

# **A PLAUSIBLE COGNITIVE MODEL OF THE NYĀYA THEORY OF ILLUSION**

**THESIS SUBMITTED TO JADAVPUR UNIVERSITY FOR THE  
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(ARTS)**

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**A Plausible Cognitive Model of the Nyāya Theory of Illusion**  
submitted by me for the award of the Degree of Doctor of  
Philosophy in Arts at Jadavpur University is based upon my  
work carried out under the supervision of  
**Emeritus Professor Amita Chatterjee.**  
And that neither this thesis nor any part of it has been submitted  
before for any degree or diploma anywhere/elsewhere.

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*At the lotus feet of*

*Śrī Śrī Rāmakṛṣṇa Paramahaṁsa*

## PREFACE

Just as a proper study of exceptions helps in understanding general rules better, an analysis of infelicitous cognitive situations shows the inner mechanism of true cognition. Hence a successful account of perception should be built consulting with illusory situations. Perception is considered to be the principal source of our knowledge on which the other means of cognition depend and illusion is its weak point. Perceptual illusion is the gateway of skepticism. That is why it is so important and foundational topic in philosophy. It is almost impossible to build a systematic epistemological framework without explaining how to avoid incorrect perceptual cognition. And for this enterprise, it is necessary to enquire into the nature and causes of illusion. Indian philosophical schools have shown considerable amount of insight in this area. There are no less than fifteen theories of error (*khyātivāda*) discussed in Indian Philosophy. It is interesting to see how these schools have presented their accounts of illusion maintaining an intra-theoretic consistency. However in the traditional discourse the underlying presuppositions are not separated and classified. In this thesis an enterprise has been taken to separate those underlying presuppositions from the amalgamation of theoretical nexus for empirical tests after an analysis of six principal *khyātivādas*.

We have tried to build up a cognitive model of illusion following Nyāya tradition. The Nyāya theory of illusion is named as *anyathākhyātivāda*. The crucial hypothesis of the Nyāya theory of illusion is *Jñānalakṣaṇa Sannikarṣa*, which demarcates Nyāya tradition from all other schools. The explanatory power of this hypothesis is examined here and a specific neurophysiological phenomenon has been referred, named synaesthesia, in support of the possibility of it. Although synaesthesia is not a universal phenomenon, the explanatory theories of synaesthesia and recent researches on multisensory processes confirm the universality of *Jñānalakṣaṇa*-mechanism. We have tried to find out new relations between age-old Nyāya insight and recent discoveries in Neuroscience, along with a new interpretation of *Jñānalakṣaṇa*-mechanism, which is in accord with brain science. We have provided a logical model of illusion which could be taken as a framework of further cognitive experiments. Apart from illusion there are other cognitive situations those are explained by *Jñānalakṣaṇa*-mechanism. Cognitive models of those situations also are built in this thesis in the form of moment-examination (*kṣaṇavicāra*), which may be considered to be a timeline for sophisticated cognitive experiments with brain-imaging techniques such as EEG, fMRI etc. Due to the diversity in the causes of illusion *prima facie* it seems to be impossible to bring all

the diverse cases under a single explanatory framework. However, in this thesis a mathematical or logical model has been proposed along with the moment examination or timeline of illusion-mechanism in order to organize the idiosyncratic factors of illusion. The same model could be applied to the other *Jñānalakṣaṇa* situations in particular and to any cognitive situation in general.

In the whole discussion a realist attitude has been taken as opposed to a skeptic view and skepticism has been refuted with the help of the arguments from parasitism, originally invented by Gautama and mentioned by Mathew R. Dasti later on. The Sanskrit texts referred in the thesis are mentioned in abbreviation and bibliography. And the references of the researches on synaesthesia, multimodal perception (or cognitive neuroscience in general) are given in the bibliography.

I would like to express my sincere gratitude to my supervisor, Professor Amita Chatterjee.

*yadatra sauṣṭhavaṃ kiñcit tad guroreva me na hi /*

*yadatrāsauṣṭhavaṃ kiñcit tanmamaiva gurornahi //*

If there is anything commendable in this thesis, it is because of her. I am responsible for all the imperfections. I am indebted to my teachers in the Department of Philosophy at Jadavpur University, specially Professor Gangadhar Kar, Professor Rupa Bandyopadhyaya, Professor Proyash Sarkar and Dr. Mausumi Guha, for their valuable suggestions and help. I also thank Professor Prabal Kumar Sen, former Professor in Calcutta University, for his valuable suggestions.

I am indebted to my parents Sri Mohan Kumar Pal and Smt. Shila Paul for their incessant encouragement and support. My wife Smt. Shnaoli Pal (Seal) has supported me in all possible ways. Without my parents and my wife it would be impossible for me to complete this work. And my daughter Ms. Shramana Pal has always been the loving source of inspiration.

Date:

MAINAK PAL

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## ABBREVIATION

Abbreviation	Book
AM	<i>Advaitāmoda</i> : Vāsudeva Śāstrī Abhyañkara, Mahadev Bhimaji Apte, 1975.
AS	<i>Advaitasiddhi</i> : Madhusūdana Sarasvatī (with <i>Gauḍabrahmānandī</i> , <i>Viṭṭhaleśopādhyāyī</i> and <i>Siddhivyākhyā</i> of Balabhadra), Parimal Publications, 1988.
BBKP	<i>Brahmasūtra Śāñkara Bhāṣya</i> : Śaṅkarācārya (with <i>Bhāmatī</i> of Vācaspati Miśra, <i>Kalpataru</i> of Amalānanda Sarasvatī and <i>Parimala</i> of Appayadīkṣita), Bombay, Pāṇḍuraṅg Jāwajī, 1938.
BBPV	<i>Brahmasūtra-Śāñkarabhāṣyam</i> : Śaṅkarācārya (with <i>Bhāmatī</i> etc. nine commentaries and sub-commentaries), Delhi, Chowkhamba Samskrita Pratisthana, 1995.
BGGD	<i>Śrīmadbhagavadgītā</i> (with <i>Gūḍārthadīpikā</i> of Madhusūdana Sarasvatī), Kolkata-9, Nababharat Publishers, 2006.
BM	<i>Bhāmatī</i> : Vācaspati Miśra, Kolikata, Sanskrit Pustak Bhandar, 1973.
BP	<i>Bhāṣāpariccheda-Nyāyasiddhāntamuktāvalī</i> : Viśvanātha, Kalikata, Sanskrit Pustak Bhandar, 1947.
BRBN	<i>Brahmasūtra-Śāñkarabhāṣyam</i> : Śaṅkarācārya (with <i>Bhāṣya-Ratnaprabhā</i> of Govindānanda, <i>Bhāmatī</i> of Vācaspati Miśra, <i>Nyāyanirṇaya</i> of Ānandagiri), Bombay, Pāṇḍuraṅg Jāwajī, 1934.
BVR	<i>Bhāmatī and Vivaraṇa Schools of Advaita Vedanta: A Critical Approach</i> , P.S. Roodurmun, Delhi, Motilal Banarasidass Publishers Private Limited, 2010.
CFA	'The Case for Anirvacanīyakhyāti.' by Sukharanjan Saha, In <i>Mind, Language and Necessity</i> , Jadavpur Studies in Philosophy, vol. 3, ed. K.K. Banerjee, New Delhi, Macmillan India Limited, 1981, pp. 71-134.



CPAS	<i>Compendium of Philosophy (Abhidhammattha-sangaha)</i> , Translated by S.Z. Aung, London, Henry Frowde, 1910.
EBP	<i>Epistemology of the Bhāṭṭa School of Pūrva Mīmāṃsā</i> , Govardhan P. Bhatt, Varanasi, Chowkhamba Sanskrit Series Office, 1962.
IP I, II, III	<i>Indian Psychology (vol. I, II and III)</i> , J.N. Sinha, Delhi, Varanasi, Putna, Bangalore, Madras, Calcutta, Motilal Banarasidass, 1996.
JVR	<i>Jñānalakṣaṇavicārahāsyā: Harirāma Tarkavāgīśa</i> (with Anantakumar Bhattacharyya's <i>Vimarśini</i> ), Calcutta Sanskrit College Research Series No. 3, Calcutta, Sanskrit College, 1958.
KRV I, II, III	<i>Kiraṇāvalī (vol. I, II and III)</i> : Udayanācārya, Kalikata, Paschimbanga Rajya Pustak Parshad, July, 1991.
KV	<i>Kārikāvalī-Muktāvalī: Viśvanātha</i> (with <i>Dinakarī</i> and <i>Rāmarudrī</i> ), Varanasi, Krishnadas Academy, 1988.
KVS	<i>Kādamvarī (Śukanāśopadeśah)</i> : Vāṇabhaṭṭa, Kalikata-9, B.N. Publication, 2008.
MDJ I, II	<i>Mīmāṃsādarśanam (vol. I and II)</i> : Jaimini (with <i>Śabarabhāṣya</i> ), Sri Jibananda Vidyasagar Bhattacharya, Kalikata, 1883.
NB	<i>Nyāyavindu: Dharmakīrti</i> (with Dharmottara's <i>Nyāyabinduṭīkā</i> ), Calcutta, Sadesh, 2006.
NBT	<i>Nyāyabinduṭīkā: Dharmottarācārya</i> , Bibliotheca Indica, Calcutta, 1889.
ND	<i>Nyāyadarśanam: Gautama Muni</i> (with Vātsyāyana's <i>Bhāṣya</i> , Uddyotkara's <i>Vārttika</i> , Vācaspati Miśra's <i>Tātparyaṭīkā</i> and Viśvanatha's <i>Vṛtti</i> ), Calcutta, Munshiram Manoharlal Publishers Private Limited, 2003.
NDP I	<i>Nyāyadarśana: Gautama-sūtra (Vātsyāyanabhāṣya-sahita)</i> , vol. 1: Phanibhusan Tarkavagish, Kolkata, Paschimbanga Rajya Pustak Parshat, 2003.

NDP II	<i>Nyāyadarśana: Gautama-sūtra (Vātsyāyanabhāṣya-sahita), vol. 2:</i> Phanibhusan Tarkavagish, Kolkata, Paschimbanga Rajya Pustak Parshat, 2000.
NDP V	<i>Nyāyadarśana: Gautama-sūtra (Vātsyāyanabhāṣya-sahita), vol. 5:</i> Phanibhusan Tarkavagish, Kolkata, Paschimbanga Rajya Pustak Parshat, 1989.
NK	<i>Nyāyakośa:</i> Bhīmācārya Jhalakīkar, Poona, Bhandarkar Oriental Research Institute, 1978.
NKS	<i>Nyāyakusumāñjali:</i> Udayanācārya, Calcutta, Paschimbanga Rajya Pustak Parshat, 1995.
NM	<i>Nyāyamañjarī (Pratyakṣakhaṇḍa):</i> Jayanta Bhaṭṭa, Kolkata, Sanskrit Book Depot, 2006.
NMJ	<i>Nyāyamañjarī:</i> Jayanta Bhaṭṭa, Translated by Janaki Vallabha Bhattacharyya, Delhi, Motilal Banarasiidass, 1978.
NMS I	<i>Nyāyamañjarī (Part-I: Āhnika 1-6):</i> Jayanta Bhaṭṭa, Kashi Sanskrit Series 106, Varanasi, Chaukhambha Sanskrit Sansthan, 1998.
NMS II	<i>Nyāyamañjarī (Part-II: Āhnika 7-12):</i> Jayanta Bhaṭṭa, Kashi Sanskrit Series 106, Varanasi, Chaukhambha Sanskrit Series Office, 1969.
NS	<i>Nyāyasāra:</i> Bhāsarvajña (with Vāsudeva Sūri's <i>Padapañcikā</i> ), Trivandrum Sanskrit Series No. 110, Sri Setu Lakṣmī Prasādamālā No. 21, Government of Her Highness the Maharani Regent of Travancore, Trivandrum, 1931.
NTK	<i>The Nyāya Theory of Knowledge:</i> Satischandra Chatterjee, Calcutta, University of Calcutta, 1978.
NVT	<i>Nyāyabinduṭkā:</i> Dharmottarācārya, Bibliotheca Indica, Calcutta, 1889.
NVTP	<i>Nyāyavārttikatātparyapariśuddhiḥ:</i> Udayanācārya, New Delhi, Indian Council of Philosophical Research, 1996.

NVTT	<i>Nyāyavārttikatātparyāṅkā</i> : Vācaspati Miśra, New Delhi, Indian Council of Philosophical Research, 1996.
PBNK	<i>Praśastapādabhāṣya (Padārthadharmasaógraha)</i> : Praśastapādācārya (with Śrīdhara Bhaṭṭa's <i>Nyāyakandalī</i> ), Varanasi, Sampurnananda Sanskrit Visvavidyalaya, 1900.
PKM	<i>Prameyakamala-mārtanḍa</i> : Prabhācandra, 3 <sup>rd</sup> edn., Delhi-6, Sri Satguru Publications, 1990.
PM	<i>Parīkṣāmukham</i> , Māṅikyanandī (with <i>Prameyaratnamālā</i> and <i>Anantavīrya</i> ), Ajitasram, Lucknow, The Central Jaina Publishing House, 1940.
PM	<i>Perception: An Essay on Classical Indian Theories</i> , B.K. Matilal, Oxford, Clarendon Press, 1986.
PP	<i>Prakaraṇapañcikā of Śālikanātha: with an exposition in English</i> : K.T. Pandurangi, New Delhi, Indian Council of Philosophical Research, 2011.
PSM	<i>Philosophy of Śrī Madhvācārya</i> : B.N.K. Sharma, Bombay, Bharatiya Vidya Bhavan, 1962.
PYD	<i>Pātañjalayogadarśanam</i> : Patañjalī (with Vācaspati Miśra's <i>Tattvavaiśārādī</i> , Vijñānabhikṣu's Commentary <i>Yogavārttika</i> on Vyāsadeva's <i>bhāṣya</i> ), Vārānasī-1, Bhāratīya Vidyā Prakāśana, 2 <sup>nd</sup> edn., 1983.
SB	<i>Śrībhāṣya</i> : Rāmānujācārya, Bombay Sanskrit and Prakrit Series No. 68, Bombay, The Department of Public Instruction, 1914.
SD	<i>Śāstradīpikā</i> : Pārthasārathi Miśra (with <i>Yuktisnehaprapūrāni</i> of Pandit Ramakrishna Misra), Benaras, Chowkhamba Sanskrit Series Office, 1916.
SDS	<i>Sarvadarśanasamgrahaḥ</i> : Mādhvācārya (with <i>Darśanāṅkura</i> by Vāsudeva Śāstrī Abhyāñkara), Mumbai, Prācyā Vidyā Saṁśodhana Mandir, Nirṇaya Sāgara Press, 1924.
SK	<i>Sāṁkhyakārikā</i> : Īśvara Kṛṣṇa (with Vācaspati Miśra's <i>Tattvakaumudī</i> ), Madras, Sri Ramakrishna Math Mylapore, 1995.

SPB	<i>Sāṅkhyappravacanabhāṣyam</i> : Vijñānabhikṣu, Calcutta, Bibliotheca Indica, 1856.
SPS	<i>Sāṅkhyappravacanasūtra</i> : Kapila (with extracts from Vijñānabhikṣu's <i>Sāṅkhyappravacanabhāṣyam</i> ), Calcutta, Asiatic Society of Bengal (Bibliotheca Indica: Collection of Original Works, New Series, No. 32 and 81), 1862, 1865.
STK	<i>Sāṅkhyatattvakaumudī</i> : Vācaspati Miśra, Kalikata, Samskrita Pustak Bhandar, 2010.
SVK I	<i>Mīmāṃsāsāślokaṅkārttikam</i> : Kumārila Bhaṭṭa (with <i>Kāśikā</i> of Sucarita Miśra), Part I, Trivandrum, University of Travancore, 1926. Reprinted by CBH Publications, 1990.
SVK II	<i>Mīmāṃsāsāślokaṅkārttikam</i> : Kumārila Bhaṭṭa (with <i>Kāśikā</i> of Sucarita Miśra), Part II, Trivandrum, University of Travancore, 1929. Reprinted by CBH Publications, 1990.
SVK III	<i>Mīmāṃsāsāślokaṅkārttikam</i> : Kumārila Bhaṭṭa (with <i>Kāśikā</i> of Sucarita Miśra), Part III, Trivandrum, University of Travancore, 1943.
SVKNR	<i>Ślokaṅkārttika</i> : Kumārila Bhaṭṭa (with extracts from Sucarita Miśra's <i>Kāśikāṅkārttika</i> and Pārthasārathi Miśra's <i>Nyāyaratnākarāṅkārttika</i> ), Calcutta, Asiatic Society of Bengal (Bibliotheca Indica: Collection of Original Works, New Series, Nos. 965, 986, 1017, 1055, 1091, 1157 and 1183), 1909.
SVNR	<i>Ślokaṅkārttika</i> : Kumārila Bhaṭṭa (with Pārthasārathi Miśra's <i>Nyāyaratnākarāṅkārttika</i> ), Kashi, Chowkhamba Sanskrit Granthamala, Granthasamkhya 3, Chowkhamba Sanskrit Series, 1894.
SWK	<i>The Six Ways of Knowing</i> , D.M. Datta, Calcutta, University of Calcutta, 1997.
TCMA	<i>Tattvacintāmaṇi (Anyathākhyātivāda)</i> : Gaṅgeśopādhyāya, Kolkata, Dasgupta and Co. (Private) Limited, 2009.
TCMK	<i>Tattvacintāmaṇi (Pratyakṣakhaṇḍa)</i> : Gaṅgeśopādhyāya (with extracts from the Commentaries of Shri Mathuranatha Tarkavagisha and Shri Jaydeva

	Mishra), vol. I, Delhi, Oriental Book Centre, 1990.
TCMP	<i>Epistemology of Perception (The Perception Chapter)</i> (on Gaṅgeśa's <i>Tattvacintāmaṇi, Pratyakṣa Khaṇḍa</i> ): S.H. Philips and N.S.R. Tatacharya, Delhi, Motilal Banarasidass Publishers Private Limited, 2009.
TKSN	<i>Tarkasaṅgraha:Tarkasaṅgraha-dīpika</i> : Annambhaṭṭa, Calcutta, Sanskrit Pustak Bhandar, 1984.
VD I	<i>Vedāntadarśanam (vol. I)</i> : tr. Svāmī Viśvarūpānanda, ed. Svāmī Cidghanānanda Purī and Śrī Ānanda Jhā Nyāyācāryya, Kalikata, Udbodhan Karyalaya, January, 1996.
VD II	<i>Vedāntadarśanam (vol. II)</i> : tr. Svāmī Viśvarūpānanda, ed. Svāmī Cidghanānanda Purī and Śrī Ānanda Jhā Nyāyācāryya, Kalikata, Udbodhan Karyalaya, March, 1989.
VDBP	<i>Brahmasūtra-Śāṅkarabhāṣyam (Vedānta-Darśanam: vol. I)</i> : Śāṅkarācāryya (with Vācaspati Mīśra's <i>Bhāmatī</i> , Rāmānanda Sarasvatī's <i>Bhāṣya-Ratnaprabhā</i> , Amalānanda Sarasvatī's <i>Śāstradarpaṇa</i> and Vidyāraṇya Munīśvara's <i>Vyāsādhikaraṇamālā</i> , Calcutta, Paschimbanga Rajya Pustak Parshat, 1991.
VMS	<i>Vijñapti-mātratā-siddhi</i> : Vasuvandhu (with Sthiramati's Commentary <i>Vṛtti</i> ), Varanasi, Kishor Vidya Niketan, 1980.
VP	<i>Vedānta Paribhāṣā</i> : Dharmarājādharīndra, Calcutta, Sanskrit Pustak Bhandar, 1971.
VPS	<i>Vivaraṇa Prameya Saṅgraha</i> : Vidyāraṇya Muni, Kolkata, Vasumati Sahitya Mandir, 1927.
VS	<i>Vedāntasārah</i> : Sadānandayogīndra Sarasvatī, Kolkata-6, Samskrita Pustak Bhandar, 2009.
YMD	<i>Yatīndramatadīpikā</i> : Śrīnivāsa Dāsa ( <i>Prakāśa</i> of Abhyaṅkara Vāsudeva Śāstrī), Anandāśrama Saṁskṛta Graṇthāvalī, Graṇthasaṁkhyā 50, Vinayak Ganesh Apte, 1934.

# CHAPTER – 1

## Introduction

*“..... the field called the history of philosophy need not be a ‘graveyard’ of dead philosophical ideas, for critical and creative research by modern philosophers can turn it into a blossoming, beautiful flower-garden.”*

– Bimal Krishna Matilal, *Perception*, Introduction, Page-2.

### 1.1. Setting the Stage

Our faculty of perception is so spontaneous and natural that we take it for granted. However, it is not philosophically unproblematic as it seems to be. Since we mostly depend on perception for our understanding of the world around us, our world-view depends on our understanding of the nature of perception. And illusion (and hallucination) is such a phenomenon that makes perception unintelligible. It is called the problem of perception. To explain this infelicitous phenomenon within the scope of a theory of perception thinkers had to complicate their theory of perception. Although in most of the cases the theory of illusion depends on the world-view, at least in some cases the world-view depends on how illusion is explained. Illusion is perceiving  $x$  as  $y$ ; and hallucination is perceiving something ( $x$ ) when there is no  $x$  to perceive. Perceiving shell as silver is illusion and perceiving one's beloved in front (out of utmost desire to see her) when she is absent is hallucination. Let us now see how the possibility of illusion or hallucination generates several alternative theories of perception and also alternative metaphysical systems, vis-à-vis how metaphysical assumptions modulate theories of perception and illusion.

Intuitively perception seems to give a direct and immediate access to reality. But the possibility of perceptual error challenges this intuition. In psychology perception is considered to be a process by which sensory stimulation is translated into organized experience. The resultant experience is a joint product of the stimulation and the process itself. However, the internal process is not publicly observable. Although the resulted experience is directly accessible by the experience himself, but most part of the process (psychological and physiological) remains hidden from conscious apprehension. The process is inferred from the relations found between observable conditions and the resulted introspectable cognition – leading to a perceptual theory. Since inferences regarding the perceptual process are made

depending on a set of assumptions regarding the world-stuff and there are alternative sets of metaphysical presuppositions among the thinkers, there are several alternative perceptual theories contesting with each other. A successful theory of perception must demonstrate the conditions of a perception being true – violating which the perception will be false. This is equally applicable either to a causal or to a logical account of perception. Even those who do not admit the existence of false cognition have to explain why common men believe in the existence of false cognitions and why such belief is practically useful. There is a proverb that exception proves a rule. Slight differently it may be said that infelicitous situations help in constructing or establishing a theory. Theories have to pass through the ordeal of explaining non-normal cognitive cases in order to establish themselves. A theory of perception is best understood only on the background of its corresponding theory of illusion/hallucination. And the internal mechanism of perception is revealed when we try to explain illusory or hallucinatory cases. In order to explain the illusions created in ‘Ames Room’ or ‘Buckley Chair’ experiment one may say that the sameness of the representation of an illusion and a previous veridical perception misguides us. We continuously take help of previous experiences in order to make the object of perception meaningful through a top-down processing. On the contrary some may hold that perception and deception need not be explained by the same mechanism. These philosophers are in favour of disjunctivism who do not admit a common representational factor in perception and illusion. However, perception and illusion are phenomenologically or subjectively indistinguishable, which lend support in favour of a common representational factor. But this will make way for an all-pervading skepticism. The argument from illusion and hallucination leads to the rejection of direct realism – ultimately arriving at subjective idealism. The visible strategy to confront such skepticism is to fix a criterion for true cognition. It will help us to differentiate true from false cognition. One mark of truth (or falsity) is consequent success (or failure).

In order to cope with the problem of perception, the Sense-Datum Theory hypothesizes an intermediate reality. It holds that in sensory experience we become aware of ‘sense-datum’ – that which is ‘given to the senses’. Moore considered it to be mind-independent non-physical object, but the later theorists like Robinson or Jackson thought it to be mind-dependent. This theory emerges from an important assumption, called the Phenomenal Principle, which says that when it appears as if something is F, there exists something which is F. The sense-datum theory treats all phenomenal properties as properties of the immediate object of experience. So, even in illusion the appeared property – which does not belong to the corresponding

external object – really belongs to that non-physical (private) object of experience – ‘sense-datum’. Such a theory has scope for either being an indirect or representative realism or being idealism or phenomenalism depending on whether it admits the existence of mind-independent physical object at all.

Sense-Datum Theory has been rejected on the consideration that it leaves epistemic access to the world problematic. Besides, some has questioned the Phenomenal Principle. Moreover, the Naturalists deny the existence of non-physical sense-datum which is not subject to natural or physical law. Adverbial Theory of perception does not admit the existence of any non-physical entity like sense-datum although it supports the Phenomenal Principle that if a sensory quality appears to be instantiated, it is instantiated. But the theory holds that sensory qualities are *modifications* of the experience. When someone perceives a red hibiscus, redness is instantiated – not in any *object* but in *experience*. It may be called that the person is *perceiving redly*.

However, this adverbial modification of the perceptual verb seems to be unconvincing although it reduces metaphysical excess. When one perceives a brown square and a green triangle simultaneously, what will be the modification of the experience? Moreover, perception relates perceiver with the object. This act-object structure is not recognized in adverbial theory. The Intentionalist Theory of Perception celebrates this relation of ‘aboutness’. For the Intentionalists, perception is of a form of mental representation which is about the fact which *may* or *may not* exist (in the sense of Brentano’s intentional inexistence). Illusion and hallucination simply are misrepresentations. So, the Intentionalists reject the Phenomenal Principle. They hold that veridical perception is ‘direct’ perception. There are no intermediary objects. And in the case of hallucination there is no real object to be perceived. The phenomenal character of perception, which is equally present in veridical perception and hallucination, is not determined by real objects. So, relation to real object is not essential to perceptual experiences. Often the intentionalists say that the phenomenal character of perception depends on its ‘content’ not on the real ‘object’. Against this theory it is objected that the theory does not distinguish perception from other forms of intentional states because it explains perception only in terms of *representation*, which is common in any intentional state, rather than in terms of the unique phenomenal *feel* of perception. As a response to such objections some intentionalists involved *qualia* or phenomenal character as essential/constitutive element of perceptual experience. However if we admit a level of mental



representation in order to accommodate illusion or hallucination, subjective idealism will creep in. The way out for realism is disjunctivism. It holds that objects of genuine perception are mind-independent and the phenomenal character of a veridical perception depends upon these objects. Although illusion or hallucination is subjectively indistinguishable from veridical perceptual experience, they are of a different psychological kind. There is no common element between veridical and non-veridical perceptual experiences. Putnam argues that since common kind is supposed depending on subjective indistinguishability and that the subjective indistinguishability is not transitive, it cannot define a sufficient condition for the identity of the state of mind, because identity is transitive. The intransitivity of subjective indistinguishability is proved by the phenomenal sorites argument where it is shown that in an indistinguishably ascending samples of colour the last sample is distinguishable from the first sample. The disjunctivists hold that the subjective indistinguishability is not a psychologically significant feature. But then what else is significant? Illusion or hallucination leads us to the same action because they are indistinguishable from veridical perceptions with the same content. Hence, we have to admit an intermediate common level where veridical and non-veridical states are equated. But that representational level should not pose any unintelligible metaphysical excess like sense-datum. Recent brain science confirms that a successful account of perception must endorse the Proximity Principle which says that a given type of proximal stimulation (brain state) always and invariably produces a fixed type of perceptual state – whether that brain state is produced by a real object or by other conditions in absence of that object. But Epistemic Disjunctivism is incompatible with this Proximity Principle.

