal, is not known. In ascertaining the character we reason as follows: If the soul were non-eternal it would be impossible for it to enjoy the fruits of its own actions, to undergo transmigration, and to attain final emancipation. But such a conclusion is absurd: such possibilities are known to belong to the soul: therefore, we must admit that the soul is eternal.

25 Satis Chandra Vidyabhusaa, A History of Indian Logic, p. 61.
Ascertainment (nirnaya)\textsuperscript{26}

Ascertainment is the determination of a question through the removal of doubt, by hearing two opposite sides.

A person wavers and doubts if certain statements advanced to him are supported by one of two parties, but opposes by the other party. His doubt is not removed until by the application of reason he can vindicate one of the parties. The process by which the vindication is effected is called ascertainment. Ascertainment is not, however, in all cases preceded by doubt. For instance, in the case of perception things are ascertained directly. So also we ascertain things directly by the authority of scriptures. But in the case of investigation (inference), doubt must precede ascertainment.

Discussion (vāda)\textsuperscript{27}

Discussion is the adoption, by two parties, of two opposite theses which are each analysed in the form of five members, and are supported or condemned by any of the means of right knowledge, and by confutation, without deviation from the established tenets.

A dialogue, disputation or controversy (kathā) is the adoption of a side or thesis by a disputant, and its opposite one by his opponent. It is of three kinds, viz. discussion (vāda) which aims at ascertaining the truth, wrangling (jalpa) which aims at gaining victory, and cavil (vitandā) which aims at finding mere faults. A discutient is one who engages himself in a disputation as a means of seeking the truth.

\textsuperscript{26} Satis Chandra Vidyabhusaa, \textit{A History of Indian Logic}, p. 62.
\textsuperscript{27} Satis Chandra Vidyabhusaa, \textit{A History of Indian Logic}, p. 62-63.
An instance of discussing is given below:-

Discutient – There is soul.
Opponent – There is no soul.

Discutient – Soul is existent (proposition).
- Because it is an abode of consciousness (reason).
- Whatever is not existent is not an abode of consciousness, as a hare’s horn (negative example).
- Soul is not so, that is, soul is an abode of consciousness (negative application).
  Therefore soul is existent (conclusion).

Opponent – Soul is non-existent (proposition).
- Because it is not perceptible by any of our senses (reason).
- Whatever is not perceptible by any of our senses is non-existent, as a hare’s horn (positive example).
- Soul is so (is not perceptible any of our sense) (positive application).
  Therefore soul is non-existent (conclusion).

Discutient – The scripture which is a means of right knowledge declares the existence of soul.
  Opponent – The scripture (of certain sects) denies the existence of soul.

Discutient – If there were no soul. It would not be possible to apprehend one and the same object through sight and touch.
  Opponent – If there were soul. There would be no change of cognitions.

Discutient – The doctrine of soul harmonises well with the various tenets which we hold, viz. that there are eternal things, that
everybody enjoys pleasure or suffers pain according to his own actions, etc. Therefore there is soul.

(11) wrangling (jalpa)\textsuperscript{28}

Wrangling, which aims at gaining victory, is the defense or attack of a proposition in the manner aforesaid by quibbles, analogues, and other processes which deserve rebuke.

A wrangling, is one who, engaged in a disputation. Aims only at victory, being indifferent whether the arguments which he employs, support his own contention or that of his opponent provided that he can make out a pretext for bragging that he has taken an active part in the disputation.

(12) cavil (vitandā)\textsuperscript{29}

Cavil is a kind of wrangling which consists in mere attacks on the opposite side.

A caviller does not endeavour to establish any thing, but confines himself to mere carping at the arguments of his opponent.

(13) fallacy (hetvābhāsa)\textsuperscript{30}

Fallacies of reason are the erratic (savyabhicāra), the contradictory (viruddha), the controversial (prakarana-sama), the counter-questioned (sādhhayasama), and the mistimed (kālātīta).

The erratic is the reason which leads to more conclusions than one.