A successful cognitive model of illusion should dodge all the problems mentioned above and optimize a solution. If we admit that mind-independent objects are represented in *ionic encryption* in the neurons of our nervous system and that the encryption in neural network is the *proximal causal level*, then we need not admit any unintelligible metaphysical excess, like sense-data, in between subject and object. Moreover, in this interpretation the whole perceptual process is causally determined even without any intervention of Godlike entity (as Berkeley holds). The account abides by the Proximity Principle and at this ionic level the possibility of misrepresentation also is ingrained. If there is manipulation in neuronal level, illusion or hallucination is generated. And it is because the neuronal activation at the proximal level in the case of illusion or hallucination is the same as that of a corresponding veridical perception, they are subjectively indistinguishable. It also should be mentioned that although the causal processes of veridical and non-veridical perception are different from each other,

that process remains hidden from consciousness. That also is a cause of the phenomenal indistinguishability. So, we need not admit anything like sense-data in order to explain illusion or hallucination. This ionic encryption hypothesis can explain the philosophically obscure and problematic cases referred in the argument from illusion such as the Berkeley's experiment with hot and cold water. Suppose there are two buckets – one is full of ice-cold water and the other is full of very hot water. Now, a person is told to merge his right hand in the cold water and left hand in the hot water for some time. Then the person is given a third bucket full of water with normal temperature and he is said to merge his two hands in it. He will feel that the same water will be hot for the right hand and cold for the left hand. From this experiment Berkeley concludes that being hot or cold is secondary quality. However, he does not provide us with the mechanism of this fact – neither has he accounted for such contradiction. Ionic encryption hypothesis explains that the heat sensors in two different hands are conditioned differently – the atomic motion of one sensor is increased and that of the other sensor is decreased. So, when these two temperature-sensors are dipped into normal water, the relative motion of water molecules (in comparison to the atomic motion of the sensors) becomes different for two hands – *less* for the left hand and *more* for the right hand. That is why normal water seems to be cold for left hand and hot for the right hand. Thus the contradiction is resolved at the proximal causal level.

Another advantage of this hypothesis is that it lies on the border-line of Direct Realism and Representative Realism. If neuronal network is considered to be a part of the subject or cognizer or an extension of sense-organ, then no other entity mediates between subject and object. The cognizer-cognized interface becomes mediation-free – leading to Direct Realism.

So, we have seen that the basic attitude or view towards the world – whether it is Direct Realism or Representative Realism or Subjective Idealism – is intimately connected to what theory of illusion we accept. This finding applies to Indian Philosophy also. There the dependence, rather interdependence, is more prominent because the discussion of issues is School-oriented rather than topic-oriented, where the opponents in discourse represent a whole system and answers are delivered maintaining consistency with the whole system. This synthetic outlook is an important mark of Indian Philosophy.

It is interesting to notice that the problems of perception the Western Philosophers face today and the issues they discuss was thought exactly in the same way long before in Indian

tradition. B.K. Matilal mentions in his book '*Perception*' that the problems faced by the 17<sup>th</sup> Century empiricist philosopher John Locke (1632-1704), had been discussed in Vasubandhu's *Abhidharmakoṣa-bhāṣya* (400 AD) and Praśastapāda's *Padārthadharmasaṅgraha* (500 AD).<sup>1</sup>

## 1.2. The Difficulty

Different Indian schools have given different explanatory accounts of illusion which are inevitable logical outcomes of their own worldview. Moreover, sometimes they have tried to establish their worldview from their account of illusion. Some other relevant psychological, epistemological and semantic issues have also been looked into, in this context. It is interesting that each of them kept the whole picture internally consistent. And for that reason it is difficult to select any one as the best possible explanation of illusion. Let us describe the 'difficulty' in its true essence.

Regarding the issue of illusion, Indian philosophers depended more on speculation than on experience. Even where experience is the only way to know the truth or falsity of a fact, they continued logical analysis of philosophical systems. Although on some occasions they have rejected claims on the ground of 'being contrary to experience' (*anubhava-virodha*), those were based only on our common experience and not on any empirical experiment. And in most of these cases, one system is never ready to accept the opponent's *anubhava*. Hence, they depended more on logical analysis. The criterion they have set for testing the acceptability of a claim has two elements. Those are –

- (i) Whether the claim is consistent with the whole system.
- (ii) Whether it is explanatorily the most economical.

One of the striking features of Indian philosophy is that while developing an explanatory framework they always prefer a lighter structure than a heavier one, if those structures have the same explanatory power. Precision and lightness are admirable features of philosophical systems. But unfortunately, in some cases, empirical evidence comes in conflict with precision. In such cases, one is advised to accept heaviness than to deny the empirically verified fact. Because, that cannot be an acceptable philosophical system, which is precise but depends on wrong presuppositions. Logical systems might be tested in terms of coherence and

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<sup>1</sup> PM., p.5.

precision. But while giving an explanation of an empirical fact like illusion, we have to depend on empirical verification. In order to find out what actually happens while one is in illusion, we have to give emphasis on the psychological processes going on in our mind. No amount of speculation can provide us with the truth of such processes. We have to know it through empirical tests. And if such processes are actually going on in our head, no amount of logical analysis can make it false. It is not sufficient for a sound philosophical system to have only internal coherence. The basic presupposition of the system must be evidentially grounded. And at that basic level, only experience can provide such evidence, since the system has not yet provided any other means of justification. So, the presuppositions must be empirically tested. Hence we have to add a third element to the list of criteria –

(iii) Whether the claim is true.

Unfortunately, this scientific approach to truth is missing in the relevant discussions. All Indian schools are very rigid regarding their metaphysical claims. In most of the cases the main target of their debate is to establish their own metaphysics in consonance with their epistemological and semantic presuppositions. In this way, epistemology, semantics and metaphysics of the school form a mutually supporting consistent nexus. And nearly all philosophical schools succeeded in this enterprise. Whenever the question of parsimony came, they introduced different interpretations and levels of parsimony and claimed that their own system is the lightest. As a result, it is no wonder that we find all the alternative accounts of illusion equally acceptable on the first two criteria. In such a situation, it is difficult to examine which one is the best possible explanation of illusion.

One often faces another problem while finding a genuine explanation of illusion. We should keep in mind that no Indian philosophical doctrine is without a goal or purpose. Indian theories are more committed to those ends than to find the empirical truth. In most cases these remote ends operate from behind the scene. As an example, we can expose the story behind the conflict between All-Error theory and No-Error theory. The Mīmāṃsakas are the defenders and preservers of the truth of the *Vedas* and the Buddhists are skeptical about it. Now, if the Mīmāṃsakas can build a world-view, which is consistent with the consideration that all cognitions are true, then it will be easier for them to establish the truth of the *Vedas*. Even then, they have to give a consistent explanation of illusions. On the other hand, if somehow the Buddhists can prove that all cognitions are false, then they will be able to extend

their skepticism even to the *Vedas*. Where such motivations are playing active roles, unbiased search for *truth* is bound to be interrupted.

Now, let us come to the semantic problem. It is worthy of being observed that most of the criticisms we have mentioned while exposing different theories of error (*khyātivāda*) are due to differences in semantic presuppositions held by different schools. Sound philosophical systems should have a platform on which thoughts can be communicated or shared with others. This possibility of interaction is opened only through a survey of their terminologies, having common (or shared) meanings. We have seen in the present context that a single term signifies different meanings for different philosophical systems. And often the systems indulge themselves in unnecessary fight, before clarifying in what sense they have taken the term. After a long thread-bare argumentation when they find out where the shoe pinches, either they conclude that it was only a ‘misunderstanding’, or continue the fight on that semantic issue. Generally, Indian schools like to preserve their own semantic presuppositions. But such a rigorous stand would block the possibility of interaction. Each system would be consistent with their self-created terminology but in the absence of the shareable platform meaningful discussions cannot even be started.

### **1.3. The Proposed Scheme**

In spite of those difficulties, Indian schools have shown considerable amount of valuable insight and observations in analyzing the nature of illusion and illusory objects which can enlighten us to a great extent. We can have a genuine explanatory account of illusion from the resources of Indian *khyātivāda*. In those days, sufficient experimental tools were unavailable, by which those presuppositions could be tested in an impartial way. But due to the advancement in technology, to a certain extent, it is possible now. The epistemological and psychological presuppositions might be tested with the help of brain-sciences and neurophysiology. And metaphysical theories may be corroborated by physics.

So, if we want to take the help of the insight of Indian philosophy and the experimental tools of modern technology we should sacrifice rigidity and arrange the plan of action in the following way:

- (i) In order to build a genuine explanatory account of illusion from the insights of Indian philosophy first of all we have to go through a threadbare analysis of each system and

figure out the logical structure of the basic presuppositions. If there is any internal logical inconsistency among the presuppositions of a system we may reject them.

- (ii) If the contesting systems are internally consistent then we have to list the contesting presuppositions or hypotheses admitted in different systems and check the truth of them against empirically testable scientific truths.
- (iii) Metaphysical presuppositions are not so easy to accept or reject because in spite of tremendous advancement in recent years, theoretical physics is yet to travel a long way for claiming the final word and most of the claims of modern physics is beyond ordinary empirical test. So, we should remain open regarding metaphysical issues and see how far physics can take us.<sup>2</sup>
- (iv) What we should mean by a term is not subject to any empirical test. At most we can hope for semantic consensus. But in the community of philosophy the diversity of opinion – which is the elixir of philosophical discourse – is reflected in semantics. Hence semantic consensus is next to impossible.
- (v) However, the psychological and epistemological presuppositions can be tested by the experiments in the sophisticated discipline like neurophysiology, brain sciences, cognitive sciences or molecular biology.
- (vi) In the cases of metaphysical and epistemological presuppositions, we may set criteria for an optimum limit, which will balance theoretical precision with empirical evidence.

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<sup>2</sup> As for example we can cite that at CERN laboratory the European Organization for Nuclear Research (*Conseil Européen pour la Recherche Nucléaire*), scientists are trying to find the answers regarding the fundamental constituents of the Universe and the steps of Evolution with the help of the ‘Large Hadron Collider’ (the next generation collider is called ‘Larger Hadron Collider’) which is a 27-kilometre ring of superconducting magnets with a number of accelerating structures to boost the energy of the particles along the way. Inside the accelerator, two high-energy particle beams travel at close to the speed of light before they are made to collide. The beams travel in opposite directions in separate beam pipes. From the results of the collision the scientists are trying to figure out the ultimate constituents of the Universe. They have proved the existence of the Higgs Boson particle (or God-particle) which is an essential ingredient of the Standard Model of Particle Physics, the theory that describes all known elementary particles and their interactions. It is believed to give mass to all elementary particles. The ‘Larger Hadron Collider’ is expected to prove the existence of ‘Dark Matter’ the nature of which is still unknown although its existence has been theoretically proved almost 80 years ago. (from the website of CERN laboratory: [home.web.cern.ch/](http://home.web.cern.ch/))

(vii) Let not any non-philosophical motivation guide us.

In this way, we shall be able to make new hypotheses and build the best possible explanation of illusion. But in order to do so, first we have to analyze the discourse of illusion as found in the tradition, identify the underlying presuppositions and separate them bit by bit from the amalgamation of argumentation. And it does not seem to be an easy job. In Indian philosophy, all the issues are discussed in a synthetic way. Those are not separately categorized under different heads like metaphysics, psychology, epistemology and semantics. All the issues, related with illusion, come to us as intermingled with each other. Perhaps, the Indian thinkers believe that wisdom consists in the singularity of explanatory framework. They wanted to build a single theoretical nexus where their views regarding different issues, not only would remain consistent, but support each other, so that each point of the nexus could receive maximum bond-strength. In order to realize the pulse of a system, therefore we have to go through the whole nexus. In this way we shall see whether we can arrive at any clinching argument from that analysis in favour of any account depending on the aforesaid third criteria: 'whether the claim is true'. We shall find out whether there is any empirical evidence in favour of any claim.

#### **1.4. The Claim**

It is an undeniable fact that the scientific discoveries in the field of neuroscience have opened up a new horizon and made us richer in understanding our cognitive life. What was once only a matter of speculation is now empirically testable – either through constructed psychological tests or through the neurophysiological experiments or from the researches on the after-effects of brain-surgery. Cognitive activities in brain are visible in brain images and through these correspondences the proximal causality of neuronal activity for a cognitive output is proved. The acceptability of the truth of the brain-sciences is grounded in its successful potential implication in curing mental, cognitive or brain diseases. This scientific advancement is the legacy of the modern world which was not available in the era of ancient Indian thinkers. However, it is a matter of great surprise that even in the absence of scientific tools Indian thinkers have shown powerful philosophical insights in speculating about the phenomenon of illusion which are relevant even in the modern times – and in the background of new scientific investigations which are amenable to new interpretations.

On the basis of such neurophysiological empirical evidence we support the theory of illusion that the Nyāya professes. Of course we have a background metaphysical presupposition of Realism; but in support of Realism we have presented an independent argument called ‘Argument from Parasitism’, which says that falsity is parasitical on truth.<sup>3</sup> The argument also repudiates philosophical skepticism. Since we have our own scheme for rejecting skepticism, we need not subscribe to the doctrines like ‘all cognition is true’ in order to block the possibility of skepticism as the Prābhākaras do. Hence we take the middle way – accepting the possibility that some of our cognitions are true and some are false. Moreover, the Nyāya endorses fallibilism, which says that any contention may turn out to be false in the light of new evidence. In this spirit we offer new interpretations of Nyāya philosophy, keeping the essential feature of the Nyāya intact.

Although the Nyāya School generally is considered to be Direct Realist, we hold that at least some form of a *platform of manipulation* has to be admitted for explaining the possibility of illusion. The Nyāya theory of illusion, Anyathākhyātivāda, and the Nyāya epistemology in general, is an out and out causal account. We propose that in illusion some representations are causally manipulated that is not incompatible with even Direct Realism. We suggest that ionic encryption in neurons is such a manipulable proximal causal level in between Self and object that provides platform or possibility of error. If we hold that ‘embodied Self’ is the cognizer, then the theory becomes compatible with Direct Embodied Realism.

In support of the Nyāya theory of illusion the hypothesis of memory-driven perception (*jñānalakṣaṇa pratyakṣa*) is the most important and deciding presupposition that has been criticized and rejected by the other philosophical schools. We shall try to find out empirical support in favour of this hypothesis. A special neurophysiological condition called synaesthesia supports the mechanism of *jñānalakṣaṇa*. The recent researches on multimodal perception and new interpretation of synaesthesia prove that the mechanism of *jñānalakṣaṇa* is not a special condition but a common phenomenon. *Jñānalakṣaṇa* also has sufficient explanatory power because it explains four other cognitive phenomena. It increases the plausibility of the *jñānalakṣaṇa* hypothesis. We shall formulate cognitive models of all the

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<sup>3</sup> Dasti, M.R., ‘Parasitism and Disjunctivism in Nyāya Epistemology’, *Philosophy East and West*, 62, 1, University of Hawai’I Press, January, 2012, pp. 1-15.



five cases of *jñānalakṣaṇa*<sup>4</sup> including illusion in terms of moment examination which explores those cognitive or psychological phenomenon through causal steps. We shall construct the moment examination of all the cases of *jñānalakṣaṇa* so that relevant empirical tests might be designed in future following those time-lines. There are various kinds of illusion being caused by multifarious causal assemblage – internal and external. We shall categorize those conditions and try to provide a uniform logical model of those idiosyncratic conditions of illusion in mathematical way. The model is inspired by the findings in the field of neuroscience.

In the next chapter we shall provide a bird's eye view of the existing Indian theories of illusion or *khyātivādas*. Then we shall take up only the most important accounts of illusion and analyze them in order to identify the striking insights and underlying presuppositions – metaphysical, epistemological, psychological and semantic. Then we shall select the potential presuppositions and list them for empirical verification.

However, in the short span of this thesis it will not be possible to design experiments or to devise empirical test models in order to test the truth of the listed presuppositions. But on the ground of some scientific researches we may choose one among the given alternative systems and try to establish the theory of illusion in that system through argumentation.

In the second chapter we shall present alternative Indian theories of perception and illusion. Out of the fifteen theories of illusion we shall take only six principal theories for analysis. In the third chapter three idealist theories of illusion will be discussed and in the fourth chapter three realist theories of illusion will be discussed. At the end of the fourth chapter the alternative foundational presuppositions of the theories of illusion will be extracted for empirical verification. In the fifth chapter the Nyāya hypothesis of cognition-induced extraordinary sensory connection or *jñānalakṣaṇa sannikarṣa*, which is crucial for the Nyāya theory of illusion, will be discussed. In support of such sensory connection the instances of synaesthesia will be presented in the sixth chapter along with the researches on multimodal processing. In the seventh chapter cognitive models of the instances of *jñānalakṣaṇa sannikarṣa* other than illusion will be constructed in terms of moment examination

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<sup>4</sup> The five cases of *jñānalakṣaṇa* are the cognition that sandalwood is fragrant (*surabhi candanam*) perceiving sandalwood from distance, illusion (*bhrama*), recognition (*pratyabhijñā*), subsequent mental perception of determinate cognition (*anuvyavasāya*) and the cognition of the absent object (*pratiyogī-pratyakṣa*) in the perception of the absence (*abhāva-pratyakṣa*).

*(kṣaṇavicāra)*. In the conclusion we shall construct the cognitive model of illusion in terms of moment examination along with a neurophysiological interpretation of the Nyāya theory of illusion. Along with that we shall construct a mathematical model for organizing the idiosyncratic factors of illusion.

## CHAPTER – 2

### Indian Theories of Perception and Illusion

Illusion is one of the most important epistemological issues discussed in Indian philosophy. Different schools of Indian philosophy have shed light on this topic in order to explain the phenomenon according to their own theoretical background. Each school provides different theories and mechanisms of perception, depending on which they explained the phenomena of illusion, hallucination and dream. Their explanations are always in accordance with their own metaphysical doctrine. On the one hand, the appreciation of those theories of illusion is possible only in the background of their theories of perception, and on the other, these theories being built up on the superstructure of metaphysics the metaphysical status of the basic instruments of perception in a great part determines the corresponding theory of perception. Different Indian schools of Philosophy have developed different accounts of sense organ, perception and illusion depending on common experiences and on their own metaphysical speculations. So an account of different metaphysical presuppositions of different schools and their considerations about the nature of the instruments of perception will be in order.

#### 2.1. Indian Theories of Perception

In Indian tradition we find two models of perception. One says that perception is a quality of Self which occurs due to the sensory connection with object. The other says that the perception is a kind of immediacy established by the equiposition of the object and mental mode; essentially perception is illumination of mental function by consciousness. So, one is a causal model and the other is dependent on mental mode or *vṛtti*. The Sāṃkhya and the Vedāntins subscribe to the later model of perception and propound *vṛtti*-centered account of perception while the Nyāya-Vaiśeṣikas, the Bhāṭṭa and the Prābhākara Mīmāṃsakas subscribe to the former model of perception and propound sensory-contact-centered (or *sannikarṣa*-centered) account of perception. The Buddhists do not propound a *vṛtti*-centered account of perception; so their account may be categorized under the former model, although they subscribe to a logical analysis of the phenomenon of perception and not a causal analysis of the same. Since the theory of illusion depends on the theory of perception, the accounts of illusion also may be categorized accordingly. Theories of illusion developed in different systems of Indian are so different that we need to discuss them separately.

### 2.1.1. The Buddhist Theory of Perception

A Theravādi Buddhist, Anuruddha, depicted a beautiful stage-wise exposition of perceptual process in *Abhidhammattha-Saṅgaha*. For the Buddhists, life is nothing but a continuous chain or flow of momentary consciousnesses between rebirth (*patisandhi*) and death (*cyūti*). However, the chain does not begin from a particular *patisandhi*, neither it ends at a particular *cyūti*. The in-between chain is called one life-time – and there are series of life-times. During the life-time, the subconscious flow of consciousness is called the ‘stream of life’ (*bhavāṅga*). At this phase, momentary consciousnesses of similar form are produced one after another. Hence, it is a dynamic phase. But, ordinarily we are not aware of it. We are conscious of its existence only when it is directed to the outer object through the sense organ, as if, some perturbations occur in the tranquil stream of *bhavāṅga*. It takes seventeen moments to complete the whole process. At the first moment the object enters into the field of consciousness without affecting it much. The natural calm flow of *bhavāṅga* comes to an end, its velocity falls. It is called *atīta-bhavāṅga*. It lasts for two moments. Then the consciousness is directed towards or arrested by or catches attention of (five) sense organs. It is called *pañcadvārāvajjana*. Then the specific sensation, like seeing (*dassana*), hearing (*savanna*), smelling (*ghāyana*), tasting (*sāyana*) or touching (*phusana*), comes into play and a peripheral sensation occurs. It is not full-fledged perception. At the next level the receptive faculty passively receives the object (*sampaticchana*) either as agreeable or as disagreeable. Then the investigating faculty performs a momentary examination (*santīrana*) of the received object. It has three modes: very agreeable, moderately agreeable and disagreeable. After that the faculty of determining arranges and constitutes it as a definite object (*vothabbana*). It is done by differentiation and limitation, by definition and discrimination. Then there occurs the full-fledged perception or apperception (*javana*). Generally it takes seven moments. At this stage the subject interprets the sensory impression and fully appreciates the objective significance of his experience. Then there follows a registering (*tadārammana*) of the object. It identifies and classifies the object in alternative eleven categories.<sup>5</sup> It takes two moments. Then consciousness again sinks below the threshold of subjective awareness. The whole process has been illustrated with the simile of a mango tree. A man is lying at the foot of a mango tree lost in deep sleep (*bhavāṅga*) with his head covered. Then a wind stirs the branches (*atīta-bhavāṅga*) and the fruit falls beside him making him awake (*pañcadvārāvajjana*). Then the man uncovers his head (sensation) and picks up the fruit (*sampaticchana*) and examines

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<sup>5</sup> CPAS., p.27.

(*santīrana*) it. Observing some previously perceived constitutive properties, the man now apprehends (*votthavana*) it to be a mango-fruit. Then he eats (*javana*) and ingests (*tadārammana*) it and again falls asleep (*bhavāṅga* resumes).<sup>6</sup>

The aforesaid account is more a psychological exposition than a philosophical one. The philosophical accounts are found in the works of the later Buddhists. Among the four schools of Buddhism, the Vaibhāṣikas hold that the external world is an object of perception. Nature is extra-mental, independent and immediately perceived by the mind. The Sautrāntikas hold that such world is known through their presentation in the mind and the existence of it is inferred from the ideas of them. The Yogācāras do not believe in the existence of extra-mental objects. They hold that there exist only momentary consciousnesses. The Mādhyamikas annul the existence of mind and matter, subject and object and go beyond them, arriving at *śūnya*, which is beyond the scope of intellectual knowledge. So these are the theories – Direct Realism, Representative Realism, Subjective Idealism and Nihilism.

In *Nyāyavindu*, Dharmakīrti defines perception as the non-erroneous cognition devoid of mental concepts. In *Pramāṇasamuccaya*, Dīṅnāga defines perception from the Vijñānavādin's point of view as the cognition which is free from mental concepts like name, class etc. The previous definition exhibits the logical condition of true perception but erroneous perception also is perceptual by nature. Hence, the crux of the psychological nature of perception is that it must be devoid of mental construction. It is direct and immediate (*sākṣātkārijñānam*). Names (*nāma*) are artificial verbal signs which are assigned to the object of perception when the object is recognized to be a member of a class (*jāti*) of similar objects, perceived earlier. This act of recognition and naming involves the unification of objects of the present and that of the past. So, sense-object contact is not the sole cause of such cognition. Perception should only involve the given element and must not import any new thing from the store of memory. It is indeterminate, inarticulate and nameless. Such cognition does not apprehend the qualifications of its object, viz. generality, substantiality, quality, action and name. It apprehends only the momentary unique particulars (*kṣanika svalakṣaṇa*). The so called determinate perception is not perceptual at all. Dharmakīrti recognizes four kinds of perception: (i) Sense-perception, (ii) Mental-perception, (iii) Self-consciousness, and (iv) Yogic perception. Sense-perception or *indriyavijñāna pratyakṣa* is produced by the sense organs. It is an immediate feltness or bare

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<sup>6</sup> CPAS., pp.25-31.

sensation. It gives rise to the *manovijñāna pratyakṣa* or mental-perception, which is due to four causes (*pratyaya*): (i) *ālabhana pratyaya* or the objective datum i.e., external or internal stimulus, (ii) *sahakārī pratyaya* or the cooperative cause such as light in the case of visual perception, (iii) *samanantara pratyaya* or the immediately preceding momentary consciousness or cognition and (iv) *adhipati pratyaya* or the dominant cause, which is the corresponding sense organ. After the sense-perception when the sense organ ceases to function then mental-perception occurs. Self-consciousness or *svasaṁvedana* is the perception of mind and mental states (*citta* and *caitya*) like pain, pleasure etc. These *citta* and *caitya* are self-apprehending – directly perceived by themselves. This direct intuiting is devoid of concepts and free from error. Yogic perception is the direct intuition of the reality due to intense meditation on the Four Noble Truths of Buddhism.<sup>7</sup>

According to the Buddhists, six kinds of consciousnesses (*viññāna*) have six bases (*āśraya*) and corresponding six objects (*viṣaya*). Among them the sixth one is purely mental. Its seat and object is consciousness itself. Since the preceding moment's consciousness is the basic element of the next moment's consciousness, we can say that the seat of one consciousness is another consciousness. When it is purely mental, it is the only seat. Consciousness or mind is immaterial and invisible. The other five organs (*golaka*) are made of a kind of translucent subtle matter. They are made up of different kinds of atoms. They are material but invisible. They are classified into two categories: The *prāpyakārī indriyas* (olfactory, gustatory and tactual sense organ) apprehend their objects when the objects come into direct contact with corresponding senses. The *aprāpyakārī indriyas* (visual and auditory sense organ) can apprehend their objects from a distance. Sense organs are nothing but the socket or the peripheral organs. The eye-socket would not see a thing bigger than itself if it would come into direct contact with object. But eye actually see vast things. Hence, it never comes into direct contact with objects. If eyes were *prāpyakārī* then distant objects would be seen after the perception of the nearer object. But we perceive a nearby branch and the distant moon simultaneously. Besides, how can the visual sense organ reach an object through the wall of glass? Hence, we have to admit *aprāpyakārī indriyas*.<sup>8</sup>

### 2.1.2. The Jaina Theory of Perception

<sup>7</sup> NB., pp.43-106; NBT., pp.12-14.

<sup>8</sup> *iha kecidāhuḥ aprāpyakārī cakṣu adhiṣṭhānāsambandhārthagrahakatvāt. .... tasmādaprāpyakārī tato na taijasam. – Kiraṇāvalī, Udayanācārya, KR V-III., p.233; Anuccheda 'Bhautikatvepīndriyāṇaṁ Prāpyakāritvam', Āhnika VII, Nyāyamañjarī, Jayanta Bhaṭṭa, NMS-II., pp.49-52.*

The Jainas admit two kinds of valid knowledge: direct (*aparokṣa*) and indirect (*parokṣa*). Perception is *aparokṣa* cognition since it is directly derived from the senses and mind. Contrary to the Buddhist contention, the Jainas hold that relations are not our conceptual constructions or impositions on the raw sense-materials. They are embedded in direct and immediate experience as contents of consciousness. Other cognitions like inference or verbal knowledge are mediate or *parokṣa*.

Māṅikyanandī defines perception as distinct apprehension.<sup>9</sup> That knowledge is distinct which is immediate and apprehends its objects in its full detail. Perception is of two kinds. There is *sainvyāvahārika pratyakṣa* or ordinary perception of everyday life which may be produced by the senses (*indriyanibandhana*) or not produced by the senses but by the mind, which is not an *indriya* according to the Jainas (*anindriyanibandhana*). The other kind is called *mukhya pratyakṣa* or principal perception.

*Sainvyāvahārika pratyakṣa* has four stages: (i) *avagraha*, (ii) *īha*, (iii) *avāya* and (iv) *dhāraṇā*. When a stimulus acts upon a sense organ there is an excitation in consciousness, and the person is barely conscious of the mere existence of an object. This indistinct and indefinite apprehension is *darśana*. The Jaina distinguishes *darśana* from *jñāna*. *Darśana* is simple and indeterminate apprehension of an object just after peripheral stimulation. Only the general features (*sattāmātra*) are apprehended thus. It is not knowledge (*jñāna*). Knowledge is always determinate having a definite form. It is the determinate apprehension of the particular and special features. However, after *darśana* there occurs a cognition of the object together with its general and special features, e.g., white colour. It is *avagraha*, which grasps the details of the object though not all the details. It excites in the perceiver a desire to know more about the particulars of the object. It is called *īha*. Then there is the stage of *avāya* which is the ascertainment of the true nature of the object. In the stage of *īha* we want to know whether the white colour is ‘a row of herons’ or ‘a flag’. Then observing the fluttering of the wings of birds we definitely know that there are the herons – not the flag. It is *avāya*. It involves assimilation and discrimination. Then there occurs *dhāraṇā* or retention which consists of the lasting impression of the ascertained object. This last stage of retaining an impression (*saṃskāra*) can hardly be called perception. *Mukhya pratyakṣa* is of three kinds – *avadhi* or

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<sup>9</sup>*viśadaṅṅ pratyakṣam*.2.3. – *Parīkṣāmukham (Samuddeśa II, Śloka 3.)*, Māṅikyanandī, PM., p.50.

‘*viśadaṅṅ pratyakṣam*’ *ityanuvartate*. – *Prameyakamala-mārtanḍa, Śrī Prabhā Chandra*, PKM., p.241.

clairvoyant perception of objects at a distance of time and space, *manahparyāya* or telepathic knowledge of thoughts in other minds and *kevala* or omniscience or the infinite knowledge unlimited by time and space.<sup>10</sup>

The Jainas distinguish physical sense organs (*dravyendriya*) and their psychological correlates or subjective senses (*bhāvendriya*). *Dravyendriya* consists of two parts: *nivṛtti* or the organ itself and *upakaraṇa* or its protecting environment. Each of these is of two kinds: internal and external. Internal organ is the soul itself which is embodied in the organ. External organ is the physical organ, permeated by the soul. An example of internal environment is pupil of the eye (in the case of visual sense organ) and the external environment is eye-lid. *Bhāvendriya* is of two kinds: *labdhi* and *upayoga*. *Labdhi* is the manifestation of the sense faculty by the partial destruction, subsistence and operation of the knowledge-obscuring *karma*. *Upayoga* is the conscious attention of a Soul, directed to that sense. The Jainas do not take mind as a sense organ. Soul pervades the whole body. A particular kind of sense perception is generated in the Soul through that part of it which is associated with that particular sense-organ. Visual sense organ is *apṛāpyakārī*. Touch and taste organs are connected to gross objects. Smell and auditory organs come into contact with subtle objects like minute particles and motion respectively.<sup>11</sup>

### 2.1.3. The Nyāya Theory of Perception

Gautama defines perception as the non-erroneous cognition produced by the intercourse of the sense organs with the objects, not associated with any name, and well defined.<sup>12</sup> In this definition, different kinds of perception, condition of valid perception and genesis of valid perception have been described. Perception has two kinds – indeterminate (*avyapadeśya*) and determinate (*vyapadeśya*).<sup>13</sup> Perception is produced by the sense-object intercourse. Not only that, the contact of sense organ (*indriya*) with the mind (*manas*) and the contact of mind with the Self (*ātmā*) also are necessary. Of these contacts, the sense-object contact is the specific cause of perception which distinguishes it from the other kinds of cognition. Individual perception is differentiated either in terms of the object perceived or in terms of the operating sense organ, e.g., ‘colour-perception’ or ‘visual perception’.

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<sup>10</sup> IP I., pp.107-110.

<sup>11</sup> IP I., pp.2-3.

<sup>12</sup> *indriyārthasannikarṣotpannain jñānamavyapadeśyamavyabhicāri vyavasāyātmakain pratyakṣam. 1.1.4. – Nyāyasūtra, Maḥarṣi Gautama, NDP I., p.87.*

<sup>13</sup> NDP I., p.113.



The aforesaid definition does not apply to the perception of God and of the Yogins. So, Bhāsarvajña defines perception as right and direct or immediate cognition.<sup>14</sup> Rāghava explains that the term ‘*aparokṣa*’ indicates that the cognition in question has not been produced either by word (*śabda*) or by the mark of inference (*liṅga*) since they are the instruments of *śabdajñāna* and *anumiti* respectively.<sup>15</sup> Viśvanātha, following Gaṅgeśa, defines perception as the cognition which is not produced through the instrumentality of any other cognition.<sup>16</sup> The definition applies to both human perception and divine perception. It excludes *anumiti*, *upamiti* and *śabda* since they are produced through the instrumentality of the knowledge of *vyāpti* (concomitance), *sādrśya* (similarity) and *pada* (term) respectively. The instrument of *smṛti* is traces of previous cognition. Hence the definition also excludes *smṛti*.

The existence of five sense organs has been proved by Nyāyasūtrakāra Gautama and the commentator Vātsyāyana on the ground of the distinct purposes of the sense organs. Sense organs are different from the peripheral organs (*golaka*). They are made up of subtle material elements which are apprehended by them. Each sense organ has different seats (*adhiṣṭhāna*) in the body. They have different mechanisms and speed of attaining their respective objects (*gati*). Visual organ is of the nature of light. It issues out of the pupil and moves out to the object endowed with colour. Tactual, olfactory, gustatory and auditory organs remain in their own seat and corresponding objects come to them for contact. Hence, all the sense organs are *prāpyakārī*. Visual sense organ is co-extensive with the field of vision. Tactual, gustatory and olfactory are co-extensive with their seats. The auditory sense-organ is *ākāśa*, which is all-pervading. But due to the disability of its substratum, the scope of apprehending is restricted. A sense organ apprehends the distinctive quality of that substratum which enters into its constitution. Mind is atomic internal sense organ which is an eternal substance. It is meant for perceiving internal states like pain, pleasure etc., exclusively.<sup>17</sup>

The Sāṅkhyas say that only the products of *ahankāra* are capable of being modified into the form of larger and smaller object. Hence, they cannot be physical. But Jayanta Bhaṭṭa answers that it is necessary only in the case of vision and the ray of light can stretch out to apprehend bigger or smaller objects in spite of being physical; it need not to be a psychological element.

<sup>14</sup> *tatra samyagaparokṣānubhavasādhanam pratyakṣam. – Nyāyasāra, Bhāsarvajña, NS., p.9.*

<sup>15</sup> IP I., p.115.

<sup>16</sup> *jñānākaranakam jñānam pratyakṣam.//51// – Siddhāntamuktāvalī, Viśvanātha, KV., pp.235-237.*

<sup>17</sup> IP I., pp.12-15.

Vātsyāyana mentions three points of difference between external and internal sense organs: (i) external organs are material, mind is immaterial in the sense that it is not of the nature of an effect, so it does not have any quality of matter; (ii) external organs apprehend their specific objects but mind can apprehend all of them and also the internal states like pain, pleasure etc.; (iii) external organs are endowed with the qualities that they apprehend but mind is not like that.<sup>18</sup>

Udyotakara recognizes that mind and auditory organ are neither material nor immaterial. However, if ‘material’ (*bhautika*) means ‘product of matter’ (*bhūtajanya*), then they are not material. But if it means ‘of the nature of matter’ (*bhūtātma*), then auditory organ also is material. The other organs are *bhautika* in both senses.<sup>19</sup>

The Naiyāyikas answer to the question regarding the *aprāpyakāritva* of visual organ. In *Kiraṇāvalī*, Udayana offers counter-arguments to the Buddhist position and maintains that without direct contact nothing can manifest or apprehend an object. Lamp manifests an object only when its light comes into direct contact with that object. Secondly, issuing out of the socket, the light of visual organ spreads out and thus it covers vast objects. Thirdly, light moves very fast that is why we do not feel the difference in time in perceiving a distant and a near object. Fourthly, glass, mica etc. are transparent in nature. So, they do not obstruct the passage of light.<sup>20</sup> The auditory organ does not move out; rather, sounds travel to the ear either in concentric circle of waves or by shooting out in all directions like the filaments of *kadamba* flower.

The Naiyāyikas hold that five different sense organs grasp five different kinds of objects and consequently produce five different kinds of ordinary external perceptions. The qualities odour, taste, sound, colour and touch, as well as their universals (*sāmānya*) and absences (*abhāva*) are grasped by olfactory, gustatory, auditory, visual and tactual sense organ, respectively. Substance can be perceived only by the visual and tactual sense organs. Others perceive only qualities. Through the olfactory sense organ only the quality of odour – that is also in an appreciable degree (*udbhūta*) – is perceptible. But the substratum of odour is not perceptible by this sense organ. The genres of good or bad odour are also perceptible through

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<sup>18</sup> IP I., p.19.

<sup>19</sup> IP I., p.20.

<sup>20</sup> *tadasat. adhiṣṭhānāsambandhārthagrāhitvasya..... prādīpaprabhāvadeva upapanneti. – Kiraṇāvalī, Udayanācārya, – KRV III., pp.238-244.*

this organ. The same is true for auditory and gustatory perception. But through the visual sense organ we can perceive appreciable colour, coloured substances, separateness, number, disjunction, conjunction, priority, posteriority, vicinity, liquidity and magnitude. The movement, genus and inherence existing in visible things are also perceivable visually. The conjunction of light with visible objects and appreciable colour are the conditions of visual perception. The appreciable touch-quality, its substratum and the genus of such quality are tactually perceivable. All objects of visual perception, except colour and genus of colour are the objects of tactual perception. The new Nyāya-Vaiśeṣikas hold that Self is internally perceivable but according to the old Nyāya-Vaiśeṣikas, it is an object of inference although it can be perceived by the Yogins. The other objects of internal perception are pleasure, pain, desire, aversion, cognition and volition. All of them are qualities. Existence (*sattājāti*) and the genus of quality (*guṇatvajāti*) are perceived through all the sense organs. External perception depends upon following three conditions: (i) the general condition for external perception of an object (the substance itself, its quality, action, universal, the universal of the quality or action of the object etc.) is the extensity or apprehensible magnitude (*mahattva*) of the object (substance); (ii) the object must consist of many substances or parts (*anekadravyavat*); (iii) the object must have non-obscured apprehensible colour (*anabhibhūta udbhūta rūpavattva*) for being visible or it must have an apprehensible touch (*anabhibhūta udbhūta sparśavattva*) for being tactually perceivable. This rule holds for all other kinds of external perceptions in the same way. The Mīmāṃsakas also admit this.<sup>21</sup>

#### 2.1.4. The Mīmāṃsaka Theory of Perception

Jaimini defines perception as the cognition produced in the Self by the intercourse of the sense organs with the objects.<sup>22</sup> He points out that it cannot apprehend supersensuous Moral Law or *Dharma*. The definition indicates that perception requires (i) a real and present object, (ii) a sense organ, (iii) the Self. However, this definition does not exclude doubtful perception and illusion. Kumārila tries to avoid the objection by saying that the term ‘*samprayoga*’ means ‘*satsamprayoga*’ or right application of the sense organs to their objects. Pārthasārathi Miśra says that Jaimini did not define perception through that *sūtra*; the *sūtra* only says that perception is not a condition of the apprehension of *Dharma*.

<sup>21</sup> *Kārikā:52-57 of Bhāṣā Pariccheda, Viśvanātha, KV., pp.240-251.*

<sup>22</sup> *satsamprayoge puruṣasyendriyānām buddhijanma tat pratyakṣam.1.1.4.– Jaiminisūtra, MDJ I., p.7.*

The Mīmāṃsakas hold that a sense organ is that which produces direct presentation rightly operating upon its object. They differ from the Naiyāyikas and hold that auditory sense organ is made up of space or *dik* instead of ether or *ākāśa*. For them, it is a portion of space confined within the ear hole. Kumāriḷa Bhaṭṭa criticizes both the Buddhist and the Sāṃkhya view of auditory perception. Against the Buddhists, he says that if no connection is required in order to hear something or if auditory sense organ can apprehend sound without being connected to the sound, then it should apprehend distant sound also with equal ease. On the other hand, the Sāṃkhyas hold that auditory organ is all-pervading in nature since it is a product of all-pervading *ahankāra*. But in that case also we should not have any problem in hearing very distant sound. Hence, both of those theories are untenable. Therefore, sound travels through the air and reaches the space in the ear and then produces a modification (*saṃskāra*) in it. It explains why air-tight glass-wall prevents sound; why near sound are heard first; why distant sound becomes faint.

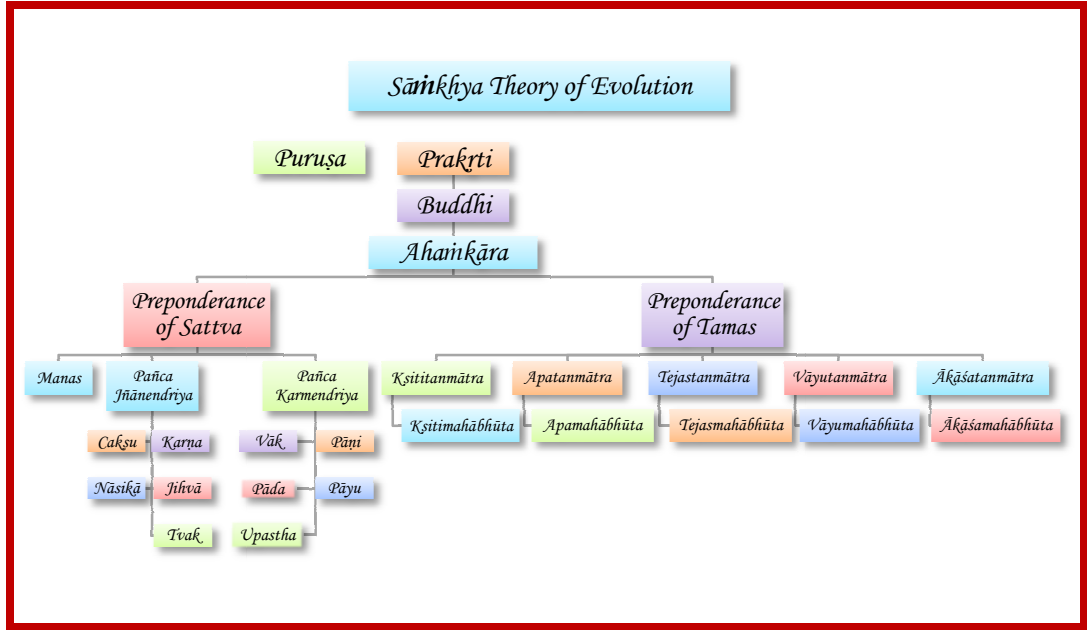
Prabhākara defines perception as direct apprehension.<sup>23</sup> In every act of perception, there is a ‘triple-consciousness’ (*triputi samvit*), viz., the perception of the knowing Self, the known object and the knowledge itself. Consciousness is self-luminous and not cognized by other cognitions. If it were cognized by other cognition, there would be *regressus ad infinitum*.

### 2.1.5. The Sāṃkhya Theory of Perception

Sāṃkhya theory of perception also depends on their metaphysics. According to the Sāṃkhyas, this multifarious form of the world is the result of the evolution of Prakṛti, which is its root cause. In the presence of conscious Puruṣa, the equilibrium among the constituent elements or *guṇas* (*sattva* or translucence, *rajas* or activity and *tamas* or inertia) of Prakṛti is disturbed and the course of evolution starts. The course of evolution is as follows: *Buddhi* → *Ahankāra* → Eleven organs and five subtle elements (*pañca tanmātra*). Then the gross elements are evolved from the subtle elements. Īśvarakṛṣṇa and Aniruddha say that eleven organs evolve out of *ahankāra* by the preponderance of *sattva*. Five subtle elements are evolved out of *ahankāra* by the preponderance of *tamas*. *Rajas* gives impetus to this evolution.<sup>24</sup>

<sup>23</sup> *sāksāt pratītiḥ*. – *Prakaraṇapañcikā*, Śālikanātha Miśra, PP., p.131

<sup>24</sup> *Sāṃkhyakārikā Śloka* – 22-27., Īśvarakṛṣṇa, SK., pp.64-74.



Kapila defines perception as a cognition which takes the form of an object, being related to it.<sup>25</sup> Vijñānabhikṣu elucidates the definition by saying that perception is the mental function (*buddhivṛtti*), which goes out through the gateway of sense organ to the object and is modified by the particular form of that object. Only the mode of mental function and not the mental function itself is produced by the proximity of the object. The proximity of the mental function to the object is the general condition of perception and the proximity of the sense organ to the object is the special condition of perception. The inertia (*tamas*) of *buddhi* obstructs its functioning and sense-object proximity overcomes the obstruction.

Īśvarakṛṣṇa defines perception (*drṣṭa*) as determinate cognition (*adhyavasāya*) of an object, produced by its proximity to a sense organ (*pratiṣṭhā*).<sup>26</sup> Vācaspati says that in order to transform the formless mental function a real object is required. The object may be internal or external – sensible or supra-sensible. Secondly, particular kind of sense organ is required for grasping particular kind of objects. This characteristic of perception excludes it from *anumiti* and *smṛti*. Thirdly, the involvement of *buddhi* makes the cognition definite and determinate; so, it is different from doubtful cognition.

<sup>25</sup> *yatsambandham sattadākārolekhi vijñānam tat pratyakṣam .1.89. (Book-I, Aphorism-89) – Sāṅkhyapravacanasūtra, Kapila, SPB., p.68.*

<sup>26</sup> *pratiṣṭhādyavasāyo drṣṭam //5// – Sāṅkhyakārikā, Īśvarakṛṣṇa, SK., p.14.*

The modification (*vṛtti*) of mental function (*citta*, *buddhi*, *mahat* or *antaḥkaraṇa*) in the form of the object is considered to be cognition or *jñāna*. So cognition is a property of *citta* – not of Self or *Puruṣa*. During perception *citta* goes outward to the object through the sense-organs and modified in the form of the object but in the cases of other cognitions *citta* remains in the body and modified in the form of object.

Now the object may have a definite form (*sāvayava*) or may not have a form (*niravayava*). In the later case *antaḥkaraṇa* also assumes a non-definite form. In order to explain this apparent contradiction the Sāṃkhyaś say that here modification in the form (*ākāra*) of an object only means a special relation between object and *vṛtti*. Or it means arrestation (*bandhan*) of *vṛtti* by object through an intercourse (*sannikarṣa*) between object and sense-organ. However, sense-organ is not the instrumental cause or *karaṇa* of the produced cognition or *vṛtti* or *adhyavasāya*. *Antaḥkaraṇa* is made up of three constituent elements (*triguṇātma*). When it is modified in the form of object, its inertia (*tamas*) is dominated by its translucence (*sattva*). This state of predominance of *sattva* (*sattvasamudrekaḥ*) is called *adhyavasāya* which is considered to be the *pratyakṣa pramāṇa*.

Now, mental-function (*antaḥkaraṇa*) and its modifications themselves are unconscious. But due to the reflection (*prativimba*) of conscious *Puruṣa* on translucent *antaḥkaraṇa* *Puruṣa* and *antaḥkaraṇa* are non-discriminated (*bhedāgraha*) or identified (*tādātmya*), and *jñāna*, which is the *vṛtti* of *antaḥkaraṇa* (*adhyavasāya*), is wrongly considered to be the property of Self or *Puruṣa*. As a result an egoistic apprehension or personal experience (*abhimāna*) is produced in form ‘I know’ (*aham jñāmi*). It is *pratyakṣa pramā*. Hence, *vṛtti*, illuminated by *Puruṣa* is perception.

According to Vijñānabhikṣu there must be a mutual reflection (*anonyaprativimbavāda*) between *Puruṣa* and *antaḥkaraṇavṛtti*. One way reflection of *Puruṣa* on *antaḥkaraṇavṛtti* alone cannot explain the personal experience or *abhimāna* of *Puruṣa*. But Vācaspati says that only moon is reflected on the water of a lake. Water is not reflected on the moon. This one way reflection is sufficient to explain both-ways superimpositions of the properties of one to another. The moon is wrongly supposed to quiver due to the quivering water and the water is

wrongly supposed to have light due to the light of moon. Hence, essentially *vimba* (original) *Puruṣa* remains alone and pure.<sup>27</sup>

Vijñānabhikṣu says that *indriya* is the instrument of the 'Lord of the body' or 'Soul'. It is a product of *ahaṅkāra*. Kapila speaks of eleven organs – five organs of knowledge (*buddhīndriya* or *jñānendriya*), five organs of action (*karmendriya*) and the mind (*manas*). Īśvarakṛṣṇa sometimes says that *manas*, *buddhi* and *ahaṅkāra* are three forms of internal organ (*antarindriya*). The previous ten organs are external organs (*bāhyendriya*). They are not gross material organs but are determinate modifications of indeterminate mind-stuff or *antaḥkaraṇa*. Material organs are the seats of those determinate sensory and motor psychophysical impulses. Organs are not products of gross matter (*bhautika*) but the product of *ahaṅkāra*, which is not spiritual but mental or psychophysical. The discrete impressions, received by the external sense organs, are synthesized by *manas* by assimilation and discrimination. Then they are referred to the unity of apperception by *ahaṅkāra*. Then they are determined by *buddhi*, which hands them over to the Self and reacts upon them. The difference between external and internal organ is that the former organs apprehend or execute only the present object or action while the internal organ(s) apprehend present as well as past and future objects. *Buddhi* and *ahaṅkāra* are referred to as subtle by Vyāsa; he considers the other eleven organs to be gross.

Organs should be capable of quick movement or quick action and the properties of illumination and light movement are the distinctive properties of *sattva*. In the hierarchy of superiority *Buddhi* comes at the top – then *ahaṅkāra* – then *manas* – then external organs. However, without the help of the external organs, *buddhi* cannot serve as an instrument in all sense-activities (blind cannot see, deaf cannot hear etc.) Kapila holds that external sense organs may be regarded as different modifications of *manas* owing to the difference of the modifications of the constituent *guṇas*. The Sāṅkhyas hold that sense organs are *prāpyakārī*; they move out to their objects in the form of *vṛtti* or modification and apprehend them, assuming the form of the objects. The *vṛtti* of the senses cannot be seen, but their existence is inferred. An object must be connected to the sense some way, in order to be perceived. Object is static, so the sense must be moving out to the object without leaving connection with the body. Senses cannot travel long distance such as to the sun. Quality also does not move. But

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<sup>27</sup> STK., pp.44-50.

*vr̥tti* is capable of moving even to the sun. Hence, it is neither a part nor a quality of the senses although it exists in the senses. It is a transformation, quite of the nature of substance, which can receive image of the form of the objects by means of its transparency.

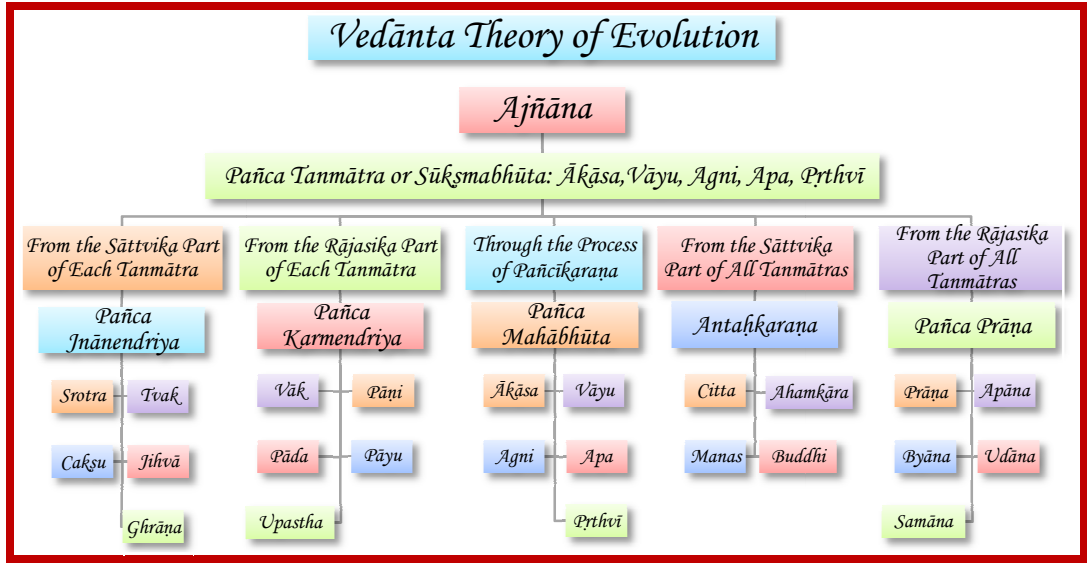
#### 2.1.6. The Advaita Vedānta Theory of Perception

Advaita theory of perception also is dependent on Advaita metaphysics. According to Advaita Vedānta, there is only one universal, eternal, all-pervading and immutable existence which has the ultimate reality. It is Brahman. Essentially, it is absolute Existence-Consciousness-Bliss. The Samkarites hold that God (Īśvara) is an intermediate principle in the stages of world-evolution from *nirguṇa* Brahman. Ontologically, Brahman has no attribute, but from the empirical point of view, it seems to have the power of creation (Māyā). Brahman as the possessor of undifferentiated Māyā is called *saguṇa* Brahman or Īśvara, who is regarded to be the material as well as the efficient cause of the world. When *anādi* Māyā of Īśvara is differentiated, this world of plurality (*jagat*) is manifested; subsequently, it returns to its unmanifest (*avyākṛta*) state in the reverse order. These processes are called cosmic evolution and dissolution respectively. They happen in a cyclic order which has no assignable beginning. At the first stage, three components of Māyā, *sattva*, *rajas* and *tamas*, are subtly differentiated and Māyā is transformed into five subtle elements (*sūkṣmabhūta*) of ether, air, fire, water and earth. Brahman as the possessor of this subtly differentiated Māyā is called Hiranyagarbha, Sūtrātmā or Prāṇa. At the next stage, five organs of knowledge (*pañcajñānendriya*), five organs of action (*pañcakārmendriya*), one internal organ (*ahaṅkāra*), five vital forces (*pañcaprāṇa*) and five gross elements (*pañcamahābhūta*) are generated out of those five subtle elements. All other gross objects (including the human and animal bodies) are produced out of the different combinations of five gross elements. Brahman, as the possessor of grossly differentiated Māyā, is called Virāta or Vaiśvānara. It is the fully manifested world (*jagatprapañca*). Although these stages come successively, but when the latter stages come the previous stages do not cease to exist.<sup>28</sup>

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<sup>28</sup> *Vedāntasāraḥ*:34-58, *Sadānanda Yogīndra*, VS., pp.123-162.