\textsuperscript{28} Satis Chandra Vidyabhusaa, \textit{A History of Indian Logic}, p. 63.

\textsuperscript{29} Op. cit.

\textsuperscript{30} Satis Chandra Vidyabhusaa, \textit{A History of Indian Logic}, p. 63-65.
An instance of the erratic reason is given below:-

Proposition-Sound is eternal.

Erratic reason-Because it is intangible.

Example-Whatever is intangible is eternal as atoms.

Application-So is sound (intangible).

Conclusion-Therefore sound is eternal.

Again:

Proposition-Sound is non-eternal.

Erratic reason-Because it is intangible.

Example-Whatever is intangible is non-eternal, as cognition.

Application-So is sound (intangible).

Conclusion-Therefore sound is non-eternal.

Here from the reason (intangible) there have been drawn two opposite conclusions, viz. that sound is eternal, and that sound is non-eternal. The reason (or middle term) is erratic when it is not pervaded by the major term that is when there is no connection between the major term and middle, as pervader and pervaded. ‘Intangible’ is pervade neither by ‘eternal.’

The Contradictory is the reason which opposes what is to be established.

Proposition-A pot is produced.

Contradictory reason-Because it is eternal.

Here the reason is contradictory because that which is eternal is never produced.

The controversial or balancing the point at issue is a reason which is adduced to arrive at a definite conclusion while it is really one which can give rise to mere suspense as to the point.
Proposition—Sound is non-eternal.
Reason—Because it is not possessed of the attribute of eternality.

The reason that “sound is not possessed of the attribute of eternality” does not throw any new light, but keeps the parties in suspense as before.

The counter-questioned or balancing the question is a reason which not being different from what is to be proved stands in need of proof for itself.

Proposition—Shadow is a substance.
Reason—Because it possesses motion.

That which possessed quality and motion is a substance. To say that shadow possesses motion is the same as to say that it is a substance. Hence the reason stands as much in need of proof as the proposition itself. This is a counter-questioned reason or a reason which balances the question.

The mistimed is the reason which is adduced when the time is past in which it might hold good.

Proposition—Sound is durable.
Mistimed reason—Because it is manifested by union, as a colour.

The colour of a jar is manifested when the jar comes into union with a lamp, but the colour existed before the union took place, will continue to exist after the union has ceased. Similarly, the sound of a drum is manifested when the drum comes into union with a rod, and the sound must, after the analogy of the colour, be presumed to have existed before the union took place, and to continue to exist after the union has ceased. Hence sound is durable. The reason adduced
here is mistimed, because the manifestation of sound does not take place at the time when the drum comes into union with the rod, but it takes places at a subsequent moment when the union has ceased. In the case of colour, however, the manifestation takes place just at the time when the jar comes into union with the lamp. As the time of their manifestation is different, the analogy between colour and sound is not complete; therefore, the reason is mistimed.

(14) Quibble (chala)31

Quibble is the opposition offered to a proposition by the assumption of an alternative meaning.

It is of three kinds, viz. quibble in respect of a term (vāk-chala), quibble in respect of a genus (sāmāya-chala), and quibble in respect of a metaphor (upacāra-chala).

Quibble in respect of a term consists in willfully taking the term in a sense other than that intended by the speaker who happened to use it ambiguously.

A speaker says: “this boy is nava-kambala (possessed of a new blanket).

A quibbler replies: “this boy is not certainly nava-kambala (possessed of a nine blankets) for he has only one blanket.

Here the word nava, which is ambiguous, was used by the speaker in the sense of “new,” but has been willfully taken by the quibbler in the sense of “nine.”

Quibble in respect of a genus consists in asserting the impossibility of a thing which is really possible, on the ground that it belongs to a certain genus which is very wide.

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31 Satis Chandra Vidyabhushaa, A History of Indian Logic, p. 65.
A speaker says: this Brāhmaṇa is possessed of learning and conduct.”