The Eternal Consciousness, Brahman, is determined by the multifarious evolutes of Māyā or Avidyā, which is a magical reality. Māyā conceals the ultimate unity of the world and projects the world of plurality. Ātman or Self and Brahman are one and the same who is neither a knower, nor an agent, nor a sufferer/enjoyer. But here also Avidyā conceals the real nature of the true Self and produces the empirical selves those are a combination of Self and non-Self. Empirical Selves are knower, agent and sufferer/enjoyer. It is, as if, the unlimited consciousness is being limited or confined by the products of Māyā. The products of Māyā have empirical reality but behind them eternal consciousness always remains present which has absolute reality. There is nothing but Brahman or Consciousness. So, what we see as the object of knowledge, are the consciousness determined by objects (*viṣayacaitanya*). The true nature of a knower is the same consciousness determined by *antaḥkāraṇa* – a product of Avidyā (*pamātrcāitanya*). And knowledge is consciousness determined by a specific mode (*vṛtti*) of the said *antaḥkāraṇa* (*pramāṇacāitanya*). The Samkarites admit four forms of internal organ (*antaḥkāraṇa*) due to four functions. When it becomes incapable of determining anything positive or negative and remains in doubt, it is called *manas*. The function of *buddhi* is determination. *Ahamkāra* produces the notion of ego. The function of *citta* is recollection.

It is empirical knowledge which has a determiner. Absolute knowledge is perceptual in nature since it has the immediacy of oneness. It is Absolute Consciousness itself with no determination. It shines when Avidyā is destroyed. Śāṅkara defines perception as consciousness. Though the eternal consciousness or the absolute perception cannot be

produced but since the sense organs produce the mental modes (*antaḥkaraṇavṛtti*), we can say that empirical perception or the consciousness delimited by such modifications are produced by sense organs.

The Advaitins say that translucent *antaḥkaraṇa*, which is of the nature of light, moves out to the object through the sense organs and is modified into the form of the object. This travelling of mental mode is involved only in perception. Going outwards, the modification occupies the same position in space with the object. This way the consciousness determined by the object becomes identified with the consciousness determined by the mental mode. This identification between *pramāṇacaitanya* and *viśayacaitanya* amounts to *jñānagata-pratyakṣatva*. We can say that this immediacy makes the *vṛtti* a perception. And in the same way, due to the equilocation of the *vṛtti* and object, *viśayacaitanya* and *vṛtti-caitanya* becomes identified. Now, there is no *antaḥkaraṇa-vṛtti* over and above the *antaḥkaraṇa*. Hence, due to the said equilocation, *pramāṇacaitanya* becomes identified with the *viśayacaitanya*, via *pramāṇacaitanya*. This identification amounts to *viśayagata-pratyakṣatva*. We can say that this immediacy makes the object a percept and the knower, a perceiver.<sup>29</sup> We shall discuss the Advaita mechanism of perception and illusion conjointly in detail in the next chapter.

The Vedāntins do not regard mind as a sense organ. If that were so, then inferential cognition would also be regarded as perception, since they are produced by the mind. Hence, internal perceptions are not *indriyajanya*. *Indriyajanyatva* is neither a necessary nor a sufficient condition for perception. The directness of the cognition depends only on the identification.

Against the Sāṃkhya and the Advaitins, Jayanta Bhaṭṭa argues that if the motor organs are considered to be *indriya* then there are other body parts like shoulder, throat etc. which perform certain functions; they should also be considered *indriya*.<sup>30</sup> *Buddhi* itself is of the nature of cognition. *Aham* or Self is an object of cognition. So, neither *buddhi*, nor *ahamkāra*, nor the motor organs should be considered as *indriya*.<sup>31</sup> The authors of *Vedāntaparibhāṣa*,<sup>32</sup>

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<sup>29</sup> VP., pp.27-57.

<sup>30</sup> *kaṅṭho'nnanigareṇa, stanakalaśāliṅganādinā vakṣo, bhāravahanena cāṁśadvayamindriyamucyate na katham? tatkāryasya śarirāvayavāntare'pi daśanāditi cetki nu bhavānannapānam pāṇipādena nigirati pāyunā vā? – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS II., p.54.*

<sup>31</sup> IP I., pp.15-16.

<sup>32</sup> VP., pp.22-27.

*Advaitabrahmasiddhi* and *Advaitacintākaustubha* deny *manas* to be an *indriya*.<sup>33</sup> The Jainas also regard *manas* as *anindriya* (non-sense-organ). Vidyānandin argues that *manas* does not have any specific kind of object to apprehend so it is not an *indriya*. If it were an instrument of knowledge, then let smoke be an *indriya* since it is the instrument of fire-cognition.

Against the Nyāya-mechanism of auditory perception the Samkarites say that if sound would travel to the ear-hole and strike the ear-drum, we always would apprehend the sound as in the ear. We could not locate its point of origin. Assumption of an infinite series of sound-ripples is against the law of parsimony. Hence, the internal organ (*antaḥkaraṇa*) streams out through the orifices of the visual and auditory organs to their objects.<sup>34</sup>

## 2.2. Indian Theories of Illusion

In the tradition, the theories of illusion are referred to by the name of *khyātivāda*. The term '*khyāti*' means cognition but, here it signifies perceptual error. Regarding the varieties of *khyātivāda* the following verse is often referred to:

“*ātmakhyātirasatkhyātirakhyātiḥ khyātiranyathā |*  
*tathānirvacanakhyaṭiritīyetaḥ khyātipañcakam ||*”<sup>35</sup>

It means, there are five alternative theories of *khyāti* – *Ātmakhyāti*, *Asatkhyāti*, *Anyathākhyāti*, *Akhyāti* and *Anirvacanīyakhyaṭi*. But in the literature, several other names are found also, such as, *Alaukikakhyaṭi*, *Viparītakhyāti*, *Sadasatkhyāti* etc. The principle of division, according to which these theories have been classified, is the ontological status of the content of illusion – whether it is real (*sat*), or unreal (*asat*), or both (*sadasat*), or neither of them. All the varieties of *khyātivāda* figure under any of these four alternatives.

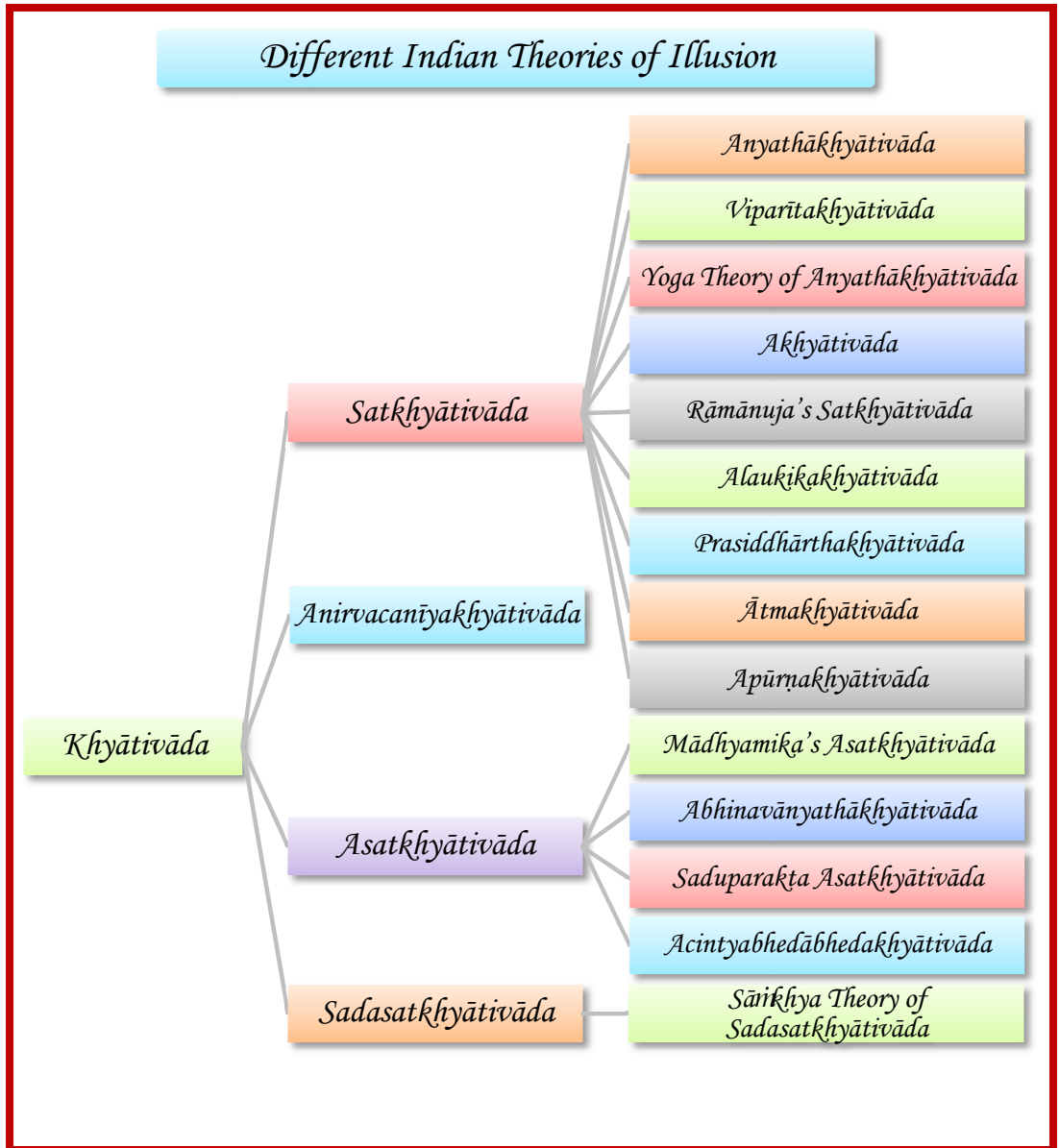
The paradigmatic example of illusion is the perception of silver in a shell. In certain respects, shell is similar to silver. Both are white and reflect light. This similarity often misleads one. The person in illusion mistakes shell for valuable silver and is prompted to collect it. But when he becomes aware of the fact that the object, present in front of him, is merely a shell and not a piece of silver, he realizes the falsity of the previous cognition. Here the relevant question is: ‘What is the nature of the content of illusion – is it objectively real or is only a mental

<sup>33</sup> IP I., p.17.

<sup>34</sup> IP I., p.26.

<sup>35</sup> *Nyāyakośa (khyāti)*, NK., p.255.

projection?’ The question is important since different schools of Indian philosophy have given different explanatory accounts which are inevitable logical outcome of their own worldview. Moreover, sometimes they have tried to establish their worldview from their account of illusion. Some other relevant psychological, epistemological and semantic issues have also been looked into, in this context. It is interesting to find out how they have kept the whole picture consistent with other issues at each step. Let us now take a bird’s eye view of the theories of *khyāti*.



### 2.2.1. Anyathākhyātivāda

According to the Nyāya philosophers, in the illusory perception of silver in shell, both silver and shell are real. The shell is present in front of the perceiver but the silver exists in some other place and time. The ‘elsewhere’ and ‘elsewhen’ silver appears to be present ‘here and now’, and the shell appears to be something else (silver). For this reason, this theory is called Anyathākhyāti (apprehended in a different way). Illusion is a misapprehension of one thing as another. It is a unitary qualificative cognition which is perceptual in nature. According to Jayanta Bhaṭṭa error is interpretation, like the case of wrong placement of one thing for the other during reading. When one cannot read an object in the right context he wrongly places it and commits a mistake. Even a wrong judgment does refer to a real object.<sup>36</sup> In *Tātparyaṭīkā*, Vācaspati Miśra says that there is nothing wrong in the object itself during illusion. There is no error in the *nirvikalpaka pratyakṣa* either.<sup>37</sup> The Neo-Naiyāyika Gaṅgeśopādhyāya holds that a non-existent object can never be a content of cognition. In a determinate cognition three things are revealed – the subject (*viśeṣya*), the predicate (*prakāra*), and the relation (*samsarga*) between the two. In the case of this illusory cognition, *viśeṣya* is the shell or the object present in front of the cogniser, *prakāra* is silverhood and the *samsarga* is inherence or *samavāya*. All these three things are real although the *prakāra*, as being related in the relation of inherence (*rajatatvasamavāya*), exists elsewhere. The *prakāra* is misapprehended as being related with the *viśeṣya* in that particular relation. During illusion, our sense organ is connected to the *viśeṣya*, shell. But due to some internal and external defects, the specific or unique feature of the shell (*śuktitva*) is overlooked. And only a generic feature of ‘thisness’ (*idantā*) is perceived. As a result, the shell is cognized as ‘this’, and not as ‘shell’ (shellhood does not become the *prakāra* of that cognition). This generic cognition generates expectancy for a more specific cognition. During the sense-object contact some other features, which are common to both shell and silver, such as glitter, whiteness etc., also are perceived. This perception of similarity associated with one’s knowledge of silver as a desirable object (*iṣṭabuddhi*) evokes the disposition of previously perceived silver (*rajatasamskāra*). Generally, memory-cognition reveals its object as an object of past. But due to the defects, ‘thatness’ (*tattānśa*) of the recollected silver is erased (*pramuṣṭa*). This *pramuṣṭatattāka smṛti* working as an extraordinary sense-object contact (*jñānalakṣaṇa sannikarṣa*) relates its content, silver, to the corresponding sense-organ. The memory of silver or silverness does this function with the help of (i) insufficient light, (ii) defect in sense-organ, (iii) affection towards silver, (iv)

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<sup>36</sup> NMJ., Introduction: xxxvi.

<sup>37</sup> BVR., p.52.

similarity of nacre with silver etc. Just like a wrong-number telephone call a determinate perceptual cognition occurs: ‘This is silver’. This way previously perceived silver, divorced from ‘thatness’, becomes the object of our perception and we take it to be the object present in front of us. That is why the sublating cognition does not tell that silver is non-existent; neither it says that there is a difference between silver and the object present in front of me. It only says that silver is not present here and now – it may be present in some other place or time. So, illusion is a single and positive false cognition which is presentative in nature, in all its parts.

Kaṇāda holds that false cognition (*avidyā*) is due to the defects of the sense organs and impressions. Śaṅkara Miśra explains that it is due to the sense organ tainted by the bodily humours, and the impressions of the past experience tainted by the non-perception of the distinctive characters of an object. Candrakānta points out that an illusion due to the defect of sense organ apprehends an object as a different object. Thus the Vaiśeṣikas also advocate Anyathākhyāti.<sup>38</sup>

Prabhākara criticizes asking, what is supposed to be the object of illusion here? It is either a silver – existing in some other place and time; or a nacre, concealing its own form and assuming the form of silver; or the nacre in its own form. The first alternative leads to Asatkhyātivāda since such a silver is non-existent here and now. The second alternative has two sub-options: Is there an apprehension of silver, or that of nacre? On the first sub-option, it is not illusion and on the second sub-option, there is no proof for the existence of a nacre there. Even the sublating cognition, ‘this is not silver’ only proves the absence of silver. The third alternative is not intelligible. What is manifested in a cognition is its object. So, nacre cannot be an object of illusion of silver. If someone says that what is really present at the place (in front of the person in illusion) should be the object of illusion then the proximate piece of land etc. should also be the object of illusion. Hence, Anyathākhyātivāda is not tenable.<sup>39</sup>

<sup>38</sup> IP III., p.110.

<sup>39</sup> *api ca viparītakhyātau trayī gatīḥ rajataṁ vā nyadeśakālamātrālamvananī śuktikā vā nigūhitaniḥkārā sati pariḡḥitarajatākārā ca atha vā anyadālamvanamanyaśca pratibhāti ālamvananī śuktikā rajataṁ ca pratibhātīti, tatra yadi rajatamālamvananī tadiyamasatkhyātireva na viparītakhyātīḥ asatatatra rajatasya pratibhāsāt.....śuktistu nigūhitanijavapurīti durvidagdhavācoyuktīriyam. na hyālamvanatā yuktā sannidhānanivandhanā / tatraiva bhūpradeśasya tathābhāva prasaṅgataḥ // .....evanī viparyayakhyātīrasatkhyāterna bhidyate// – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS I., pp.162-163.; & IP III., p.111.*

Jayanta Bhaṭṭa replies that there is a difference between absolutely non-existent thing and a thing existing in some other place and time. The former can never be an object of cognition, but the latter can. The second alternative also is intelligible. The nacre is said to conceal its form in as much as we do not perceive its peculiar qualities. And it is said to assume the form of silver in as much as we remember the peculiar qualities of silver. Thirdly, nacre (and not the proximate piece of land) is the object of illusion because it (and not the piece of land) is the *cause* of illusion.<sup>40</sup>

Vidyāranya asks, to what the otherwiseness (*anyathātva*) belongs – to the cognitive act, or to the resulting cognition, or to the object of cognition? Act of cognizing a nacre cannot result into a cognition in the form of silver. So, the first option is cancelled. Cognition, essentially, is consciousness. It cannot be otherwise. So, the second option also is cancelled. The third option has two different meanings. 1. The nacre identifies itself with silver. 2. The nacre is modified into silver. The former meaning has two sub-options. Either there is absolute difference between nacre and silver or there may be difference as well as identity between them. The first sub-option is impossible since things absolutely different from each other can never identify themselves with each other. If the second sub-option were true then the perceptual judgment ‘the cow is short-horned’ would be illusory, since there is the relation of identity-in-difference between the cow and being short-horned. According to the second meaning, the cognition cannot be said to be illusory. If it is said that the nacre → silver modification is temporary, then this ‘real’ modification must be perceivable by all. But illusion is purely subjective. So, Anyathākhyātivāda is not acceptable.<sup>41</sup> In reply, the Naiyāyikas may say that the real meaning of ‘*anyathātva*’ or ‘otherwiseness’ of illusory object is being present in different time and place (*deśāntarīyatva* and *kālāntarīyatva*).

Another criticism is against the hypothesis of *jñānalakṣaṇa sannikarṣa*. If it is admitted then inference will become unnecessary. Perception of smoke will revive the memory of fire and the memory will connect its content, fire, to the sense organ. Thus extra-ordinary perception of fire will result inhibiting the origination of inference which is less forceful.

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<sup>40</sup> IP III., pp.111-112. & NMJ., pp.370-380.

<sup>41</sup> VPS., pp.236-237.

### 2.2.2. Viparītakhyātivāda

The Bhāṭṭa Mīmāṃsakas advocate Viparītakhyātivāda. Śabara defines false cognition as an apprehension which is produced by a vitiated instrument, and no other cognition is false.<sup>42</sup> Pārthasārathi Miśra, a follower of Kumārila Bhaṭṭa, holds that illusion is produced by the intercourse of an object with a sense organ, aided by the recollection of another object to which it is similar. The Bhāṭṭa Mīmāṃsakas agree with the Naiyāyikas and hold more or less the same view except the Nyāya contention that illusion is wholly perceptual. For the Bhāṭṭas illusion is a single cognitive process which is a combination of perception and recollection. It is a kind of hybrid cognition like lion-man (*nṛsimhākāra jñāna*). It is unnecessary to posit an extraordinary sense-object contact named *jñānalakṣaṇa* in order to account for the perceptual nature of illusion. The content of illusion is determinate but not wholly perceptual. They hold that the perceived shell (as having thisness) becomes the subject or *viśeṣya* of the illusory cognition ‘This is silver’; and the recollected silver becomes the predicate or *prakāra* of the same cognition. However, the recollectedness of the second part of the cognition is not recognized because the reference of the past time is not revealed due to the defects. It causes a false identification between the perceived element and the remembered element. Thus shell is cognized, as something different – as silver. True cognition of shell sublates only the recollected element of the illusion. Nevertheless, we cannot say that silver is unreal (*asat*), since it was apprehended in the past. The Bhāṭṭas hold that absolutely unreal objects cannot be cognized. So, even the erroneous cognition of the form, ‘This is silver’ is about real entities. Illusion is a positive misapprehension in which we identify two unrelated real objects under the influence of vicious subjective and objective conditions. In the cases of illusion only the relation between subject and predicate is unreal although it appears to be real. The Mīmāṃsakas call this theory Viparītakhyāti.<sup>43</sup>

It may be objected that although the parts of the illusory content (the object present before, and the silver) are real but the total content ‘this object as silver’ is unreal. The Bhāṭṭas say that although in a special sense it is unreal, it is not completely unreal as is envisaged by the Asatkhyātivādins. It is not a negation (*abhāva*) but merely a negative fact. *Abhāva* has no independent metaphysical status beyond its locus and negatum (*anuyogin* and *pratiyogin*)

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<sup>42</sup> *yasya ca duṣṭam karaṇam yatra ca mithyeti pratyayaḥ sa evāsamīcīnaḥ pratyayo nānyaḥ – Śabarabhāṣya on Jaiminīsūtra 1.1.5, MDJ I., pp.9-10.*

<sup>43</sup> *sarvatra saṃsarga-mātram-asadevabhāsate saṃsarginastu santa eva, seyam viparītakhyātirityucyate Mīmāṃsakaiḥ. – Śāstradīpikā on Jaiminīsūtra: Adhyāya-1, Pāda-1, Adhikaraṇa-5, Sūtra-5 (Nirālamvanavāda), Pārthasārathi Miśra, SD., p.163.*



according to the Bhāṭṭas. So the unreality of the total content does not refer to any non-existence. It refers to the object in front and negatively says that it is not silver. The reality of everything in this universe is constituted by two aspects – essential or intrinsic aspect, and the relational aspect involving an extrinsic feature. ‘Being a pot’ is the essential aspect of a pot and ‘not being a cloth’ is a relational aspect of it. ‘Being a pot’ is intrinsic (*svarūpa*) to the pot and ‘being a cloth’ is extrinsic (*pararūpa*) to the pot. When the intrinsic aspect of an object is affirmed (*sadrūpa svarūpa*), or the extrinsic aspect of it is denied (*asdarūpa pararūpa*), the cognition becomes veridical.<sup>44</sup> In the rest of the cases cognition becomes erroneous. So, error does not have any non-existent object as its content. According to Pārthasārathi Miśra, the relation revealed in illusion is completely unreal although the terms of the relation are real. Here one may object that how can an unreal relation relate two real relata? In Kāśikāṭikā on Ślokaṅgārttika, Sucarita Miśra resolves the problem stating that the relation is real in the context of some other relata. But the question is whether the relation remains the same when the relata are changed? There is an interesting account of this debate in literature into which we cannot enter.<sup>45</sup>

### 2.2.3. Yoga Theory of Anyathākhyāti

Patañjali defines an illusion as false knowledge, which does not remain uncontradicted.<sup>46</sup> Nescience or Avidyā is a kind of illusion. It is metaphysical error and consists in knowing the non-eternal as eternal, the impure as pure, the painful as the pleasant and the non-Self as the Self. Vyāsa explains an illusion as a contrary cognition. Vācaspati also explains it as a contrary cognition, opposed to a valid cognition – and not a mere negation of it.<sup>47</sup> Thus Patañjali advocates the doctrine of Anyathākhyāti.

<sup>44</sup> *tatra śuktikārajatādijñānaṁ śuktikākhyāṁ bhāvaṁ śuktikārūpeṇa sadrupaṁ bhāvāntarasya rajatasya yatsadrūpaṁ rajatarūpaṁ tena rūpeṇa gṛhyadabhrāntaṁ bhavati, nedaṁ rajatamiti tvabhāvajñānaṁ śuktirūpeṇa santameva bhāvaṁ rajatasya yadsadrūpaṁ tenātmanā gṛhyadabhāvāvalamvanamabhrāntaṁ bhavati.....* – Nyāyaratnākara on Ślokaṅgārttika, *Nirālamvanavāda - 117, Pārthasārathi Miśra, SVNR.*, p.246.

<sup>45</sup> *tadiha kvacideva toyasaṁyogo vāryate na toyam. ataḥ sannidhibādhe kaḥ pratibhāsavirodhaḥ. nanvevamapi sannidhijñānamevasatsannidhyālamvanatvena nirālamvanaṁ bhavet. na sannidhirityuparasaṁyogastoyasyāpadiśyate so’pi kvacit prasiddha eveha pratiśidhyata iti na kiñcidānalamvanam. Kāśikāṭikā on Ślokaṅgārttika-116, Sucarita Miśra, SVK II, p.68.*

<sup>46</sup> *viparyayo mithyājñānam atad-rūpa pratiṣṭham.1.8. – Yogasūtra, Patañjalī, PYD.*, p.35.

<sup>47</sup> *vidyā-viparītam jñānāntaram avidyetei. – Vyāsa’s Yogabhāṣya on Yogasūtra 2.5., PYD.*, p.147. *tadanena na prasajyapraṭiśedhaḥ, nāpi vidyāivāvidyā, na tadabhāvaviśiṣṭā buddhiḥ, api tu vidyāvairuddhaṁ viparyaya-jñānamavidyetyuktam – Tattvavaiśārādī of Vācaspati Miśra on Yogasūtra 2.5., PYD.*, p.149.