An objector replies: “it is impossible, for how can this person be inferred to be possessed of learning and conduct from his being merely a Brāhmaṇa? There are little boys who are Brāhmaṇas, yet not possessed of learning and conduct.”

Here the objector is a quibbler, for he knows well that possession of learning and conduct was not meant to be an attribute of the whole class of Brāhmaṇas, but it was ascribed to “this” particular Brāhmaṇa who lived long enough in the world to render it possible for him to pursue studies and acquire good morals.

Quibble in respect of a metaphor consists in denying the proper meaning of word, by taking it literally while it was used metaphorically, and viceversa.

A speaker says: “the scaffolds cry out.”

An objector replies: “it is impossible for scaffolds to cry out, for they are inanimate objects.”

Here the objector is a quibbler, for he knew well that the word “scaffolds” was used to signify those standing on the scaffolds.

(15) analogue (jāti)\textsuperscript{32}

Analogue, also called an analogous rejoinder or far-fetched analogy, consists in offering opposition founded on mere similarity or dissimilarity.

A disputant says: “the soul is inactive because it is all-pervading as ether.”

\textsuperscript{32} Satis Chandra Vidyabhusaa, \textit{A History of Indian Logic}, p. 65-66.
His opponent replies: “if the soul is inactive because it bears similarity to ether as being all-pervading, why is it not active because it bears similarity to a pot as being a seat of union”? 

The reason of the opponent is futile, because it bears only a farfetched analogy to that of the disputant.

Or again:

Disputant-Sound is non-eternal, because, unlike ether, it is a product.

Opponent-If sound is non-eternal because, as a product, it is dissimilar to ether; why is it not eternal because, as an object of auditory perception, it is dissimilar to a pot?

The reason employed by the opponent is futile because the analogy which it bears to that of the disputant is far-fetched.

(16) the point of defeat (nigrahasthāna)

A point of defeat, also called a clincher, an occasion for rebuke or a place of humiliation, arises when one misunderstands or does not understand at all.

If a person begins to argue in a way which betrays his utter ignorance, or willfully misunderstands and yet persists in showing that he understands well, it is of no avail to employ counter-arguments. He is quite unfit to be argued with, and there is nothing left for his opponent, but to turn him out or quit his company, rebuking him as a block-head or a knave.

An instance of the point of defeat:-

Whatever is not quality is substance;
Because there is nothing except colour, etc. (quality).

A person who argues in the above way is to be rebuked as a fool, for his reason (which admits only quality) opposes his proposition (which admits both quality and substance).

Another instance:

Disputant—Fire is not hot.

Opponent—But the evidence of touch disproves such a statement.

Disputant, in order to gain the confidence of the assembled people say—“O learned audience, listen, I do not say that fire is not hot,” etc.

It is only meet that the opponent should quit the company of a man who argues in this way.

**Logical reasoning and methodology**

In the Old Nyāya the basic form of inference was the so-called syllogism consisting of five members, which can be approximately represented by the following expressions:

1. $\rightarrow G(a)$,
2. $F(a) \rightarrow$,
3. $(x)(F(x) \rightarrow G(x))$,
4. $F(a)$,
5. $G(a)$

The not-well-formed expressions, (1) and (2) are called ascripts; the other expressions are assertions. The stock example is

1. The mountain possesses fire
2. Because of smoke
3. Where there is fire, as in a kitchen;
4. (the mountain) is possesses fire;
Therefore, (it) similar (that is, possesses fire).

It has been argued that this syllogism depends for its validity on an example and is therefore a mere argument by analogy. Actually the kitchen appears to play the same role that the figure customarily drawn in geometrical proofs does; it serves no purpose other than to fix the attention. In the proof no use should be made of any special characteristic of the example not appearing in all other examples.

4. Buddhist logic.

There is a field of knowledge known as ‘nyāya’, ‘tarka’ or ‘logic’. Its counterpart in Buddhism is called ‘buddha-nyāya’ (Buddhist Nyāya). However, since Buddhism is split into various literatures such as Pāli literature and Sanskrit literature, there cannot be a unitary discipline called ‘Buddhist Nyāya’, due to the differences of their opinions. For this chapter, we can see main point of each literature as below.