Vijñānabhikṣu says that the Yoga maintains that a form of cognition is wrongly attributed to an external object, whereas the Naiyāyikas maintain that another external object is wrongly attributed to the external object which is present to the sense organ. According to the Yoga, the cognition of silver is wrongly attributed to nacre in the case of shell-silver illusion. In misapprehension there is a superimposition of knowledge on the object.<sup>48</sup> The form of cognition (cognition of silver) is actually perceived as the attribute of nacre. So, there is no need to assume a remote external object.<sup>49</sup> Patañjali distinguishes an illusion from a *vikalpa*. *Vikalpa* is a cognition of an absolutely non-existent object which is regarded by a word only, such as sky-flower; where as, in illusion, one thing is apprehended as another which is not absolutely non-existent.

#### 2.2.4. *Akhyātivāda*

The Prābhākara Mīmāṃsakas hold that if there is a cognition, there must be an object of cognition. Hence, all cognition is true. That which we call illusion is no cognition but an absence of cognition (*A-khyāti*) – absence of cognition of the difference between a perception and recollection – as well as between the percept and the memory-content. That is why the nature of the sublating cognition is a cognition of difference: ‘This is not silver’.

The Akhyātivādins agree to the illusion-mechanism of the Naiyāyikas up to the production of memory, but they propound no-error theory or *Akhyātivāda*. They hold that no cognition can ever be misleading and distorting in nature. If there were any false cognition then as soon as a cognizer has some cognition, it would be accompanied with a doubt regarding the truth of that cognition. If the subject is always under the spell of doubt, he will never be prompted to perform any action. However, the question would arise that if all cognitions are true then why in some cases people are led to wrong or unsuccessful action? The Prābhākaras answer that the so called illusions (such as shell-silver illusion) are not unitary non-veridical cognition but a pair of two independent and discrete cognitions. The first one is the perception of shell as

<sup>48</sup> *mithyetyasya vivaraṇamatadrūpapraṭiṣṭhamiti. sa tadrūpa na svasamānakāro yo viśayastatpraṭiṣṭham tadviśeṣyakamīyarthah. bhramasthale jñānākārasyaiva viśaye samāropa iti bhāvaḥ. saṁśayasyāpyatraivāntarbhāvaḥ. atra ca śāstre’nyathākhyātiḥ siddhānto na tu sām̐khyavadavivekamātram. anityāśuciduḥkḥānatmasu nityaśucisukhātmakhyātiravidayetmāgāmimīsūtrāt. Vijñānabhikṣu’s Yogavārttika on Yogasūtra 1.8., PYD., pp.36-37.*

<sup>49</sup> *jñānākāram anubhavasiddham suktyādikaṁ sannikṛṣṭam bihāpadūrastharajatādi-viśayakatva-kalpāne gauravāt. svapne dṛṣṭamidānīm nāstīti svarūpato bādhānupapatteśca. – Vijñānabhikṣu’s Yogavārttika on Yogasūtra 1.8., PYD., p37.*

being divorced from shellhood and the other is the recollection of silver as being divorced from ‘thatness’ or *tattvā*. Nevertheless the shell is perceived as having the property of being present in front of us (*purovartitva*). Both of these cognitions are true although incomplete. Now, the identification mark of recollection is ‘thatness’ of its object. And a perception is identified as a perception of a specific object (shell) by the apprehension of the specific feature of that object (shellhood). Since these two individuating parts are not revealed, the distinction between perception and recollection is not apprehended. Moreover, the recollection follows the perception immediately leaving no scope of discrimination. Due to this non-discrimination (*aviveka*) or the absence of apprehension of difference (*vivekāgraha*) between two cognitions, their contents are not discriminated either. This *aviveka* is the cause of wrong linguistic expression or erroneous activity. Error is only in action. Cognitions are always true. Prabhakara also speaks of some illusions by non-discrimination of two percepts, such as, double moon, yellow conch-shell, circular light etc.

Pārthasārathi Mīśra argues that the Prābhakaras do not admit the existence of *abhāva* as a separate category. Then how can they say about non-discrimination? Moreover, negation cannot be an error. Recollection cannot be non-discrimination because it is not always a false cognition. There is a saying – “One who have remembered rightly cannot have invalid knowledge.”<sup>50</sup> And recollection of silver does not compel one to pick up the silver. Perception of similarity is not the cause of that effort; similarity is not identity.

Gāgā Bhaṭṭa says that Akhyātivāda violates the parsimony of hypotheses involving larger number of elements. Secondly, absence cannot evoke a responsive action. Thirdly, the sublating cognition, ‘this is not silver’ is not merely a recognition of distinction. It is a definite valid perception which contradicts a previous wrong perception. Fourthly, if *asamsargāgraha* were the cause of responsive action then such action would occur everywhere since such absence is present almost everywhere. So, Akhyātivāda is not tenable.

### 2.2.5. Rāmānuja’s Satkhyātivāda

Rāmānuja also accepts the no-error situation. He holds that even an illusory perception has a real object (*sat*) for its objective substrate. An unreal object can never be apprehended. Where a shell is perceived as silver, the elements of silver are really present in shell. Every cognition

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<sup>50</sup> *na hi smaran bhrāmyatityucyate. – Śāstradīpikā on Jaiminisūtra 1.1.4.4. (Adhyāya-1, Pāda-1, Adhikaraṇa-4, Sūtra-4), SD., p.137.*

reveals an object as it is, i.e., the object cognized exists in the very form as it is manifested.<sup>51</sup> But only that cognition is accepted as valid whose object is practically useful.<sup>52</sup>

All the objects of this world have been produced by the process of triplication or quintuplication, i.e., mixing three (or five) fundamental elements in different proportion. Predominance of one element over the other differentiates one object from the other. But all the elements are present in all the objects; in that sense, the element of silver, is really present in a shell. The difference is that the element of earth predominates in a shell, and the element of fire predominates in silver. Moreover, an object is similar to that one which contains a part of that object. So a shell contains a part of silver as they are similar. Hence, the perception of silver in shell should not be called as illusory from this ontological point of view. Rāmānuja says that in practical situation we do so because we fail to observe the principle or predominant element (shell) in the object. We observe only that element (silver) which is too scanty to serve any practical purpose. Due to certain defects we wrongly highlight those minor elements. And such cognition is corrected when we are able to observe the preponderance of the element of shell in the object lying in front. For Rāmānuja, all the cognitions are true and are partial (except the Brahman-intuition). Error is only in respect of practical use. Rāmānuja explains other kinds of illusion also in such innovative ways. He says that the dream objects are not mental projections but real. God creates them for enjoyment and suffering of individuals in accordance with their merit and demerit. That is why they are private whereas the cognition of water in desert is not so private. A jaundiced person perceives a white conch to be yellow because the yellowness of bile, present in his sick eyeball, is transmitted to the conch through the rays of eyes and makes it yellow. But this yellowness is revealed only to the jaundiced person since it is too subtle to be revealed to the person who is not observing it through its whole line of movement.<sup>53</sup> In similar way Rāmānuja explains other instances of so called illusion such as ‘red crystal’, ‘water in desert’, reflection in mirror’, ‘illusion of direction’, ‘double moon’ etc. Dream objects are created by God according to merit and demerit of the living beings. When we press our eyeballs by finger then the speed of the

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<sup>51</sup> *yathāvasthita-vyavahārānuṅga-jñānam prametyuktam.1.1.– Yatīndramatadīpikā, Śrīnivāsa Dāsa, YMD., p.7.*

<sup>52</sup> *yathārtha sarvavijñānamiti vedavidām matam/ śrutismṛtibhyaḥ sarvasya sarvātmavapratītiḥ// – 1.1 . (Adhyāya-1, Pāda-1), Śrībhāṣyam, Rāmānujācārya, SB., p.96., line.4-5.*

<sup>53</sup> *pāśaṅkhādau tu nayanavartipittadrvyasambhinnāḥ nayanarāsmayaḥ saṅkhādibhiḥ saṅyujyante. tatra pittagatapītimābhībhutaḥ saṅkhagataśuklimā na gr̥hyate. ataḥ suvarṇānuliptaśaṅkhavat ‘pītaḥ saṅkhah’ iti pratiyate. – 1.1 . (Adhyāya-1, Pāda-1), Śrībhāṣyam, Rāmānujācārya, SB., p.98., line.16-19.*

ophthalmic rays of two eyes become different. Due to this difference there occur two independent experiences of moon having slightly different location in space. However we recognize them to be the same moon even while experiencing two moons.<sup>54</sup> This is Rāmānuja's version of *Satkhyāti*.

In Advaitāmoda it has been criticized that if Satkhyātivāda is true then how can we perceive water in desert? Even if the process of triplication or quintuplication is true, the distinctive character of, say, water as *mahābhūta* cannot exist in a particular earthy substance. Even if it does, it cannot be perceived even by those who are near to the earthy object. Then how can a person validly perceive it from distance? If Rāmānuja answers that it is because of the perceiver's demerit, then he is contradicting his own contention that water actually is there. Moreover, if shell is perceived as silver because the element of light (*tejas*) is common in both, then why do we not see other fiery objects like sun or lightning in shell? It cannot be said that silver is instantly produced by the fire-particles of nacre because there is no proof for such a theory and it cannot explain how it vanishes all of a sudden. The cognition of silver does not prove its existence, since it invites a vicious circle. There is no law that an object must contain a part of another object to which it is similar.<sup>55</sup>

### 2.2.6. Alaukikakhyātivāda

In Nyāyamañjarī, Jayanta Bhaṭṭa refers to the theory of Alaukikakhyāti and ascribes it to a certain Mīmāṃsaka. The theory says that in the illusion of silver the object (referent) of illusion is not shell but silver, which is real but extraordinary (*alaukika*). Just as the valid cognition of silver has *laukika* or ordinary silver for its object, so illusion has *alaukika* or extraordinary silver for its object. The difference is, while the *laukika* silver serves our practical purposes (*vyavahāra-pravartaka*), the *alaukika* silver cannot do so. Jayanta Bhaṭṭa criticizes this view saying that, real silver is known only through such a cognition of silver that is not contradicted by any other cognition. But the cognition of *alaukika* silver is corrected by a subsequent sublating cognition of the form, 'This is not silver'. So it cannot be a real silver. Moreover, what is the differentiating factor between *laukika* and *alaukika* silver? At the level of cognition they cannot be distinguished since the extraordinariness of the object is never revealed in cognition. Another mark of difference might be their capability for fulfillment or non-fulfillment of our practical purposes (*vyavahāra sadasadbhāvanibandhana*). But it

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<sup>54</sup> *Śrībhāṣyam-1.1 (Adhyāya-1, Pāda-1)*, SB., p.98(line.19)-100(line.16).

<sup>55</sup> AM., pp.170-171.

requires a clarification of the meaning of the term, 'vyavahāra'. Does it indicate 'jñānābhīdhānasvabhāva' (to be an object of our thought and speech), or 'arthakriyākārī', (to be causally efficient)? The first alternative is not tenable since both of the *laukika* and *alaukika* are objects of our thought and speech. The second one also is not acceptable because then the dream, which pleases or frightens one, will have a *laukika* object, and the pot which has been destroyed, without using it even once, will be an *alaukika* object. Moreover, when the illusion is gone the person desists from collecting the object not because he recognizes the extraordinariness of the existing silver but he realizes that there is no silver in reality at all. Furthermore, if the silver is *alaukika* and the person in illusion still is prompted to collect it, then it is evident that he perceives an *alaukika* silver as a *laukika* one. But then the theory will become a variant of *Anyathākhyāti*. However the theory resembles *Anirvacaniyakhyaṭi* in some important respects. But some further clarification is needed regarding the nature of extraordinariness in order to make the theory convincing.<sup>56</sup>

### 2.2.7. Prasiddhārthakhyātivāda

Another version of Satkhyāti is Prasiddhārthakhyāti. Jayasīma Sūrī and Prabhācandra (in *Prameyakamalamārtaṇḍa*) mention and refute this theory. The annotator of *Prameyakamalamārtaṇḍa* ascribes this doctrine to Bhāskara.<sup>57</sup> The theory holds that the object of illusion is an existent thing established by knowledge. Both the illusion and its sublating cognition have really existent things as their objects. The illusion of water in desert is real because it is presented to consciousness as a jar is presented. Prabhācandra says if this theory were true then there would be no difference between a valid and an invalid perception; all perceptions would be equally valid. Secondly, if the former were of real water then it would leave its effect (wetness of ground) behind when it is gone; because the effect of water is not momentary like the flash of lightning. But the person in illusion does not feel that wetness acting upon it or that wetness is not found in practical use.<sup>58</sup> Thirdly, if all perceptions were equally valid then there would be no sublating cognition. Neither water is like the flash of light which exists as long as it is perceived, because generally water is not experienced as

<sup>56</sup> *Anuccheda 'Mīmāṃsakaikadeśimatakhāṇḍanam' of Jayanta Bhaṭṭa's Nyāyamañjarī*, NMS I., pp.172-173; NMJ., pp.394-398; IP III., pp.108-109.

<sup>57</sup> IP III., pp.92-93.

<sup>58</sup> *ityapyasāmpratam; yathāvasthītārthagṛhītītvāviśeṣe hi bhrāntā'bhrāntavyavahārābhāvaḥ syāt. api cottarakālamudakāderabhāve'pi taccihmasya bhūsnigdhātāderupalambhaḥ syāt. – Prameyakamalamārtaṇḍa, Śrī Prabhā Chandra, PKM., p.50.*

annihilating immediately.<sup>59</sup> Actually, this doctrine states only a general statement without further explanation. Moreover, the specific sense of the term ‘real’ is not clear here. According to its different senses the theory may be included in any of the aforementioned theories of Satkhyāti.<sup>60</sup>

### 2.2.8. Apūrṇakhyātivāda

The theory says that there is nothing wrong in (i) perceiving only ‘thisness’ in nacre, (ii) remembering silver, (iii) combining them and understanding ‘this’ as silver. All is happening in the conscious mind of the perceiver. After a while the sublating cognition will be generated and we shall understand that the object is not real, external and permanent silver which the other persons can also know validly. In the so called cases of illusion, the process does not become complete. This incompleteness is illusoriness – nothing else. ‘Not to see till the end’ is illusion. It is like Akhyātivāda but differs from the Prabhākara’s account. Prabhākara identifies illusion with the ‘non-apprehension of distinction’ – not with the ‘false identification of shell with silver’. But the proponents of Apūrṇakhyātivāda, Ācārya Utpaldeva and Abhinavagupta of Kāśmīr Śaivism, accept one kind of identification. Moreover, they do not see any falsity in the identification. Illusion consists in not realizing the fact from the beginning that this identification will not last. Or, illusion is nothing but not realizing the fact that the present cognition, ‘this is silver’, will not match with a future cognition ‘this is not silver’. Kāśmīr Śaivism holds that even the empirical cognitions are incomplete, hence Apūrṇakhyāti – from the absolute point of view. Only the realization of Śiva is complete.<sup>61</sup>

### 2.2.9. Ātmakhyātivāda

Contrary to the Sadvādins, the Vijñānavādins say that the content of cognition has no counterpart in the external world. The external world does not exist at all. Consciousness or *vijñāna* is the only reality which is self-luminating, self-apprehending and momentary. The contents of cognition are only the forms of consciousness (*jñānākāra*) which are internal and essentially identical with cognition. Cognition reveals everything related to it, and nothing can be related to cognition which is essentially different from it. Moreover, cognition and its content are co-existent without exception (*sahopalambhaniyama*). It proves that they are the

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<sup>59</sup> *na khalu vidyudādīvadudakāderapyāśubhāvī niranvayo vināsaḥ kvacidupalabhyate. – Prameyakamala-mārtanḍa, Śrī Prabhā Chandra, PKM., p.50.*

<sup>60</sup> IP III., pp.92-93.

<sup>61</sup> Arindam Chakrabarti, ‘Mṛgatṛṣṇikā Ityādi’, *Mananer Madhu*, Gangchil, Kolikata, 2008. Page 223-224.

same thing. Our experience of dream proves that the contents of cognition are independent of external objects. Being awake we realize that there had never been any objective substrate of dream-contents. The same thing happens in waking experience also. Different contents like ‘pot’, ‘cloth’, etc., are nothing but different forms of consciousness. The multifariousness of those forms is due to the beginningless series of various subconscious impressions or *vāsanā* which are gradually awakened in persons. All the cognitions are erroneous in the sense that they project their own subjective form as an objective and extra-mental reality, owing to a beginningless nescience (*ajñāna*). Due to a beginningless constitutive habit (we can call it *avidyā*) we cut apart a consciousness into two parts: (i) the subject or who is knowing and (ii) the object or what is being known; then falsely ascribe externality to the object part. So, even a so-called true cognition of silver is false from this ultimate metaphysical perspective. There is no objective substrate so all cognitions are nothing but hallucinations (*niradhiṣṭhāna bhrama*). In case of silver-shell error, silver, which is a subjective form of consciousness, is imposed on an imagined external object, shell. Shell is also a subjective form of consciousness. The cognizer-cognized-cognition division is unwarranted. There is no Self or Ātman (cognizer) beyond *vijñāna*. *Vijñāna* apprehends its own form. So consciousness itself is Ātman or the cognizer. So any apprehension is apprehension of itself (*Ātmakhyāti*). The Sarvāstivādins, i.e. the Sautrāntika and Vaibhāṣika admit extra-mental realities. The cognition and the cognized both are real. But in the cases of erroneous cognitions like the perception of silver in shell, the silver, which is imposed on external shell, is nothing but a form of consciousness. The form is not something over and above the consciousness itself. So *rajatakhyāti* is *ātmakhyāti*. However, the substratum of the error is not a form of consciousness. It is really present in the external world. So it is an instance of illusion, not hallucination. Some of the thinkers have taken the Vijñānavādin’s theory to be a version of *asatkhyāti*. But in the strict sense, it is not so because the Vijñānavādins admit the reality of cognition. Against the Asadvādins they say that the phenomenon of apprehension proves that cognition has causal power or the power of effectuation (*arthakriyākaritva*), hence it is real. They hold that the illusory content is not absolutely unreal. It is unreal only as an external object. Nevertheless, as the form of consciousness, it is real. So, in some sense, the Ātmakhyātivada can be regarded as a variety of Sadvāda.

Jayanta Bhaṭṭa criticizes that according to the Yogācāras, a mere subjective cognition appears to be a cognizer, a cognized and a cognition. In that case, the cognition should be in the form, ‘I am silver’, – not ‘This is silver’. Secondly, it implies Anyathākhyāti – so far as it holds that



an internal momentary cognition is apprehended as something else. Thirdly, the theory implies Asatkhyāti, since the cognition of externality has no real basis.<sup>62</sup>

Vācaspati says that there are three options to prove that illusory silver is internal – either by the illusory apprehension, or by the sublating cognition, or by inference. But in no way that can be proved. The illusion does not say ‘I am silver’. The sublating apprehension only declares that the form of silver does not exist in front of the sense organ. Lastly, if the illusory silver were an internal form, it would not be perceived previously; and for such an entity no inference could be done.<sup>63</sup>

Prabhācandra criticizes that, if all cognitions apprehended their own forms and not those of external objects, then there would be no distinction between an illusory cognition and a valid cognition; moreover, there would be no responsive action or corresponding exertion (*pravṛtti*) to pick the silver up. If it is urged that a momentary cognition is mistaken for an external permanent object owing to the potency of nescience, then the theory leads to Viparītakhyāti.<sup>64</sup>

Vidyāraṇya criticizes thus: The illusory silver emerges so it is not devoid of origination. According to the Vijñānavādins, it cannot be produced by an external object, but by a cognition. Now, this cognition cannot be pure – which is of the nature of emancipation or *mokṣa*. So, the cognition must be produced by a vitiated cause. Now, the question would arise whether the said cognition is the same cognition which apprehends the silver or is it some other vitiated cognition? They cannot be the same. The producer and the apprehender of the silver must be different since the former is the precondition of the existence of the silver which in turn is the precondition of the existence of the silver-apprehension. All of them are

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<sup>62</sup> *nātmakhyātirāpi yuktimatī vijñānātmano hi pratibhāse ahaṁ rajatam iti pratītiḥ syād nedam rajatamiti, kiṁ ca yadantarjñeyarūpaṁ hi vahirvadavabhāsa ityamupagamādiyamāpi viparītakhyātireva syāt, asatkhyātirāpi ceyam bhavatyeva vahirbuddherasatvāt. – Ātmakhyātyābhāvākṣepaḥ, Nyāyamañjarī, Jayanta Bhaṭṭa, NMS I., p.164; IP III., pp.92-93; NMJ., pp.375-376.*

<sup>63</sup> ND., pp.72-73; IP III., pp.81-82.

<sup>64</sup> *tadayuktimātram. yataḥ svātmamātrasaṁvittiniṣṭhatve arthākāratve ca jñānasyātmakhyātiḥ siddhyet. na ca tatsiddham, uttartrobhayasyāpi pratiśedhāt. sarvajñānānāṁ sākāra grāhitve ca bhrānta'bhrāntaviveko bādhyabādhakabhāvaśca na prāpnoti, tatra vyabhicārābhāvāviśeṣāt. svātmasthitatvena rajatādyākārasya saṁvedena ca sukhādyākāravaduhiṣṭatayā pratītirna syāt. pratīpattā ca tadupādānārtha na pravarteta, avahiṣṭā'sthiratvena pravṛtyaviśayavāt. athāvidyopaplavavaśāduhiṣṭasthiratvenādhyavasāyaḥ kathamevaṁ viparītakhyātireva neṣṭā, jñānādabhinnasyasthirasya cārthākārasyaṅyathādhyavasāyābhyupagamāditi? – Prameyakamala-mārtaṇḍa, Śrī Prabhā Chandra, PKM., pp.50-51.*

momentary and occupy different points of time. So, they are different. Now, the question is what is the nature of the silver-apprehending cognition? Whether the cognition is produced by a pure (that which is produced by a non-vitiated cause) cognition or by an impure (that which is produced by a vitiated cause) cognition? The first alternative cannot account for its specific content. There is no reason why such a cognition should specially apprehend silver and not anything else. In the second alternative, the vitiated cause is either silver or not silver. But it cannot be silver because if silver is regarded to have causal efficacy we have to admit its real extra-mental existence. Vijñānavādins would not accept it. On the other hand, if it is not silver then silver cannot be manifested in the illusory cognition. According to the Vijñānavādins, the object of cognition (*viṣaya*) is that cause (*hetu*) which submits its form to the cognition (*jñānākārārpaka*). If silver is not a cause then the cognition cannot manifest silver as its *viṣaya*. Thus, on the doctrine of Ātmakhyāti, the illusory cognition of silver will never come into being.<sup>65</sup>

#### 2.2.10. *Mādhyamika's Asatkhyātivāda*

Carrying the Vijñānavādins' argument a bit further, the Mādhyamikas say that even the reality of consciousness or *vijñāna* cannot be ascertained without contradiction. *Vijñāna* essentially involves the reference to external object. If the objects are not real, consciousness cannot be real either. So, not only the content, but also the cognition itself is unreal although appears to be real. Actually, there remains a complete void (*śūnya*). In the erroneous cognition, the locus (*adhiṣṭhāna*), the superimposed object (*āropya*), their relation (*sambandha*), and even the cognition itself (*vijñāna*) – all are non-existent. This is *asatkhyātivāda* in the strict sense. It is a strict version of *niradhiṣṭhāna bhramavāda*. Error cannot be error if it reveals reality even partially. Even the correcting cognition cannot be about something real. For in that case a valid cognition about a real content would have to be considered likewise as being corrective of some earlier cognition and ad infinitum.<sup>66</sup>

Prabhācandra criticizes it in *Prameyakamala-mārtaṇḍa* thus: According to the Mādhyamika, there is neither an external reality nor a subjective cognition; so, there is neither any variety in external objects, nor any variety in cognitions. So, there cannot be a variety of illusions. But

<sup>65</sup> IP I., pp.289-290; VPS., pp.243-244.

<sup>66</sup> *nāpi saddhīrbādhathe saddhiyamasaddhiyaṃ vā satyarūpyādibuddhivat anyathā atiprasaṅgāt ca. – Iṣṭasiddhi, Vimuktātman.* (as referred by Sukharanjan Saha in 'The Case for Anirvacanīyakhyāti' published in *Mind, Language and Necessity, Jadavpur Studies in Philosophy*, Vol.3, ed. K. K. Banerjee, Macmillan India Limited, 1981)

there is variety of illusion.<sup>67</sup> Secondly, why is there no illusion of sky-flower in nacre? Why has it to be something similar to the object of illusion, i.e., silver? The doctrine of Asatkhyāti cannot explain it.

Jayanta Bhaṭṭa says that an absolutely non-existent object never appears in cognition or in illusion. It may be urged that such an object appears in our consciousness through the intensity of a subconscious impression (*vāsanā*). But a *vāsanā* presupposes the existence of real object. Without a real object the existence of its subconscious impression will not be proved. The how can such a non-existent *vāsanā* become the cause of the cognition of silver? Hence, Asatkhyāti is untenable.<sup>68</sup> Udayana criticizes that a responsive action follows upon the apprehension of an existent object. The person in illusion exerts himself in picking up the object lying before him. Hence, it has to be real in some way. Vardhamāna holds that purely non-existent entity has no cause. Hence, it cannot be manifested in cognition. If it were tinged with or qualified by existent entity, it could be manifested in cognition. Vācaspati asks that if there is no locus of illusion, then what does the person mean by pointing out when he says, ‘this is not silver’?

These arguments, actually, are refuting Ātmakhyātivāda, since it is held to be the stepping stone for Asatkhyātivāda. However, they seem to miss the point because the aforesaid interpretation of Śūnyavāda as nihilism has not been accepted by many a philosopher. And we do not find Nāgārjuna giving any argument in favour of this version of Asatkhyātivāda. The Śūnyavādins hold that erroneous cognition is nothing but the postulation of opposite attributes in the locus. When we perceive a piece of silver in a shell we perceive the property of being silver in the thing appearing in front, whereas the thing has altogether a different attribute, namely shellhood. With the help of powerful dialectic the Śūnyavādins say that whenever a person tries to solve a problem remaining within the domain of the categories of intellect, he arrives at self-contradiction. Things can be known either as real, or as unreal, or as both, or as neither. But the ultimate reality is none of them (*catuṣkotivinirmukta*). It is referred to by the

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<sup>67</sup> *asataḥ khapuṣpādīvatpratibhāsāsambhavāt. bhrāntivaicitrābhāvaprasaṅgaśca; na hyasatkhyātivādinō rthagataṁ jñānagataṁ vā vaicitramasti yenānekaprakārā bhrāntiḥ syāt. tasmātpramāṇaprasiddha evārtho vicitrastatra pratibhāti. – Prameyakamala-mārtaṇḍa, Śrī Prabhā Chandra, PKM., p.49.*

<sup>68</sup> *ekāntāsatastvarthasya khyātiriti na peśalam ākāśanalinīpallavāderapratibhāsanāt, vāsanābhyāsādatāmapi pratibhāsā bhaviṣyantīti ced na, arthamantareṇa vāsanayā apyanupapatteḥ, arthānubhavasamāhito hi saṁskāro vāsanā kathyate sā kathamasadarthapratibhāsahetuḥ syāt, bhavatvanyā vā bhavadabhimatā kā can vāsanā’pi tvasatvāviśeṣe kimiti rajatamitimupajanayati na gagananalinapratīmiti kutastyo niyamah. – Asatkhyātibhāvākṣepah, Nyāyamañjarī, NMS I., p.164; NMJ., pp.374-375; IP III., pp.84-85.*

term 'Śūnya'. This is also true for our so-called veridical cognitions of this practical reality (*saṁvṛtīsat*). We can say that until this *śūnyatva* is revealed to us, we are always in a gigantic hallucination. This theory is similar to *Anīrvacanīyakhyāti* in some important respect but they are not the same since the latter holds that the locus of illusion has a greater degree of reality and the ultimate locus is eternally existent, whereas the former theory takes everything to be equally 'śūnya' and non-eternal.