Pāli literature

Logical reasoning and methodology in Pāli literature, or Theravāda Buddhism, there occasional references to logical topics and to a class of men who were called Takki or Takkika, that is, those versed in reasoning. It is not known whether these men were Buddhists, Jainas, or Brāhmanas, perhaps they were recruited from all communities. They were not logicians in the proper sense of the term, but they appear to me to have been sophists who indulged in quibble and casuistry.

Logical reasoning in the Pāli literature

The tripitaka reveals that the Buddha himself refers to pramāna. Nevertheless, he did not use the term to refer to means of
knowledge, but he used it in the sense of something or someone being the ‘measure’. The well-known textual reference in this regard is “rupappamāna ghosappamāna lūkhappamāna dhammappamāna” which indicates, for example, the fact that some conclude that a certain person is good on the basis of his physical appearance. The Buddha did not approve of this practice. He said that one must not take a person as pramana for the reason that there are not any absolutely good or bad persons among the worldings. However, this is not applicable to arahants for the Buddha himself has called such persons pramāna. Pramāna itself is a form of māna which is defilement and the arahant is devoid of it. Since the arahants cannot be measured they are called ‘appameyya’ (immesurable). The Buddha is described as appamāno buddho since he has an immeasurable amount of virtues. Once the Buddha said that those who are versed in pramāna are engaged in measuring the good or the bad of the statements made by others and that this practice brings suffering to those who are engaged in it.

All these points suggest that the practice of pramāna is not the ‘right knowledge’ (samyagñāna) and that it leads to wrong conclusions. It seems that the Buddha used ‘pamānikā’ to refer to

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34 Puggalapaññatti (catukka).
35 Mā puggalesu pamanika ahuvattha, mā puggalesu pamanam ganhittha. (Anguttaranikaya: dasaka nipāta).
36 Esā bhikkhave tulā etam pamānam mama sāvakānam upasakānam yadidam sariputta moggallānā. (Samyuttanikāya)
37 Appameyyam paminanto kodha vidvā vikappaye appameyyam pamāyinam nivutam tam maññe puthujanam, Appamanamti pamānakaradhammarahitam lokuttaram. (Samyuttanikaya: Brāhmaṇa samyutta).
38 Tatrānānda pamānika paminanti...tam hi tesam hoti ahitāya dukkhāya. (Anguttaranika: dasaka).
logicians. It may, however, be concluded that the Buddha did not use the pramāṇa-logy in the sense of the act of measuring.

**Sanskrit literature**

Origin of the Sanskrit Buddhist literature is become under the patronage of Kaniska, a council was held at Jālandhara under the superintendence of *Pārśva* (or Pūrṇaka) and Vasu works explanatory of the Pāli Tripitaka, viz. Sūtra Upadeśa of the Sutta pitaka, Vinaya Viśhāṣā of the Abhidhamma Pitaka. These three, works written in Sanskrit, were the earliest canonical books of the Mahāyāna School.

Kaniska thought it expedient to introduce Sanskrit as the medium of Buddhistic communication, because there have existed many valuable Buddhist books in that language. For instance, the *Abhidharma-vibhāsa*, or rather the Abhidharma was a mere commentary on *Kātyāyanī-putra’s Abhidharma-jñāna-prasthāna-śāstra*. This last is a Sanskrit work explanatory of the nirvāṇa of Buddha or 100 years before the time of Kaniska. Though Kaniska was not thus the first founder of the Sanskrit Buddhist literature, it cannot but be acknowledged that it was he, who for the first time proclaimed Sanskrit as the language of the Buddhist Canon. Since his time there have been composed in numerable Buddhist works in Sanskrit of which none called the *Nava Dharmas* are specially worshipped by the Mahāyāna Buddhists.40

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40 Satis Chandra Vidyabhusaa, **A History of Indian Logic**, p. 242.
Dignāga (c.480–c.540)

A logician and epistemologist, Dignāga is traditionally regarded as the founder of a Buddhist school that sought to avoid divisive controversies over which Buddhist writings were authentic by emphasizing logic and epistemology rather than the study of scriptures and their commentaries. His principal contributions consisted of refining the theory of inference and tightening the forms of argument commonly used in debate and polemics. His theories became the basis on which the influential philosopher Dharmakārti built his system, which became the standard Buddhist scholastic system in India and later in Tibet.