### 2.2.11. *Abhinavānyathākhyātivāda*

Another version of Asadvāda is Madhvācārya's Abhinava-anyathākhyāti. Madhva thinks that life is wide enough to incorporate both truth and error hence we should not explain away error like the Mīmāṃsakas or Rāmānuja. We should understand error since it adds value and significance to valid experience. Our senses deceive us but only rarely. Hence Buddhism and Advaitism also are unacceptable.<sup>69</sup> Madhva defines an illusion as an apprehension of a non-existent thing as an existent object, or of an existent thing as a non-existent entity.<sup>70</sup> Such contention about error is obvious if reality is defined as '*anāropitam*' or non-imposed and true cognition as '*yathārtham*' or '*yathāvasthītajñeyaviṣayīkārītvam*'. For Abhinava-Anyathākhyāti error is presentation of some non-existent entity, fact or relation as existent and real in a given sense-connected substratum in the presence of error-generating conditions.<sup>71</sup> The theory holds that in the shell-silver illusion the superimposed content (*āropya*), silver, is unreal since it is sublatale by subsequent cognition. Sublation is possible only in regard to a non-existing entity. During the sublation we have the perceptual cognition in the form 'Unreal silver was being perceived' (*asadeva idaṁ rajatambhāt*). It proves the unreality of silver. Hence, the object of illusion is non-existent. Jayatīrtha regards 'non-existent silver' and 'non-existent identity of silver with a nacre' both as the object of the illusion. Madhva agrees with the Mādhyamika that an illusion is an apprehension of a non-existent object, but differs from him in holding that an illusion has an objective substratum (*adhiṣṭhāna*). The reality of the locus (*adhiṣṭhāna*) of that superimposition must be admitted since it is the very precondition of the possibility of superimposition. Absolute unreal object cannot be perceived although unreal as being superimposed on something real (*saduparakta asat*) can be perceived. He agrees with the Nyāya-Vaiśeṣikas in holding that there is a sense-object contact. Without

<sup>69</sup> PSM., p.131.

<sup>70</sup> *asatoḥ satta-pratītiḥ sato'sattva-pratītir anyathāpratītirevā bhrāntiḥ. – 2.26. – Madhva's Gītātātparyā.*

<sup>71</sup> PSM., p.132.

sense-object intercourse no perceptual cognition can be produced – valid or invalid. But the object is no real object. While in illusion our sense-organ is connected with the object lying before. This sense-connected object is nothing but a distortion of a real locus (shell) which has no actual existence. The cause of such distortion is some defect.<sup>72</sup> Madhva differs from the Nyāya-Vaiśeṣikas in holding that the silver, which is perceived in the nacre, is not that silver which exists elsewhere. The silver, existing elsewhere in no ways can assist the apprehension of it here. The existence of a silver piece in some other place is not a necessary condition for sense-object contact or the revival of silver-impression. Remote silver does not come to revive the impression of it. Sublation is possible only in regard to a non-existing entity appearing to be existent. The sublating cognition – ‘this is not-silver’ – clearly proves that the apprehended silver is a non-existent entity. Inexplicability (*anirvacanīyatva*) is a verbal fiction and illogical assumption. Extension of illusory experience to the world-experience is not tenable. Hence, Advaita theory of illusion is unacceptable. Jayatīrtha designates this theory as Neo-Anyathākhyātivāda or Abhinava-anyathākhyātivāda.<sup>73</sup>

### 2.2.12. Saduparakta Asatkhyātivāda

The Neo-Naiyāyika, Gaṅgeśa, refers to an old Naiyāyika position according to which, the relation cognised in illusion is unreal. Gadādhara, in *Anumānagādādhārī*, has also referred to this view and ascribed it to the ‘*Tikākāra*’. According to Kāmākhyānāth Tarkavāgīśa, ‘*Tikākāra*’ is none but Vācaspati Miśra. The New Naiyāyika’s contention is that whatever is revealed in cognition is real. In a determinate cognition three things are revealed – The *viśeṣya*, the *prakāra* and the *samsarga*. These three concepts are interdependently defined in Nyāya Philosophy. The *viśeṣya* is the *anuyogī* of the relation and the *prakāra* is its *pratiyogī*. In the determinate cognition of pot, the *viśeṣya* is the pot, the *prakāra* is potness and the relation is inherence. Pot is the *anuyogī*, and potness is the *pratiyogī*, of the relation inherence. All these three things are real. However, there is no problem with this contention so far as the veridical cognition is concerned. But in the cases of erroneous cognition like the perception of silver in shell, the revealed relation is such an inherence whose *anuyogī* is silverhood and the *pratiyogī* is shell. Such relation is neither completely *asat* nor completely *sat*. It is *saduparakta asat* or unreal as being qualified by or tinted by real. This theory is called *saduparakta asatkhyātivāda*. But such inherence is completely unreal according to Vācaspati

<sup>72</sup> *śūktikāsanīkṛṣṭāṇi duṣṭamindriyaṇi tāmeva atyatāsadrājatātmanā avagāhamānaṇi jñānaṇi jāyate, sa bhrama ityaṅgīkārāt.* – *Nyāyasudhā of Jayatīrtha*, pp.48b, (as quoted in PSM., p.133).

<sup>73</sup> IP III., pp.117-119.

Miśra. In order to come out of this predicament the New Naiyāyikas have defined those three concepts differently. The concepts have been defined 'as they are revealed in the cognition'. However this shift from ontological to epistemological mode is not sufficient to reply all the objections of the opponent.<sup>74</sup>

### 2.2.13. Acintyabhedābhedakhyātivāda

Jīva Gosvāmī, a follower of Śrīcaitanya, holds that an illusion apprehends an inconceivable difference and non-difference between a given substratum (e.g., a nacre) and an illusory object (e.g., silver). Among the different interpretations of *Brahmasūtra* all except that of Śaṅkarācārya (Kevaladvaitavāda) and that of Madhvācārya (Dvaitavāda) subscribe to *bhedābhedavāda* according to which the relation between empirical Self (*jīva*) and transcendental Self (*Brahman* or *Īśvara*) is difference-and-non-difference (*bhedābheda*). The proponent of Acintyabhedābhedavāda is Valadeva Vidyābhūṣaṇa. Śrī Caitanya would preach to the common people such a modified version of Madhva's Dvaitavāda that is in accord with Bhagavad Gita. Those interpretations are carried by Śrī Jīva Gosvāmī and others and then organized as a philosophical doctrine by Valadeva Vidyābhūṣaṇa in the name of Acintyabhedābhedavāda according to which empirical Self is simultaneously different and non-different from God by the influence of an inconceivable power of God. It is different from God since it is only an atomic part of and governed by Him, but it is non-different from God because part (*amśa*) and whole (*amśī*) are not totally different from each other.<sup>75</sup> This metaphysical doctrine is also reflected in their theory of illusion. According to Jīva Gosvāmī there is an inconceivable difference and non-difference between the substratum of illusion (shell) and an illusory object (silver). Shell is non-different from silver because it has brightness in common with silver. And due to their distinctive characters they are different. So, shell is different as well as non-different from silver in an inconceivable way. The non-difference between them is predominantly apprehended by the illusion so long as the illusion lasts. And the difference is distinctively apprehended by the sublating cognition. The apprehension of the non-difference evokes the responsive action to get the illusory silver. The apprehension of the difference by the sublating cognition brings about the cessation of the responsive action. Jīva Gosvāmī tries to reconcile the truths of the different doctrines of illusion. He recognizes the difference between the given substratum (shell) and the illusory

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<sup>74</sup> Saha, Sukharanjan., 'The Case for Anirvacanīyakhyaṭi.' *Mind, Language and Necessity, Jadavpur Studies in Philosophy*, 3, ed. K. K. Banerjee, Macmillan India Limited, 1981, p.113.

<sup>75</sup> VD I., Introduction, pp.45-48.

object (silver) that the doctrine of Asatkhyāti maintains. He also recognizes the non-difference or the non-distinction between them during illusion as the Prābhākaras maintain.<sup>76</sup>

#### 2.2.14. Sāṅkhya Theory of Sadasatkhyātivāda

The old Sāṅkhyas are Asatkhyātivādins who hold that the cosmic illusion or bondage is due to the non-discrimination between Puruṣa and Prakṛti (*aviveka*) and knowledge of discrimination (*vivekakhyāti*) is the cause of illusion. However, according to the interpretation of Viṣṇūabhikṣu, the Sāṅkhyas are Sadasatkhyātivādins.<sup>77</sup> In Sāṅkhyasūtra, Kapila says that a non-existent object neither can lead to action nor can produce any cognition. In the case of shell-silver illusion, silver is apprehended and people are prompted to collect it. Hence, silver is not absolutely non-existent. The Prābhākara's no-error situation is not acceptable, because there an apprehension of non-difference or identity (*abhedagraha*) is found that leads to action. *Bhedāgraha* is an absence, it cannot lead to action. Moreover, the existence of sublating cognition proves the existence of erroneous cognition. Silver is not undefinable (*mithyā*) either, since it has been clearly defined as 'This is silver'. So, Anirvacanīyakhyāti is unacceptable. Since it is not possible to apprehend one thing as something else, Nyāya Anyathākhyāti is not acceptable either.

The Sāṅkhyas hold that the content of illusion, silver, is real as well as unreal (*sadasat*). According to the Sāṅkhyas consciousness in purity cannot reveal any external object – but reveals only its true form. It is on account of non-discrimination that the Self is wrongly perceived as knower, doer etc. Absence of the perception of non-difference or *vivekāgraha* between Puruṣa and *ahankāra* is the root of all illusion. This *agrahaṇa* is of '*sadrūpa-bheda*', i.e., it involves the failure to discriminate between two *vṛttis* – one of true knowledge and the other of false knowledge. *Sāṅkhyapravācanasūtra* says that in illusion something real (*sat*) is apprehended as well as something unreal (*asat*), because of its being uncontradicted and contradicted afterwards. In the illusion 'this is silver', 'this' is existent since it is not contradicted and 'silver' is non-existent because it is contradicted.<sup>78</sup> There are alternative

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<sup>76</sup> IP III., pp.119-120.

<sup>77</sup> Grammarian Nāgeśa Bhaṭṭa also is a *sadasatkhyātivādin*. According to him, in the illusory perception of silver in shell, until the locus is perceived, silver remains uncontradicted, hence '*sat*'. But when the locus i.e., the shell is perceived, silver is sublated. So silver is '*asat*' also. Thus the content of illusion is real as well as unreal (*sadasat*). – BM., P.42.

<sup>78</sup> *sadasatkhyātirbādhābhāṭ*.56.5. (*Aphorism-56, Book-5*) – *Sāṅkhyapravācanasūtra, Kapila, SPS.*, p.131.

interpretations of Sāṃkhyasūtra. According to the Sāṃkhyasūtravṛtti of Aniruddha, in the illusory perception, ‘this is silver’, the cognition of ‘this’ is real, since its object or referent is present to the visual organ and the cognition of silver is unreal since its referent is not present to the visual organ. According to the interpretation of Vijñānabhikṣu in *Sāṃkhyaprabhāṣya*, the terms ‘*sat*’ (real) and ‘*asat*’ (unreal) are not contradictory to each other. The same object may be real as well as unreal as being qualified by different properties. Redness (of hibiscus) is real as original colour (of hibiscus), but it is unreal as a reflection in a nearby colourless crystal. In the same way, the silver is real as being placed in the shop of silver-merchant, but it is unreal as being falsely ascribed to the shell. Similarly, the whole world is essentially real but as being falsely ascribed to another thing it is unreal.<sup>79</sup>

### 2.2.15. Anirvacanīyakhyātivāda

Illusion is like magic. It cannot be said whether an illusory object is real or not. When the magician brings out hares from his previously shown empty hat, one by one, then the spectators wonder! They cannot say that there was no hare in that hat, because they are now seeing them coming out of the hat. Neither can they believe that all those hares were in that hat, because the hat is not spacious enough to hide all of them. That is why it is indescribable. In the same way illusory object is indescribable as it is neither real, nor unreal, nor both.

This theory has been put forward by the Advaita Vedāntins. It is known as *Anirvacanīyakhyātivāda*. The adjective ‘*anirvacanīya*’ means that which cannot be stated or described. The theory holds that, the ontological status of an illusory object is neither real, nor unreal, nor both but indescribable. That alone is real (*sat*) which remains equally uncontradicted in the past, present and future or in the triple stream of experience – waking state, dream and dreamless sleep. The object of illusion is sublated by a subsequent corrective perception. So it is not ‘*sat*’. On the other hand, ‘*asat*’ or absolutely unreal, is never-appearing, like the son of a barren mother. But the object of illusion appears to us, hence it is not *asat*. To say that something is both ‘*sat*’ and ‘*asat*’ is to make a self-contradictory statement. So it is not ‘*sadasat*’. Thus the alternative ways of determining or describing the status of an illusory object is doomed to failure. Therefore it is indescribable. Although it is not absolutely real, it

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<sup>79</sup> *prakārabhedenāvirodhāt. yathāhi lauhityaṃ vimvarūpeṇa satsphatikagataprativimvarūpeṇa cāsaditi dṛṣṭam. yathā vā rajataṃ vaṇigvīthīstharūpeṇa sacchuktyadhyastarūpeṇa cāsata tathaiva sarvaṃ jagat svarūpataḥ sat cetanyādāvadhyastarūpeṇa cāsaditi. – Sāṃkhyaprabhāṣya of Vijñānabhikṣu on Sāṃkhyaprabhāṣyasūtra of Kapila (Aphorism-56, Book-5), SPB., p.184-185.*



has a different grade of existence: ephemeral reality or *prātibhāsika sattā*. During the illusion of silver in shell, indescribable and ephemeral silver is produced in front of the person out of *avidyā*. This way, the Advaitins account for the presentative character of illusion. In Vedānta-Paribhāṣā, a detailed account of the mechanism of perceptual error has been provided with the Advaita metaphysical presuppositions. It is thus: When the sense organ, vitiated by defects, is connected to the shell, the mental organ flows towards the shell, which is empirically present before the eyes, Although the visual organ is connected to the whole (generic as well as specific features) of the object but due to the defects, the internal organ cannot be modified in the form of the object's specific nature. The *antaḥkaraṇa* takes the form of 'this', 'thisness' and 'brightness' (*idamākāra*, *idantvākāra* and *cākacikyākāra antaḥkaraṇavṛtti*). This way, the mode destroys the primary cover of nescience of 'this', 'thisness' and 'brightness'. The equipositioning of *antaḥkaraṇavṛtti* and *idam* amounts to the perceptuality of the cognition. Now, we can see the object 'this' as being qualified by 'thisness' and 'brightness'. Now, our affinity to silver and the perception of the similarity between silver and *idam* i.e., the perception of brightness, evokes the subconscious impression of silver. The *avidyā* residing in the consciousness determined by *idantākāra antaḥkaraṇavṛtti* and the *avidyā* residing in the consciousness determined by *idamānśa* are perturbed and agitated. Now, with the help of the subconscious impression of silver, the latter one is transformed into *prātibhāsika* silver and the former one is transformed into the perception of silver which is an *avidyāvṛtti* not an *antaḥkaraṇavṛtti*. Then *idantākāra antaḥkaraṇavṛtti* and *rajatākāra avidyāvṛtti* form a single psychosis of the illusion of silver. However, the singularity of illusory cognition does not depend on the unification of *vṛtti*, since *vṛtti* itself is not cognition. *Vṛtti* itself is not knowledge because it is insentient. In Advaita philosophy, the consciousness, conditioned by *vṛtti*, is considered to be the knowledge. And the duality in *vṛtti* does not necessitate the duality in the produced perceptual illusory cognition. Because perception is defined as 'consciousness' (*caitanya*) and it is the same witness consciousness which is modified in the generic form of 'this' (with the aid of *pramāṇavṛtti*) on the one hand, and in the specific form of 'silver' (with the aid of *avidyāvṛtti*) on the other. The singularity of illusion depends on the fact that those two *vṛttis* are conjointly illuminated by the same single Witness-Consciousness or *Sākṣīcaitanya* (Consciousness, non-invasively conditioned by a single *antaḥkaraṇa*).

The Advaita Vedāntins extend this theory of illusion to the empirical world also and concludes that even the world of our daily experience is indescribable and is only empirically real (*vyavahārika sat*). It is nothing but a consistent and gigantic illusion from the perspective of

the Absolute (*pāramārthika sat*), i.e., *Brahman*. *Brahman* is one, eternal, all-pervading, indeterminate Pure Consciousness, the Existence-Consciousness-Bliss in essence.

Rāmānuja criticizes that, if indefinable silver were apprehended in illusion as 'indefinable', then the cognition would not be illusory or sublated. Hence, it is apprehended as 'real'. Thus the doctrine implies Anyathākhyātivāda. *Avidyā* has been considered to be the cause of illusory object. But the theory of *Avidyā* or *Māyā* is unacceptable. It can be refuted by seven untenables<sup>80</sup>.

Madhvācārya says that the sublating cognition 'this is not silver' denies the existence of silver in past, present and future. So, indefinable silver cannot be produced in the meantime – during illusion. Secondly, Illusion and illusory silver are products of nescience which abides in empirical self. So, they should be internal – but silver is perceived as an external object. Thirdly, is the existence (*sattā*) of the relation of illusory silver to the empirical nacre illusory or empirical? If it is perceived as illusory, there would be no responsive action. If it were perceived as empirical then either it is true or false. It cannot be true because the relation also is illusory. It cannot be false since then what is non-existent will appear as existent. It will imply Asatkhyātivāda or Anyathākhyātivāda. If it is said to be indescribable, there will be infinite regress.<sup>81</sup> Udayana in *Nyāvārttikatātparyapariśuddhi* criticizes Anirvacanīyakhyātivāda. He raises the question as to what is the meaning of the 'property of being indescribable' or '*anirvacanīyatva*'? Does it indicate 'absence of description' or 'absence of the cause of description'? The first alternative is unacceptable because the descriptions like 'this is silver' (in the case of illusory cognition) or 'this is not silver' (in the case of sublating cognition) are experienced to be there. The second alternative has two sub-options. Whether the 'cause of description' (whose absence is promoted) is a cognition or an object? There cannot be an absence of cognition (*khyāti*), because the Advaita Vedāntins themselves admit the reality of a cognition. The second option has further two sub-options. Either the object is non-existent or it is existent. If the object is non-existent then the doctrine of Anirvacanīyakhyāti implies Asatkhyāti; and if the object is existent then the doctrine of Anirvacanīyakhyāti implies Satkhyāti. One may say that the object is both existent and non-existent. Then the question is whether such fact is established by common experience or by

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<sup>80</sup> These seven objections (*anupapatti*) are – 1. *āśrāyānupapatti*, 2. *tirodhānānupapatti*, 3. *svarūpānupapatti*, 4. *anirvacanīyānupapatti*, 5. *pramāṇānupapatti*, 6. *nivartakānupapatti* and 7. *nivṛtyānupapatti*.

<sup>81</sup> IP III., pp.105-106.

extraordinary experience? Common experience cannot establish such fact because in common experience existence and non-existence cancel each other. Hence both existence and non-existence can neither be affirmed nor denied. In the second alternative also there is no harm, because even in the absence of thousand such extraordinary objects, the object of right cognition and its description may exist. Hence the question is, is an indescribable object essenceless or *nisvabhāva*? If 'essence' means 'existence', and 'less' means 'non-existence' then both of them means '*bhāvābhāva*' which invites the aforesaid problem again. If 'essenceless' means 'unknowable' then the doctrine of Anirvacanīyakhyāti involves self-contradiction, since an indescribable object is unknowable and yet is experienced. If unknowable object is said to be experienced as knowable then the doctrine of Anirvacanīyakhyāti involves Anyathākhyāti. If a non-existent object is said to be experienced then an empirical object also may be non-existent and yet experienced, and hence there will be no difference between an empirical object and an illusory object. If a non-existent object is said to be experienced as non-existent it cannot produce a responsive action; and if it is experienced as existent then it must be experienced so due to similarity. But there is no similarity between an existent and a non-existent object. And if similarity is not a factor then an existent object may also be experienced as a non-existent object, which is never the case.<sup>82</sup> Hence Anirvacanīyakhyātivāda is untenable.<sup>83</sup>

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<sup>82</sup> Udayana promotes similarity-based single model of illusion. We shall discuss it in the conclusion.

<sup>83</sup> NVTP., pp.115(line.11)-116(line.7); IP III., pp.107-108.

## CHAPTER – 3

### Indian Idealist Theories of Illusion

In the previous chapter, we have mentioned no less than fifteen different theories of illusion or *khyātivāda*. Among those theories, the *Yoga* theory is one kind of *Anyathākhyāti*, *Rāmānuja's Satkhyātivāda* and *Apūrṇakhyātivāda* can be incorporated as the versions of *Akhyātivāda*. *Alaukikakhyātivāda*, to some extent, goes with *Anirvacanīyakhyāti*. The account of *Prasiddhārthakhyāti* does not sufficiently explain itself, hence is unacceptable. In the previous chapter we have shown how the theories like *Rāmānuja's Satkhyātivāda*, *Alaukikakhyātivāda*, *Prasiddhārthakhyāti* etc. have been criticized by different philosophers. Madhvācārya's *Abhinava-anyathākhyāti* is a mixture of the Mādyamika's *Asatkhyāti* and the Naiyāyika's *Anyathākhyāti*. Different theories of *Sadasatkhyāti* are the products of the debate circling around *Anyathākhyāti* and *Asatkhyāti*. Jīva Gosvāmī's account is completely metaphysics-dependent. Hence, in our discussion, these theories could be set aside. Moreover, in this short span we shall not be able to discuss all of them in full detail. Therefore, in our present work we have selected only six principal theories of *khyāti*. They are: *Ātmakhyāti*, *Asatkhyāti*, *Anirvacanīyakhyāti*, *Akhyāti*, *Viparītakhyāti* and *Anyathākhyāti*.

It is a matter of observation that these theories are consistent in respect of their own basic (metaphysical, epistemological, psychological and semantic) presuppositions as if they are developing axiomatic systems depending on those presuppositions. So the conflict between the theories is due to the conflict between their presuppositions. Now, in a philosophical discourse, the metaphysical, epistemological and semantic presuppositions are held to be non-replaceable. They are so foundational that cannot be changed. The truth of them is supposed to be independent of our observation. They are thought to be 'seen' by the 'seers' (*tattvadraṣṭā*) which we, the ordinary people, cannot see. So, these assertions are not empirically testable. Hence, no school is supposed to compromise at that level. The only remaining scope is the field of psychological presuppositions where we may have a deciding authority by showing some experiential and experimental ground.

In this chapter, we shall see that the first three among the aforementioned six theories are mostly metaphysics-dependent. Hence, we shall not be able to conduct any kind of experiment taking resort to those axioms in order to arrive at an acceptable account of illusion. Here, we

shall try to present these three theories and criticize them solely depending on speculation. But at the next chapter we shall discuss the other three theories of *khyāti*: *Akhyāti*, *Viparītakhyāti* and *Anyathākhyāti*. These theories have alternative psychological presuppositions which may be empirically testable. A great deal of the psychological mechanism of illusion has been discussed there. In this domain the probable contestants are the Prābhākaras who say that illusion consists of two cognitions – one is perception and the other is memory, the Bhāṭṭas who say that it is a mixed but single cognition – partly perceptual and partly mnemonic and the Naiyāyikas who say that it is singular, determinate and wholly perceptual cognition.

Let us now discuss *Ātmakhyāti*, *Asatkhyāti* and *Anirvacanīyakhyāti*.

### 3.1. *Ātmakhyātivāda*

In the later Buddhist period the Buddhists had been divided into several schools following different interpretations of the teachings of Lord Buddha. Among them the major schools were the Vaibhāṣikas, the Sautrāntikas, the Yogācāras and the Mādhyamikas. Generally the Yogācāra school is held to be the propounder of *Ātmakhyātivāda* and the Mādhyamika school is held to be the propounder of *Asatkhyātivāda*. The Sautrāntikas might also be accepted as *Ātmakhyātivādin* in a special or restricted sense. But the Vaibhāṣikas are direct realist. So, their theory is not compatible with *Ātmakhyātivāda*.

All these schools accepted the basic philosophical tenets of Buddhism like *Kṣaṇikatvavāda*, *Nairātmyavāda*, *Pratītyasamutpādavāda* and *Karmavāda*. They unanimously held that everything is changeable and momentary. Each existent entity is destroyed at the second moment after creating its replica. Existence of an entity consists in its causal efficacy (*arthakriyākārītva*). Nothing is permanently existent. There is no eternal and durable entity. There exists only the series of similar momentary elements. Existence is conditional. Each event has its cause. Nothing can escape this causal chain. Good and evil actions produce respective results.

The Vaibhāṣikas and the Sautrāntikas are the pluralistic realists<sup>84</sup> who admit the existence of cognition-independent external world as well as the momentary consciousnesses. The

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<sup>84</sup> The non-Buddhist schools called them Sarvāstivādins since they admit the existence of internal as well as external objects. But according to the Buddhists, the Sarvāstivādins are those who admit object's existence in past present and future (*trikālasattā*). Only the Vaibhāṣikas and the Theravādins

Yogācāras are pluralistic idealists who do not admit external reality at all. For them, there exist only the series of momentary consciousnesses or *vijñāna-santāna*; hence the Yogācāras are called as ‘Vijñānavādins’. According to the Mādhyamikas, neither the external objects nor the internal states are ultimately real (*pāramārthika sat*). *Param sattā* is neither existent nor non-existent, nor both nor neither. It is devoid of those four alternatives (*catuṣkotivinirmukta* or *śūnya*). That is why the Mādhyamikas are called ‘*Śūnyavādī*’.

### 3.1.1. The Vijñānavādins Version of Ātmakhyātivāda

The Yogācāra Vijñānavādins are the original propounder of Ātmakhyātivāda who hold that there is no cognizable external object beyond the cognition itself. Cognition or consciousness (*vijñāna*) is the only existing reality (*paramārtha sat*). These momentary consciousnesses (*kṣaṇika vijñāna*) occur with different forms (*ākāra*), such as the form of jar or that of cloth (*ghaṭākāra, paṭākāra*). Jar, cloth etc. are nothing but those forms. They do not have any independent ontological status just as the dreamt objects are nothing beyond the dream itself. These forms of consciousnesses appear as external objects due to our ignorance (*avidyā*). However, the question arises that if there is no external object then wherefrom the consciousnesses get their forms? The Vijñānavādins reply that we need not admit the existence of external object for that. A momentary consciousness of a particular form is produced from another momentary consciousness of the same form. These consciousnesses existing in a causal chain having a similar form is called *samanantarapratyaya*. Our life is nothing but a series of such consciousnesses. This stream of consciousness is beginningless, although is segmented as different lifetimes or births. This whole stream is called *ālayavijñāna*, which has all the previous experiences and their effects (*saṃskāra*). At a particular assigned time a specific *saṃskāra* is matured and energized. It happens due to the beginningless ignorance (*avidyā*) and the variety of past impressions (*vāsanāvaicitra*). Any effect cannot be matured and produce a *vijñāna* of that form at any time. That is why we experience different things at different occasions. The form of the whole chain, *ālayavijñāna*, is ego or ‘*aham*’, which produces the false appearance of a durable Self. The constituent momentary consciousnesses are called *pravṛttivijñāna*. *Ālayavijñāna* is beyond subject-object dualism, categories of intellect and conceptual manifold. By the effect of *avidyā* different *pravṛttivijñānas* are

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admit *trikālasattā* of all objects. So, the Sautrāntikas are not the Sarvāstivādins. However, *trikālasattā* has been defined in Vaibhāṣika philosophy in such a way that does not contradict the theory of momentariness.

produced in this calm but ever-changing stream of consciousness just as the ripples are produced in the sea by the effect of wind.

In the non-Buddhist texts *avidyā* has been described as ‘*asatprakāśanaśaktiḥ*’ or the faculty or power of revealing the unreal. The Vijñānavādins say that the object, revealed in a cognition, is not completely unreal. As the form of consciousness, they are real. The form is the intrinsic feature of consciousness. It is unreal only as an external object. *Avidyā* projects the internal form of consciousness as external object. All such cognitions are erroneous only in the part of the external objective substratum (*ālambanāśīsa*). That which appears as revelation of external object actually is the revelation of the cognition itself (*ātmakhyāti*). The Vijñānavādins do not say like the Sautrāntikas that the correspondence of the form of object (external or internal) is *pramāṇa* and the cognition itself is *pramāṇa-phala*. They say that only the cognition of internal states or the *vijñāna* itself can be veridical. *Kṣaṇikavijñāna* is self-luminous (*svaprakāśa*) and self-conscious (*svasaṁvedya*). This self-conscious cognition (*svasaṁvitti*) is *pramā* and the potentiality (*yogyatā*) of the cognition to cognize itself (*svābhāsa*) is the *pramāṇa*. The relation between *svābhāsa* and *svasaṁvitti* is that of determinant and determined.

### 3.1.2. Arguments in favour of Vijñānavāda:

#### (A) Argument from Illusion

Vijñānavādins have presented several arguments in favour of their thesis. Among them the most important one is the ‘Argument from Illusion’. It runs as follows. Phenomenally, there is no difference between waking experience and dream. Hence there is no logical problem in thinking that, waking experiences are also empty or without objective substratum like the dream experiences.<sup>85</sup> If someone says that dream is utterly different from our waking experience hence the feature of dream cannot be ascribed to waking experience, then the Vijñānavādins would say that there are some waking experiences also where no external object exists such as hallucination.<sup>86</sup> Our mental states of pain and pleasure can also be taken

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<sup>85</sup> *stambhādipratyayo mithyā pratyayatvāt tathāhi yaḥ!*  
*pratyayaḥ sa mṛṣā dr̥ṣṭaḥ svapnādipratyayo yathā//23// – Ślokavārtika, Kumāriḥa Bhaṭṭa; SVNR.,*  
*p.222; see also Pārthasārathi Miśra’s Nyāyaratnākara on Kumāriḥa Bhaṭṭa’s Ślokavārtika: Śloka-25*  
*(Nirālambanavāda), SVNR., pp.222-223.*

<sup>86</sup> In the exposition of relevant *śloka*s (23-27) of *Ślokavārtika*, Gangānātha Jhā has elaborated Buddhist argument. –SVKNR., pp.121-123.

as example.<sup>87</sup> They are waking experiences but there exists no pain or pleasure in the external world.

### (B) Argument from Invariable Co-apprehending

Cognition and the cognized entity are invariably co-apprehended with each other. Only identical things have such an exceptionless association. Hence the cognition and the cognized object are identical. Cognized object is nothing but the form of cognition.<sup>88</sup> Blue and the cognition of blue are identical since they are non-distinguishably cognizable. It is due to our wrong perception that we take them to be different, just as we perceive two moons instead of one due to the defect in vision.<sup>89</sup>

One may say that invariable co-apprehending (*sahopalambha*) does not prove identity; rather the term '*saha*' indicates that there are two distinct apprehensions of two distinct objects. Vaibhāṣika philosopher Śubhagupta and Bhāmatīkāra Vācaspati Miśra objected this way. But in *Tattvasaṃgraha*, Śāntarakṣita replied that the term '*saha*' does not mean 'co-existence' but 'unity' of the apprehension. It is not the case that whenever the cognition is apprehended the cognized object also is apprehended, but both of them are apprehended in the same apprehension.

### (C) Atom is not an Established Entity

In *Vijñaptimātratāsiddhi*, Vasubandhu has said that if we admit the existence of external objects, they will either be atoms (*paramāṇu*), or a collection of them (*paramāṇupuñja*), or a whole new object (*avayavī*) produced by atom and its parts (*avayava*). But none of these alternatives are acceptable since atom is not an established entity.<sup>90</sup> According to the atomists,

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<sup>87</sup> According to the Buddhists, pain and pleasure are cognitive states. However, the opponent schools do not admit it.

*atra śākyaścodayanti – na jñānapadena sukhādivyavacchedaḥ kartum yuktāḥ, śakyo vā sukhādināmapī jñānasvabhāvatvāt,..... tadevaṃ siddhe'pi sukhādivyavacchede kartavyameva jñānagrahaṇaṃ viśeṣyanirdeśārthatvāt, – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS I., pp.70-73.*

<sup>88</sup> *yadyena saha niyatasahopalambhanaṃ tattato na bhidyate, yathaikasmāccandramaso dvitīyaścandramāḥ – Vācaspati Miśra in Bhāmatī on Brahmasūtra Śāṅkarabhāṣya 2.2.28; BBKP., p.544; BRBN., p.468-469.*

<sup>89</sup> *sahopalambhaniyamādbhedo nilataddhiyoh./ bhedasca bhrāntivijñānairdaśyatendāvivādvaye// – Anonymous, but referred or quoted by many such as Vācaspati Miśra in Bhāmatī on Brahmasūtra Śāṅkarabhāṣya 2.2.28; BBKP., p.544; BRBN., p.469.*

<sup>90</sup> *na tadekaṃ na cānekaṃ viśayaḥ paramāṇuśaḥ/*



atoms are imperceptible since they have no parts (*niravayava*). But, how a collection of imperceptible objects becomes perceptible, or the arrangement of imperceptible parts produces perceptible new whole object, cannot be explained logically. Conjunction of *niravayava paramāṇu* is impossible. If six atoms are supposed to be attached to an atom from six different directions, then we have to admit that the atom has six different parts.<sup>91</sup> But that is not the case. And if they are attached to the same point (not part) of the atom then the resulted object also will be atomic and hence imperceptible. But we perceive things. Hence, those objects are nothing but internal forms and there is no external object.

#### (D) Arguments against the Buddhist Realist Camp

Against the Vaibhāṣikas and the Sautrāntikas, the Vijñānavādins say that momentary consciousness cannot grasp momentary external objects. At the moment of the production of consciousness, the object is destroyed. The Sautrāntikas say that consciousness grasps only past objects. The object is destroyed submitting its form to the consciousness. But the Vijñānavādins say that then it is not perception at all. We always perceive an object as present here and now – not as a past entity. *Aparokṣavāda* cannot be accepted. Neither it is possible to infer that the appeared form is the form of an external object; because, the *sādhya* of such *anumāna* has never become an object of perception. And such a hypothesis can easily be substituted by a better and lighter system which the Vijñānavādins advocate. This way, the representative realism of the Sautrāntikas is substituted by the subjective idealism of the Yogācārins. The 17<sup>th</sup> century Irish philosopher, George Berkeley advocated similar thesis as a substitution of Lockean representative realism.

#### 3.1.3. The Debate between Parokṣapratyakṣavāda and Aparokṣapratyakṣavāda

Although the metaphysical account of the realist schools (the Sautrāntikas and the Vaibhāṣikas) are similar to each other, but their epistemological standpoints are different. Following the question of how the eternal objects are perceived, these realist schools differ from each other. The Vaibhāṣikas propound the theory of direct perception (*aparokṣapratyakṣavāda*) which holds that the external objects are directly perceived and their existence is proved by direct perception. On the other hand, the Sautrāntikas propound the

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*na ca te saṁhatā yasmāt paramāṇurna sidhyati//11// – Viṁśatikārikā, Vijñaptimātratāsiddhi, Vasubandhu, VMS., p.12.*

<sup>91</sup> *ṣaṭkena yugapadyogātparamāṇoḥ sadamśatā/ saṅṅāṁ samānadeśatvātpiṇḍaḥ syādaṇumātrakah//12// – Viṁśatikārikā, Vijñaptimātratāsiddhi, Vasubandhu, VMS., p.13.*

theory of representative perception (*parokṣapratyakṣavāda*) which says that the external objects (*svalakṣaṇa*) are perceived indirectly and their existence is proved through inference. They hold that our cognition or consciousness (*vijñāna*) has its form (*ākāra*). This form is an intrinsic feature of consciousness. The external object has a specific form which it submits to the consciousness during perception. Through this form of consciousness we infer the existence of the corresponding object in the external world. However, the Vaibhāṣikas object that this thesis is contrary to our experience. *Parokṣapratyakṣavāda* is a contradiction in term. Perception is always direct and if they are not directly known, they are inferred. But, if the perception of the external object is denied, the inference of those external objects would not be possible, since inference depends on the previous perception of the co-existence of the inferable object (*sādhya*) and the mark of inference (*hetu*). The Sautrāntikas counter-object that the theory of direct perception is not consistent with the theory of momentariness. In order to be an object of direct perception, the thing has to exist for at least two moments. But since everything is momentary, the external object is destroyed at the next moment energizing its perception. When the perception occurs the object has already been destroyed. So, perception always grasps a past object. Since a past object cannot be related to the cognition directly, we can never perceive an object directly. Nevertheless, the cognition of *svalakṣaṇa* is not an inference, but an indirect perception since the *svalakṣaṇa* has exercised its causal efficacy on the originated awareness. There always remains a time-gap between sensation and perception. The Vaibhāṣikas have ignored it so they have fallen in confusion. However, the Vaibhāṣikas might ask as to what is then inferred? The Sautrāntikas answer that although the *svalakṣaṇas* are perceived but ‘that the *svalakṣaṇa* existed’ is inferred afterwards, through the form of the originated awareness. The immediately occurred indeterminate perception (*nirvikalpaka pratyakṣa*) of *svalakṣaṇa* cannot ascertain anything about itself or its form. The subsequent determinate perceptual cognition (not ‘perception’ in true sense) having the same form (*pratyakṣa-prṣṭhabhāvī adhyavasāya*) ascertains the form of the previous *nirvikalpaka pratyakṣa*. Then we infer that there must be some external object which had submitted its form to the indeterminate perception. The Sautrāntikas object that it is not easy for the direct realists like the Vaibhāṣikas to give a convincing epistemological explanation of illusory experience. Only those who admit some form of representation in between the object-level and the cognition-level, can find out a platform of diversion and say that sometimes those representations misrepresent. However, the Sautrāntikas who are the representative realists face another problem. They fail to remove the iron-curtain between the object and its representative form. In order to say that X is the representation of Y one must know X and Y

directly. If X always is known through its representation Y, then no correspondence is established between X and Y. This problem is reflected in the Vaibhāṣikas' objection. They say that in order to infer the existence of the *svalakṣaṇa* from its form, the *svalakṣaṇa* has to be seen directly in association with the form. The Sautrāntikas reply that the correspondence is established on the ground of pragmatism.

#### 3.1.4. The Sautrāntika Account of Perception and Illusion

In *Nyāyabindu*, Ācārya Dharmakīrti has developed an epistemological system that may answer all the relevant questions in this matter. Following Dharmottara's commentary on *Nyāyabindu*, we get a Sautrāntika account of perception. Dharmakīrti says that cognition is veridical which gives us non-erroneous information (*avisamvādaka*) in the sense that it makes its object available (*prāpaka*), showing the object to the agent (*pradarśaka*) and prompting the agent to get it (*pravartaka*). Even when the agent accidentally misses the target, then also the cognition might be veridical. Hence, leading towards the right object (*arthapravartakatva*) is sufficient to make a cognition veridical. But cognition does not have any *agency* to prompt one in action. It only shows the object of the agent's volition. So, in this respect, 'prompting' is equivalent to 'showing'. Thus *pravṛttiviśayapradarśakatva* becomes the defining characteristic of veridical cognition (*samyajjñāna*). Now the question arises as to how can a cognition show its object? The answer is: through its form. If the form of a cognition corresponds to the form of its object, the cognition is veridical. This correspondence or *arthasārūpya* is *pramāṇa*. In the whole account, *prāpakatva* is relevant only as a criterion of knowing whether a cognition is veridical or not. On this pragmatic result the correspondence is ascertained.

Ontologically, similarity or correspondence (*sādṛśya* or *sārūpya*) is not over and above the common form (*ubhayagata ākāra*). Hence, following Śāntarakṣita we can say that *viśayākāra* is the *pramāṇa*. Now, this form is an essential and intrinsic feature of the veridical cognition (*pramā* or *pramāṇa-phala*) itself. So, *pramāṇa* and *pramāṇa-phala* are not ontologically distinct entities. They only are two different functions of the same entity. And the relevant functions are *viśayākāratā* and *viśayādhigati*. Both are the functions of the cognition itself. The Buddhists do not admit a causal relation between *pramā* and its instrument (*karaṇa*) or *pramāṇa*, like the Naiyāyikas. They define *karaṇa* as the most predominant factor determining the nature of the result. *Sādhakatamam karaṇam*. Hence, the relation between *pramā* and *pramāṇa* is a relation of determination (*vyavasthāpya-vyavasthāpaka-sambandha*). This determining process does not involve any causal efficacy but only the conformity to the object

form. The Buddhists reject sense-organ to be the *karāṇa* of perceptual cognition since they are not the ultimate determinant or the most decisive factor of a cognition being thus (*pīta*) and not otherwise (*nīla*).

Dharmakīrti defines perception as ‘*tatra pratyakṣam kalpanāpoḍham abhrāntam*’ or the non-erroneous presentation devoid of all determinations or conceptual constructions. It is the pure cognition of *svalakṣaṇa*. According to the Buddhists, there are two types of things – *svalakṣaṇa* or the momentary unique particulars and *sāmānyalakṣaṇa* or the general features like name, quality, action, substance and genus. They hold that only the *svalakṣaṇas* are ontologically real (*pāramārthika sat*). *Sāmānyalakṣaṇas* are our conceptual constructions (*kalpanā*), those have only the phenomenal or practical reality (*saṃvṛti sattā*). They do not have causal efficacy (*arthakriyākāritva*). These two types of things are grasped (*grāhya*) by two different types of *pramāṇa*. Perception can grasp only the *svalakṣaṇas* and inference can grasp only the *sāmānyalakṣaṇas*. Determinate cognition involves conceptual construction or the *sāmānyalakṣaṇas*; hence, only the indeterminate perceptual cognition is *pratyakṣa pramā*. But indeterminate cognition cannot be informative or *saṃvādaka* in itself. It is only through a subsequent determinate cognition of the same form, resulted by that indeterminate perception, the *arthasārūpya* of the indeterminate cognition is ascertained. But in any case, the determinate cognition itself is not *pratyakṣa pramā* since it involves determination or *kalpanā*. It is not *anumāna pramā* either, since it shows as if it has grasped *svalakṣaṇa* although it has actually grasped *sāmānyalakṣaṇa*. Such cognition is called *adhyavasāya*. It makes the object of indeterminate perception an object of volition through recollection and conceptual association. In the definition, the term ‘*kalpanāpoḍha*’ avoids the fallacy of over-coverage in inference as well as in determinate (so-called) perceptual cognition. And the term ‘*abhrānta*’ avoids over-coverage in erroneous indeterminate perceptual cognition. In the Nyāya system, there is no such cognition as erroneous indeterminate perception. For the Naiyāyikas, *nirvikalpaka* cognition is neither *pramā* nor *apramā* since it is devoid of characterization (*niṣprakāraka*) while *pramātva* or *apramātva* is defined in terms of characterization (*prakāratva*). The Buddhists have not defined *pramā* or *apramā* in that way; hence they can admit the existence of erroneous indeterminate perceptual cognition. Dharmakīrti illustrates such cognitions in *Nyāyabindu*.<sup>92</sup> He says that, due to the defect of the sense-organ (*timira*) we often perceive two moons instead of one; rapid rotation of lighted stick causes an appearance

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<sup>92</sup> *tayā rahitam timirāśubhramaṇanauyānasamkṣobhādyanahitam vibhramam pratyakṣam .6.1. – Nyāyabindu (Pratyakṣa Pariccheda), Dharmakīrti, NB., p.72.*

of a circle of fire; owing to the fast movement of conveyance we perceive the outside static objects as moving; and due to the physical disorder, we perceive fiery pillar. In such cases, the form of the object in front does not match with that of the cognition. One might object that in all these cases errors have happened due to the wrong ascription. We have cognized one moon as two, a point of light as a circle of light, static trees as moving and the pillar as fiery. And ascription is always conceptual – either *anumāna* or *adhyavasāya*, never perceptual. The Buddhists would reply that it is not *anumāna*, since the cognition has not been produced by inferential mark (*trirūpaliṅga*). And of course the conceptual ascription comes at the next level – during *adhyavasāya*. But we have to think about how this *adhyavasāya* has come into being, who is the producer of it and what is the status of the producer of the *adhyavasāya*? The Sautrāntikas say that at the first level an indeterminate perception occurs, which, in turn, causes a determinate cognition at the next level. The form of this indeterminate perception is ascertained by the subsequent determinate cognition. Since they are of the same form, we can say that if the latter is erroneous, the former also is erroneous. Something wrong must have happened at the level of sensation which is reflected at the subsequent determinate level; otherwise the determinate cognition could make the indeterminate perception fruitful (*prāpaka*). But we never get two moons, moving tree, circular fire or fiery pillar at the end of our volition. The illustrations indicate that all those errors were started at the sensation-level. And the defect only in the bottom-up processing has been focused on in this respect. From this bottom-up processing we know the bare existence of *svalakṣaṇa*. And the top-down processing comes with our conceptual storage. It makes us know about the *sāmānyalakṣaṇas*. The Buddhists have set a criterion to determine whether the object of our cognition is *svalakṣaṇa* or *sāmānyalakṣaṇa*. If the clarity (*vaiśadya*) of the cognition is affected by the distance of the object, then the cognition is a perceptual cognition of *svalakṣaṇa*, otherwise it is non-perceptual cognition of *sāmānyalakṣaṇa*. Here, in the illustrated cases of illusion also the distance affects clarity. Hence, here the first level indeterminate cognition is perceptual as well as erroneous.

Now, the form of that erroneous perception does not match with the form of the presented object. Then what is the ontological status of the manifest form? The answer is that there is no corresponding *svalakṣaṇa* in the external world which is supposed to be represented by the manifested form. The form is nothing beyond the cognition itself. Erroneous cognition is the cognition of its own form (*Ātmakhyāti*). Only in this sense, the Sautrāntikas might be categorized under *Ātmakhyātivādins*.

### 3.1.5. Ātmakhyātivāda : Dharmakīrti versus Diñnāga

In the aforesaid exposition of Ātmakhyātivāda, there is a problem regarding those perceptual errors that are not produced out of the sense-object contact such as hallucination or dream. It is dubitable whether there is any indeterminate level (or the level of sensation) in those cases. In spite of that most of the philosophers consider them to be perceptual illusion. Dharmakīrti included the errors due to physical disorder (*saṃkṣobhādi*) etc. in the list of perceptual errors. Dharmottara said that the term ‘*ādi*’ indicates the hallucinations due to over-passion (*gāḍhamarmaprahāra*). But the question arises, is not it completely mental i.e., conceptual (*kalpanā*)? Then how can it be perceptual error (error at the level of sensation)? If we do not give much importance to Dharmottara’s commentary, then we may say that the errors due to the physical disorder crop up affecting sense-organs. But the problem remains in the case of dream. If it is *kalpanā* or cognition of *sāmānyalakṣaṇa*, then it is not perceptual. In that case it will not come under the purview of Ātmakhyāti or perceptual error. But we know that dream is the paradigmatic example of perceptual error for the Ātmakhyātivādins.

Diñnāga, in *Pramāṇasamuccaya*, had included them in the list of perceptual errors. He referred to four kinds of perceptual error (*pratyakṣābha*) – (i) hallucination (*bhrānti*), (ii) determinate cognition of this empirical reality (*saṃvṛtisajjñānam*), (iii) the cognition of the inferential mark (*anumāna*), its result i.e., inference (*ānumānika*), recollection and desire (*smārtābhilāṣikam*), (iv) errors due to the defect of the visual sense-organ (*sataimiram*). Diñnāga denied the existence of indeterminate perceptual error or error in sensation. For him all the errors are conceptual, hence indeterminate cognition is always veridical. So, the term *abhrānta* is unnecessary in the definition of perception.<sup>93</sup> This exposition is more consistent with Ātmakhyātivāda. But Diñnāga is considered to be an Ātmakhyātivādī not because of the fact that he holds that during illusion there is no corresponding *svalakṣaṇa* outside, but because he holds that there is no corresponding *sāmānyalakṣaṇa* outside.

However, we can give a more charitable interpretation of Dharmakīrti’s position and say that the conceptual constructions (*kalpanā*) also come under the purview of Ātmakhyāti since there is no *sāmānyalakṣaṇa* in reality. So, they are errors (never mind perceptual or not). From the ontological point of view, *sāmānyalakṣaṇa* is not *arthakriyākārī*. It is *anartha*. Hence,

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<sup>93</sup> *pratyakṣaṇi kalpanāpodham. 1.3. – Pramāṇasamuccaya (Pratyakṣapariccheda), Diñnāga.*

inference is not *pramā* in virtue of not being *niyatārthapradarśaka*. Dharmakīrti says so only from the empirical point of view. It is to be noticed that we experience definite and particular objects in dream and hallucination. So, we can say that dream and hallucination ‘show’ previously perceived unique particulars (*adhigata svalakṣaṇa*) to be ‘here and now’ from the memories. But these particular elements are re-presented in a new arrangement through conceptual construction. So, the total content is not existent in the external world. It is the form of the cognition itself. In this sense, Dharmakīrti might also be considered to be *Ātmakhyātivādī* in those problematic cases.

However, we have to keep in mind that the Sautrāntikas are not the original propounder of *Ātmakhyātivāda*. At most we can say that the *Sākāra-vijñānavādins* may more or less consistently incorporate this thesis of *Ātmakhyāti* into their own system. The Vaibhāṣikas are a step behind in this respect since they are *Nirākāra-vijñānavādī*. They did not even develop any epistemological system by themselves. And their direct realism is inconsistent with the possibility of perceptual error. However, they hold that the cognition of *sāmānyalakṣaṇa* is illusory in nature since such thing does not exist in reality. So the cognition of *sāmānyalakṣaṇa* does not refer to something external to the cognition. In this trivial sense, they may also be called as *Ātmakhyātivādī*.

However, we shall consider only the *Vijñānavādins* as *Ātmakhyātivādī* in a strict sense and level charges against them.

### 3.1.6 Some Objections:

#### (A) Dream and Waking Experience are Totally Different

In the previous chapter we have mentioned that eminent philosophers like Vidyāranya, Prabhācandra, Jayanta Bhaṭṭa and Vācaspati criticized the Yogācāra *Vijñānavādins*. Here are some other criticisms. It is objected to the *Vijñānavādins* that if there is no real object except our cognition, then why do not we experience anything at anytime in any place? We know that our waking experiences are bound by the limitations of time and space. They follow certain rules such as that of Causality (*deśaniyama*, *kālaniyama*, *kāryakāraṇaniyama*). But our dream-experiences do not have these boundaries. It proves that the objects of our waking experience are independently existing real objects that follow their own rules even against our will. We

cannot create them and make them our slave.<sup>94</sup> Berkeley explained that this rule-governed world-appearance is due to the fact that God (Spiritual substance) is inscribing one after another idea in us following certain design or rule. The Vijñānavādins said that our dreams also abide by those rules of time, space and causality. In dreams we experience specific things at specific time and location. A dreamt tiger makes us equally afraid. Eating causes appeasement of hunger in dream. Dreamt water quenches dreamt thirst. So, in that sense, there is no difference between dream and waking experience. If those rules can work without involving external objects in dream then why will not they work in waking state in similar way? We can assume that even if there is no external thing as the determinant of those rules, our waking experiences remain consistent and rule-governed. They occur depending on the specific occasion of the maturation of the past impressions. However, this thesis has been strongly criticized by the opponent schools. The Vijñānavādins said that *vijñāna* appears as external object. But this sentence is meaningless until the existence of at least one external object is admitted. Moreover, if there were no such thing then there would be no distinction between an illusory cognition and its sublating cognition. The subsequent perception of shell is called 'corrective' on the strength of the fact that there is a real shell in front of us which is not silver. If there is no real silver either, the corrective cognition itself would be illusory and will not be able to correct any other cognition. But the corrective power of the later cognition is proved afterwards when we go and get the shell following its information.

Vijñānavāda cannot explain why some cognition (here, the cognition of shell) produces successful volition and some other (here, the cognition of silver) fails to do so. In order to explain it we have to admit the difference between illusory and veridical experiences. It cannot distinguish veridical waking experience and illusions like dream. We know that dreamt water cannot quench our thirst; illusory silver does not serve any practical purpose. So, the cross-level function of those spatio-temporal and causal rules is not allowed. It proves a level distinction between the veridical and non-veridical cognitions. Vasubandhu argues that that the usefulness of the apprehended objects is held unreal can be explained by the analogy of sinful

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<sup>94</sup> *vijñaptimātramevaitadasadarthābhāsanāt/  
yatha taimirikasyāsatkeśacandrādidarśanam//1//  
yadi vijñaptirānarthā niyamo deśakālayoh/  
santānasyāniyamaśca yuktā kṛtyakriyā na ca//2//  
deśādiniyamah siddhah svapnavat pretavat puṇah/  
santānāniyamah sarvvaiḥ pūyanadyādidarśane//3//* – *Vimśatikārikā, Vijñaptimātratāsiddhi,*  
*Vasubandhu, VMS., p.1-2.*



action in dream or the analogy of hell.<sup>95</sup> Sthiramati explains that in dream, even without the real union of a man and woman, semen is discharged. This and other examples prove the four maxims of spatial and temporal determinations and the like. Rules of hell also prove such spatio-temporal determination.<sup>96</sup> However, the impact of psychological changes on physiology cannot be denied and this has been a puzzle for the philosophers of East and West but neurophysiology may shed some light on the issue pointing out some specific brain-activities always co-occurring with specific psychological changes.