Epistemology

Dignāga was born around 480 into a Brahman family in Simhavaktra near Kāñcīn, modern Conjeeveram in the Madras Presidency, where he was ordained a Buddhist monk as a young man. Dissatisfied with his teachers in the south, he is supposed to have traveled north and become a disciple of Vasubandhu. Celebrated for his debating skills, he was nicknamed the ‘Fighting Bull’ or ‘Bull in debate’ (Sanskrit: Tarka-pungava).

At the beginning of his principal work, Pramāṇasamuccaya, Dignāga stated that his purpose was to resolve several controversies that other philosophers had generated about the means of acquiring knowledge. Whereas his predecessors had enumerated several methods by which knowledge may be acquired, Dignāga took the

42 Satis Chandra Vidyabhusaa, A History of Indian Logic, p. 272.
position that there are in fact only two methods. These two methods are distinguished from one another in virtue of the kinds of object that can be their subject matters.

The first method of securing new knowledge is described as pure sensation (pratyaksa), a form of cognition that is free of all judgment (kalpanā). The subject matter of this type of cognition is particular instances (svalaksana) of colour, sound and other sensible properties.

The second method is described as inferential reasoning. The subject matter of this type of cognition is universals (sāmānyalaksana). In contrast to most Brahmanical philosophers who had preceded him, Dignāga held that only the senses can be aware of particular sensations, and only the intellect can be aware of universals. The view that there are exactly two types of knowledge, and that there is no subject matter common to both of them, came to be a hallmark of Buddhist doctrine, since it was accepted by most Buddhist philosophers writing in Sanskrit and rejected by the majority of Brahmanical and Jaina philosophers.

Before Dignāga, most Indian treatises dealing with reasoning were primarily devoted to outlining the rules of debate between opposing parties. Consequently, discussions of the formal properties of correct lines of argument were mingled with discussions of which errors on a discussant’s part would result in defeat. Dignāga is usually given credit for being the first Indian philosopher to make a clear distinction between the formal properties of correct reasoning and the rules of debate. Debate, he said, is merely the articulation for the benefit of another person of a conclusion that one has arrived at by oneself through correct reasoning.
A correct inference, said Dignāga, is one that makes use of an observable property that serves as a sign (liṅga) of an unobserved property. The object to which the signifiable property can be inferred to belong is called the subject (pakṣa) of the inference. One property can serve as the sign of a second property only if three conditions are met. First, the sign must be observed to be a property of the subject of the inference. Second, the sign must be known to occur together with the signified property in objects other than the subject of the inference. And third, the sign must not be known to occur in objects in which the signified property is absent.

**Theory of language**

All of these Brahmanical doctrines were rejected by Dignāga, who held that all sentences, including those of the Veda, are merely a special kind of sign that function in essentially the same ways as any other kind of inferential sign. Since language is merely a species of inference, information communicated through language is no more reliable than information gained through reasoning. And like all other inferential knowledge, the knowledge communicated through language does not convey positive information about things but merely eliminates certain states of affairs from consideration. Dignāga argued that language cannot express the particulars that are known through the senses; rather, verbal symbols express only concepts generated by the mind. These concepts are formed not by observing universals or similarities that are sensed in particulars, but by ignoring the differences in what is observed.

43 Op., cit.
Dignāga’s Logical reasoning

Dignāga is justly regarded as the Father of Medieval Logic. He recognized perception and inference as the only means of valid knowledge. Later the main constituent of an inference was called Vyapti (denoted by V), a term referring to the relation that holds between the hetu (“reason, h”) and the sadhya (“thing to be inferred,” s). Both h and s occur in a locus through an occurrence relation A. For vyapti we have

\[(1) \quad V(h,s) \iff (X)(A(h,x) \rightarrow A(s,x)).\]

In the formulation of Dharmakirti quantification is expressed by means of the particle (“only”). Dharmakirti defined sapaksa (“similar instance”) as any locus x such that A(s,x) and asapaksa (later vipaksa, “dissimilar instance”) as any locus x such that \(\sim A(s,x)\). Then vyapti holds “if there is occurrence of h in similar instances only”:

\[(2) \quad (x)(A(h,x) \rightarrow (x=sapaksa)).\]

Vyapti also holds “if there is nonoccurrence in dissimilar instances of h only “- that is, if

\[(3) \quad (x)((x = sapaksa) \rightarrow \sim A(h,x)).\]

According to Dharmottara either (2) or (3) implies (1). The later implication involves contraposition.
The Buddhist logicians made numerous other contributions to formal logic, particularly in connection with negations. Interesting discussions took place on reduction ad absurdum (prasaga). Other topics have become part of the Indian tradition of logic—e.g., infinite regress (anavastha). The Buddhist distinction between the thing itself (svalaksana) to which a word indirectly refers and the mental image (vikalpa) the word connotes is reminiscent of the modern Western distinction between denotation and sense.44

5. New Nyāya.45

The Navya-Nyāya or New-Nyāya is the final development of Indian philosophy was become around 10th cent. A.D., reached its best around 14th cent. A.D. by the philosopher Gangeśa Upādhyāya of Mithila. It was a development of the classical Nyāya darśana. Other influences on Navya-Nyāya were the work of earlier philosophers Vācaspati Miśra (900–980 CE) and Udayana (late 10th century).

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

45 Op., cit.
linguistic tools of Nyāya thought, to make them more rigorous and precise.

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

Navya-Nyāya developed a sophisticated language and conceptual scheme that allowed it to raise, analyse, and solve problems in logic and epistemology. It systematised all the Nyāya concepts into four main categories (sense-)perception (_pratyakṣa_), inference (_anumāna_), comparison or similarity (_upamāna_), and testimony (sound or word; _śabda_).

Formal rules, whose validity depends only on the structure of the sentence expressions, were established. In such expressions variables occur (represented, for example, by relative pronouns) for which constants may be substituted. The formal apparatus so developed is indispensable to later Indian writing on philosophy, grammar, ritual, or science in general and is therefore equally indispensable to the Western student of any of these later developments.

In the analysis of inference the definitions of _vyapti_ occupy a central place. Many of these definitions are discussed and refuted. In each definition two concepts, occurrence and locus, play an important role. The occurrence of _x_ in _y_ will again be expressed here by _A_(x,y), and _B_(x,y) will denote that _x_ is the locus of _y_. Two well-known definitions of _h_ in the locus of absence of _s_ “ and “ nonoccurrence of _h_ in the absence of the locus of _s”
The first definition can be applied if ad only if (1) there is an x such that x=s, (2) there is a y such that B(y,x), provided that condition (1) holds for x, (3) \( \sim A(h,y) \), provided that condition (2) holds for y. The second definition can be applied if (1) there is an x such that B(x,s), (2) there is a y such that \( y \neq x \), provide that condition (1) hold for x, (3) \( \sim A(h,y) \), provide that condition (2) holds for y. In order to meet specific objections such definitions underwent numerous modifications, many of which resulted in particular expressions for qualification.

The analysis of the fourth means of valid knowledge, sabda, led to the logical study of grammatical categories. One branch is called saktivada ("semantics"), literally "the doctrine of sakti," where sakti is defined as the relation between a word (pada) and its reference (padartha).

The new school also studied multiple negations. Reghunatha formulated laws of multiple negations that have counterparts in intuitionist logic.