*(B) Agent, Action and Result cannot be the Same Entity*

The fundamental presupposition of the Vijñānavādins is that there is no difference between agent, action and result.<sup>97</sup> Although at the phenomenal level, the knower (*grāhaka*), the known (*grāhya*) and the knowledge (*vijñāna*) appear to be different, they are actually not so. They are only different functions or aspects of the same knowledge. The Naiyāyika Udyotakara rejects this fundamental stake and says that an action can never be identical with its result.<sup>98</sup> In the expression ‘*aham vṛkṣam paśyāmi*’, the cognized entity has been expressed in objective case (*karma kāraṇa*) whereas the cognition has been expressed through a conjugative form of a verb (*dhāturūpa*). So, even if they always appear in the same apprehension, they are distinguishable, hence different.<sup>99</sup>

*(C) The Multifariousness of Experience Remains Unexplained*

The variety of cognitions cannot be explained without accepting various external durable objects. The Vijñānavādins try to explain it admitting the variety of past impressions that are different forms of previously occurred momentary consciousnesses in the beginningless chain (*ālayavijñāna*). But it is not clear that how such momentary consciousness can produce its replica (*santāna*) long after being destroyed. It is not the case that a chain of similar consciousnesses of the same form continues from then to now. Since the previous effects are

<sup>95</sup> *svapnopaghātavat kṛtyakriyā. narakavatpunaḥ// sarva narakapālādidarśane taiśca bādhane//4// – Viṃśatikārikā, Vijñaptimātratāsiddhi, Vasuvandhu, VMS., p.4.*

<sup>96</sup> *yathā svapne dvayasamāpattimantareṇa śukravisargalakṣaṇaḥ svapnopaghātaḥ. evaṃ tāvadanyānyadṛṣṭāntairdeśakālaniyamādicatuṣṭayaṃ siddham.....yathā hi narakeṣu narakānāṃ narakapālādidarśanaṃ deśakālaniyameṇa siddhaṃ..... – Vṛtti of Sthiramati on Vijñaptimātratāsiddhi: Viṃśatikārikā, śloka-4. VMS., pp.4-5.*

<sup>97</sup> *bhūtiryeṣāṃ kriyā saiva kārakam saiva ca ucyate.*

<sup>98</sup> *nahi karma ca kriyā ca ekaṃ bhavāntīti. – Nyāyavārttika (on Nyāyasūtra 4.2.33) of Uddyotakara; ND., p.1082.*

<sup>99</sup> NDP V., p.196.

nothing but the forms of previous consciousness, they are momentary. They cannot endure till the production of perception. Even if it endures, the produced cognition will be considered as recollection since it has been produced only by *saṁskāra*.

*(D) Kumārila's Objections against All-Error Theory*

Kumārila Bhaṭṭa has refuted the argument from illusion in *Ślokavārtika* which is a gloss on Śabarāsvāmī's commentary (*Śabarabhāṣya*) on Jaimini's *Mīmāṁsā-sūtra*. He reformulated the argument like this: waking cognitions like the cognition of pillar are without an objective (external) counterpart since they are also cognitions like dream. Now Kumārila objects that an inference requires that its *pakṣa* and *sādhya* should be established by an independent cognition other than the inference. If no cognition is about anything external to it and all of them are about themselves, then the *pakṣa* (*jāgratpratyaya*) and *sādhya* (*nirālambanatva*) of the above argument cannot be established since, they are only internal forms of those cognitions (which are other than the inference). Hence the thesis is suicidal.<sup>100</sup> The thesis is also against Lord Buddha's teaching. Buddha himself had admitted the existence of external objects in some *sūtras* (such as *Saddharma-sūtra*).<sup>101</sup> *Nirālambanatva* is nothing but *mithyātva* or non-veridicality.<sup>102</sup> Dream cognition is non-veridical since it is subsequently sublated by a waking cognition. When we are awakened, we immediately have a knowledge of the form 'This is not the case' (*naitadevam*). Some waking experiences like illusion and hallucination are also sublated by subsequent waking cognitions. They are also considered to be non-veridical or *nirālambana*. But the veridical cognitions are not sublated by any other cognition. Then why should they be called *nirālambana*? If the Buddhists rejoin that all the waking experiences are sublated by yogic cognitions,<sup>103</sup> then following the argument from illusion we may say that yogic cognitions are also *nirālambana* or non-veridical in virtue of being a cognition (*pratyayāt*). But Buddhists are not supposed to accept such a situation. Hence, they have to recognize the difference between the waking cognition and dream or other illusory cognitions.

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<sup>100</sup> *agrāhyatvācca bhedenā viśeṣaṇaviśeṣyaoh/*  
*aprasiddhobhayatvaṁ vā vācyamanyatarasya vā//35// – Ślokavārtika, Kumārila Bhaṭṭa, SVK II.,*  
*p.42.*

<sup>101</sup> *sarvalokaprasiddhyā ca pakṣabādho'tra te dhruvam/*  
*kṛtsnasādhanabuddhiśca yadi mithyeṣyate tatah//74// – Ślokavārtika, Kumārila Bhaṭṭa, SVK II., p.55.*

<sup>102</sup> *bāhyārthapahnave dvaitameko'rthasya parīkṣanāt/*  
*pramāṇamāśritascaikastatrāstām yaḥ prameyatah//17// – Ślokavārtika, Kumārila Bhaṭṭa, SVK II.,*  
*p.36.*

<sup>103</sup> *tadīyadharmavaidharmyād bādhakapratyayo yatha/*  
*yoginām jāyate buddhirbādhikā pratiyoginī//91// – Ślokavārtika, Kumārila Bhaṭṭa, SVK II., p.59.*

The probans of the argument from illusion is *pratyayatva* or apprehensionhood. Now the question is, does it belong only to dream cognition or only to waking cognition or to both? On the first alternative the *hetu* or probans will not reside in the *pakṣa* or subject (waking cognition) and hence the argument will be vitiated by the fallacy of *svarūpāsiddhi*. On the second alternative the probans will not be present in example, which is not admissible. The third alternative presupposes class cognition because ‘*pratyayatva*’ will then be a common feature of both *types* of cognition. But the Buddhists are *apohavādins*. The Buddhists may say that here ‘*pratyayatva*’ intends to mean ‘*nirālambanapratyayatva*’ or ‘the property of being a cognition having no external counterpart’. In that case the *hetu* and *sādhya* (predicate) will be identical. Moreover, no cognition is devoid of objective counterpart or *nirālambana*, hence such cognition is unestablished (*aprasiddha*). ‘*Nirālambana*’ might be taken either in the sense of the absence of any external substratum (*bāhyārthālambanābhāva*), or in the sense of the absence of appearance (*pratibhāsasūnyatvena*) or the absence of cause (*kāraṇābhāvāt*).<sup>104</sup> The first sense is unacceptable because even dream cognition assumes the form ‘this is blue’ – not ‘I am blue’. The second sense is absurd because in all types of cognition something is appeared or presented. And the cause of even dream cognition is an external object. So, the third sense also is unacceptable. The cause of *alātacakra* is a swift circular movement of a torch. The cause of the illusion of *gandharvanagara* or castle-in-the-air is the similarity of the shape of the cloud with previously perceived real cities.<sup>105</sup> Veridical cognition is different from non-veridical one in that the spatio-temporal reference in non-veridical cognition is contrary to reality.<sup>106</sup> Kumāriḷa says that actually no cognition is *nirālambana*, in the sense that cognition must have its content (*viṣaya*) which has a real counterpart in the objective world. Even what is apprehended in dream is a past real object since nothing can be imagined or dreamt or non-veridically perceived which has not been apprehended in a previous veridical perception. And veridical perception is produced by an appropriate sense-contact with the real object. Kumāriḷa says that the relation between a cognition and its object (*grāhyagrāhakasambandha*) cannot be explained if the *grāhya* is not taken as something real and distinct from the cognition itself.

<sup>104</sup> *tatsamprayogajaiṅ nāma pratyakṣamiti bhāṣitam/ tatrendriyārthasambandhabhedo na paramārthataḥ//20// – Ślokavārtika, Kumāriḷa Bhaṭṭa, SVK II., p.37.*

<sup>105</sup> *Śloka 109-113, Ślokavārtika, Kumāriḷa Bhaṭṭa, SVK II., p.64-65.*

<sup>106</sup> *sarvatrālambanaṅ bāhyaṅ deśakālānyathātmakam/ janmanyekatra bhinne vā tathā kālāntare’pivā//108// – Ślokavārtika, Kumāriḷa Bhaṭṭa, SVK II., p.64.*

However, the Vijñānavādins have answers to these objections. Firstly, all cognitions are self-apprehending (*svasaṁvedya*). So *jāgratpratyaya*, which is the *sādhya* of the offered inference, itself proves its existence in the part of revelation (*svābhāsānīśa*). And the *pakṣa* of the inference, i.e., the property of being without any external substratum (*nirālambanatva*) is established by the apprehension of pain and pleasure, since the pain and pleasure are apprehended as having no external objective substratum. Secondly, even if Lord Buddha had mentioned about *rūpa* etc. external objects, but that was not his conclusive comment. According to the merit and intention of the disciples, Buddha preached different realms of Truth to them.<sup>107</sup> Thirdly, '*nirālambanatva*' is not synonymous with '*mithyātva*'. The Vijñānavādins do not claim that all cognitions are non-veridical. They only say that those cognitions, which project their own forms as external objects, are false. The cognition of our internal states such as self-conscious cognition (*svasaṁvitti*), pain (*vadanā*) etc. are veridical. In addition to it, all cognitions are veridical in their self-revealing part (*svābhāsānīśa*). Remember that according to the Vijñānavādins, *svābhāsa* is *pramāṇa* and *svasaṁvitti* is *pramāṇa-phala*. In spite of being veridical, these cognitions are *nirālambana* since they do not pretend to reveal something external. Fourthly, there is no ontological difference between *jñāna*, *jñeya* and *jñātā*. This tripartite distinction is the result of *avidyā*. Although this distinction has some practical value in this phenomenal world (*samvṛti sat*), but from the absolute point of view it is not real.

### (E) *Vācaspati's Objection against Ātmakhyātivāda*

In Bhāmatī, Vācaspati expressed Ātmakhyātivāda as '*anyatra anyadharmādhyāsa*' or false ascription of one thing (here '*dharma*' means entity) on another, specifically, the false ascription of the *form of consciousness* on *external object*. In the case of the illusion of silver in shell, we falsely ascribe silver on shell. Shell is an external object and silver is nothing but the form of our consciousness. The Sautrāntikas are realists who admit the existence of external objects. But the Vijñānavādins do not admit the ontological reality of external object. For them, external objects are imagined on account of *avidyā* and *saṁskāra*. So, for the Sautrāntikas, Ātmakhyāti is ascription of form of consciousness (silver) on a real external object which has a different form (shell); and for the Vijñānavādins, Ātmakhyāti is ascription of form of consciousness (silver) on an imagined external object (shell) which is unreal as an

<sup>107</sup> *rūpadyāyatanāstitvam tadviśayaajñānaṁ prati/ abhiprāyavaśāduktamūpapādakasattvavat // 8 //– Viṁśatikārikā, Vijñaptimātratāsiddi, Vasuvandhu, VMS., p.8.*

external object although it is real as an internal form of subsequent shell-cognition. However, that the ascribed object is nothing but a form of consciousness is confirmed by the subsequent sublating cognition ‘This is not silver’ (*nedam rajatam*). But the sublating cognition does not sublimate silver but only its ‘thisness’ (*idantā*), which indicates its externality (*bāhyatva*). Following the law of parsimony the Vijñānavādins say that if a phenomenon can be explained by admitting the sublation of only the attribute, there is no need to admit the sublation of its possessor because that would imply the sublation of both the *dharma* and *dharmī*. Here, we can explain the phenomenon of illusion by admitting only the sublation of the externality of silver, so sublation of silver is unnecessary. This way, only the externality of silver is repudiated by the correcting cognition and silver is established as an internal form (*jñānākāra*).

Now, Vācaspati objects that how can the silver be proved or determined to be the form of consciousness – perceptually or inferentially? If perceptually, then what is the form of that perception – ‘This is silver’ (*rajatapratyaya*) or ‘This is not silver’ (*bādhakapratyaya*)? The illusion of silver (*rajatapratyaya*) itself cannot present silver as an internal form, rather it does the opposite. Otherwise it would be expressed as ‘Silver is consciousness’ or as ‘Consciousness is silver’ or as ‘I am silver’ (*aham rajatam*) [since, there is no Self over and above momentary consciousnesses]. Hence, it must be the *bādhakapratyaya*, which can do it. But Vācaspati says that by analyzing the sublating cognition we can understand that it only discloses the difference (*na*) between silver (*rajatam*) and the object present in front (*idam*). It never shows that silver is an internal form. And that the silver is not present in front does not prove that it is a form of consciousness. It might be present somewhere else in the external world. Hence, it is not established that silver is a form of consciousness.<sup>108</sup>

Now the Ātmakhyātivādins might say that the internality of silver is known to us through inference. Those which are unfailingly co-apprehendable are not different from each other. Since cognition and its object are so, they are not different. Hence, appeared silver is the form of consciousness. Śāṅkara says that it is true that whenever colour is grasped through the eyes light also is grasped. In that case we have to admit the co-apprehension of colour and light. But that does not imply the identity of colour and light. We all know that they are different. Similarly even if we admit that whenever an external object is grasped its cognition also is

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<sup>108</sup> *Bhāmānī on Adhyāśabhāṣya.4, Vācaspati Miśra, VDBP., pp.92-93.*

experienced (the Naiyāyikas do not admit it because according to them *anuvyavasāya* may not occur even if there is *vyavasāya*), this co-apprehensibility does not imply that cognition and cognized object are identical. This co-apprehensibility is due to their being cause and effect (*upāya-upeya bhāvarūpa*) or their being apprehendable and apprehender (*grāhya-grāhaka bhāvarūpa*) – not due to their being identical. Light is a necessary condition for the apprehension of colour. That is why they are co-apprehensible. In the same way there is a relation of apprehendable and apprehender (*grāhya-grāhaka bhāva*) between external object and its cognition. That is why they are co-apprehended. Hence co-apprehension does not prove identity of co-apprehended objects.<sup>109</sup>

But here we can say that the internality of silver is of course known inferentially although not by the mark of co-apprehendability (*sahopalambha*). It is obtained by the inference through residuum (*pāriśeṣya nyāya*) or by the inference by elimination. The simple argument is as follows. In an illusory situation (say, in the case of silver-shell illusion) the structure of awareness involves only three elements – (i) the form of consciousness or the content of awareness (silver); (ii) the external object (shell); and (iii) the consciousness itself. When the corrective cognition ascertains that there is nothing in the external world as ‘silver’, then it is automatically suggested by the process of elimination that if the silver-form is not the property of anything ‘outside’, it must be ‘in’ us. Since it has appeared to us, we cannot deny its existence altogether. Therefore, we conclude, it is existent as an internal form of consciousness. So far, it is the Sautrāntikas’ standpoint. Vijñānavādins extend their domain of illusory cognition and with the help of the Argument from Illusion they say that all cognition is illusory. We cannot realize the illusory nature of illusion when we are in illusion. So, remaining within the domain of this phenomenal world, it is not easy to realize the illusory nature of *saṃvṛti sat*. Experiential evidence cannot prove it because here the experience of this world itself is the main suspect. So, the argument from illusion is based on pure logic. It says that we cannot deny the logical possibility that all our experiences of the external world are illusory because we cannot prove them to be true beyond doubt. Experience should not be taken as the remover of doubt. It could be contradicted on some later occasion. Only unrefutable logical argument can lead us to the truth. Here one may object that mere logical possibility of All-Error Theory cannot prove that all cognitions are erroneous in actuality. We

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<sup>109</sup> *ataeva sahopalambhaniyamah api pratyayaviṣayoḥ upāyopeyabhāvahetukah, na abhedahetukah iti abhyupagantavyam. – Śāṅkarabhāṣya on Brahmaśūtra ‘nābhāva upalabdheḥ’ - 2.2.28 (Adhyāya.Pāda.Sūtra), VD II., p.422.*

can imagine many things without involving logical contradiction. Those imaginations are logically possible; nevertheless they are not actual states-of-affair. Here the Vijñānavādins would reply that there is no independent way to determine which one is actual state-of-affair and which is not. Experience, in virtue of being an experience, cannot say anything final. In such a situation, a logician should subscribe to that explanatory system which is lighter than the other alternative systems. Those who rely on the report of experience cannot show any reason behind their reliance. At most they can provide a pragmatic reason which itself is a gigantic illusion. The internal design is projected as an outside design. It makes us to believe that there must be an independent real world which determines our success or failure in cognition-initiated-activity. So, we can see that although the realist camp has many things to say against such an idealist position, nevertheless, the logical force of such position cannot be ignored.

*(F) Nyāya Objection against All-Error Theory: Arguments from Parasitism*

The Vijñānavādins consider doubt a legitimate default position in the space of reason. But the Naiyāyikas hold that epistemic trust is the proper default situation. In spite of the possibility of error our knowledge sources directly connect us with a mind-independent external world.

In support of the 'default trust' and a 'ground-level realism' the Naiyāyikas provide several arguments. M.R. Dasti collectively calls them 'arguments from parasitism'. The view that error metaphysically depends on truth but truth does not metaphysically depend on error is called the *asymmetric dependence* of error on truth or the *parasitism* of error on truth. These arguments are meant to prove that error presupposes veridical cognition, and this, being the case, we cannot even engage in philosophical reflection and critique unless we appeal to a background of true belief and a baseline cognitive connection with the real world. Hence trust is the correct default epistemic attitude. One method of supporting this trust is to say that the default doubt stultifies us, undermining our pursuit of various worthy goals in life. The doubt undercuts the ability to function – hence is pragmatically undesirable. But the argument from Parasitism makes no such appeal to pragmatic consideration. It establishes the primacy of veridical cognition based on logic and hence it is among the more powerful theoretical planks in the Nyāya position. The upshot of this argument is that illusion and cognitive misfires of other sorts are parasitical on veridical experience. Error presupposes veridicality, and therefore, unless we conceive of our cognitive faculties as having some core connection to

truth, we lose the very basis by which we may understand and reflect upon error states. So, it is right to start with an ‘innocent until legitimate doubt’ approach.

Arguments from Parasitism have several forms. Dasti discusses three different forms of it. They are – (I) Epistemic Parasitism, (II) Causal Parasitism and (III) Parasitism of Content or Meaning. Let us discuss them one by one. Then we shall discuss other allied arguments.

*(I) Epistemic Parasitism:*

In response to a Buddhist interlocutor, who contends that everything exists in a state of flux, and therefore that all cognitions of enduring things are false, Uddyotkara argues that false cognitions are imitations of correct cognitions, therefore, the opponent must provide some example of correct cognition.<sup>110</sup> False experience as of an enduring thing imitates or conforms to some true experience of an enduring thing. The interlocutor must explain what kind of original, veridical experience could have generated the concept of an enduring thing, which we are said to then mis-ascribe to fluctuating streams. Uddyotkara argues further that all false cognitions imitate primary cognitions. You must state original cognitions upon which the false ones are based. For we never find such a difference between imitators and genuine things without an original, as seen in the case of mistaken cognition of a post as a man. There being an existing post, one has the cognition ‘this is a post’ regarding a person. Or there being a man, a post is mistaken for a man.<sup>111</sup> Uddyotkara argues that the post-man-illusion, in which concept V is wrongly deployed in reference to an existing object d, requires that concept V be generated by prior veridical experience of something V.

In his commentary on *Nyāyasūtra* 2.1.36,<sup>112</sup> Vātsyāyana confronts a mereological nihilist, who argues that perceptual experience as of composite wholes is an error owing to ignorance of minute differences amongst micro-entities. As a forest is merely a collection of trees or an army is a collection of soldiers, composite wholes are nothing more than heaps of micro-entities. In response Vātsyāyana again appeals to the conceptual dependence of error upon the

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<sup>110</sup> *mithyā-pratyayāśca samyak-pratyaya-anusāreṇa bhavanti iti kvāmī samyak-pratyayā bhavanti iti vaktavyam.* – *Nyāyavārttika on Nyāyasūtra-2.1.16*, Uddyotkara, ND., p.436.

<sup>111</sup> *sā ca pradhānamantareṇa na bhavati. sarvā etā mithyābuddhayaḥ pradhānānukāreṇa bhavantīti pradhānāni vaktavyam. nahi nispradhānāni bhāktāni dṛṣṭāni sthāṇupuruṣavadīti – yathā sthāṇau satī puruṣe sthāṇurīti buddhiḥ, puruṣe vā satī sthāṇau puruṣabuddhirīti.* – *Nyāyavārttika on Nyāyasūtra-2.1.16*, Uddyotkara, ND., p.483.

<sup>112</sup> *senāvanavadgrahaṇamīti cennāṅdriyatvādaṅṅinām.* – *Nyāyasūtra-2.1.36 (Adhyāya.Āhnikā.Sūtra)*, NDP II., p.170.



veridical. He says that if there is an experience as of a single thing owing to non-perception of the differences between atoms – which are in truth separate and various, then such is a case of erroneous cognition, like the cognition of a post as a man. And as a false cognition of something as something else depends on the original, it establishes the original. In the case of post-man illusion the original is the perception of man as a man, because in comparison to such a veridical perception one apprehends the similarity with the illusory perception. Since the Buddhists hold that the experience as of a composite whole is always fallacious, there is no original veridical experience to which the error in question can be compared and found wanting, they cannot provide an adequate account of the error that they cite.<sup>113</sup>

Here the basic principle is that falsehood presupposes true cognition. If there is no veridical cognition, illusion or error does not make sense at all. Similar argument is found in the fourth book of *Nyāya-sūtra* (4.2.31).<sup>114</sup> Here the interlocutor, apparently a Mādhyamika Buddhist, argues that appeal to *Pramāṇas* does not prove the existence of things. The opponent Buddhist says that the notion of knowledge sources (*pramāṇas*) and objects of knowledge is akin to that of dreams and their objects. As the objects within dreams are false but taken to be real, so, too, are the *pramāṇas* and their objects. Vātsyāyana replies that it is only because the experience of something can establish its non-existence. And if in both states (waking and dreaming) the objects of experience did not exist, then non-experience would have no power to prove anything.<sup>115</sup> We know that dream-objects are false because upon waking we no longer perceive them. Our non-experience proves the absence of dream objects. The non-experience informs us that the dream-objects do not exist. But that the non-experience is an evidence in favour of the non-existence of objects depends on the fact that the experience of the objects can establish their existence.<sup>116</sup> I know that there is no elephant in my office because if there

<sup>113</sup> *nānābhāve cāñūnām pṛthakatvasyāgrahaṇādbhede naikamitigrahaṇamatasmimstaditi pratyayo yathā sthāṇau puruṣa iti. tataḥ kim? atasmimstaditi pratyayasya pradhānāpekṣitatvāt pradhānasiddhiḥ. sthāṇau puruṣa iti pratyayasya kim pradhānam? yo'sau puruṣe puruṣapratyayaḥ, tasmīn sati puruṣasāmānyagrahaṇāt sthāṇau puruṣo'yamiti. evaṁ nānābhūteṣvakamiti sāmānyagrahaṇāt pradhāne sati bhavitumarhati, pradhānaṅca sarvvasyāgrahaṇāditi nopapadyate, tasmādabhinna evāyamabhedapratyaya ekamiti. – Bhāṣya of Vātsyāyana on Nyāyasūtra-2.1.36, NDP II., p.177-178.*

<sup>114</sup> *svapnaviśayabhimānavadayaṁ pramāṇaprameyābhimānaḥ – Nyāyasūtra-4.2.31, ND., p.1076.*

<sup>115</sup> *hetvabhāvādasiddhiḥ – Nyāyasūtra-4.2.33, ND., p.1077.*

<sup>116</sup> *pratibodhe'nupalambhāditi cet? pratibodhaviśayopalambhādapratīṣedhaḥ. yadi pratibodhe'nupalambhāt svapne viśayā na santīti, tarhi ya ime pratibuddhena viśayā upalambhyante upalambhātsantīti. viparyaye hi hetusāmarthyam. upalambhāt sadbhāve satyanupalambhādabhāvaḥ siddhyati, ubhayathā tvabhāve nānupalambhasya sāmartyamasti, yathā pradīpasyābhāvadrūpasādārśanamiti, tatra bhāvenābhāvaḥ samartyate iti. – Bhāṣya of Vātsyāyana on Nyāyasūtra-4.2.33, ND., p.1078; NDP II., pp.159-164.*

were an elephant, I would see it and its existence would be proved. Analogously, if we did not take our enduring experience of objects in the waking state to be sufficient *prima facie* proof that they exist, the non-existence of dream objects would not suffice to indicate that they do not exist in the waking state. The cognitive distinction between dreams and waking awareness, upon which the objector's analogy rests, would be undermined by his very thesis.

A reconstruction of Vātsyāyana's argument is as follows:

1. The experience of external objects (by way of *pramāṇas*) is false and misleading, akin to the experience of dream objects (hypothesis for *reduction ad absurdum*).
2. Dream objects are known to be false only in contrast with real objects, experienced in waking life (as apprehended by *pramāṇas*).
3. If we do not experience real objects in waking life, we do not know dream objects to be false.
4. We do know dream-objects to be false.
5. Therefore, we do (generally) experience real objects in waking life (by way of *pramāṇas*).

Here the conclusion contradicts Premise 1, which, as the weakest of the premises, is rejected. The 'Parasitism' premise is Premise 2, and it bears the most dialectical weight in the argument. This version of the Parasitism argument is epistemic. Knowing error is parasitical upon knowing truth.

### (II) Causal Parasitism:

Later, Vātsyāyana provides another kind of argument from parasitism. He argues that miscognition of something (causally) depends upon an original. The cognition of a post as a person depends upon an original. Indeed, no post would be misperceived as a person if a person were never experienced in the past. Clearly, here the parasitism is causal. The illusion of post as a person requires the deployment of the concept of person. And the concept 'person' would not have created if there were no (prior) experience of actual person. This argument is tied to Nyāya empiricism. Nyāya theory of error is a theory of misplacement (*anyathākhyāti*). False cognition generally involves the mis-ascription of concepts generated in past experience to something perceived presently. In error the wrong concept is deployed in reference to the object of current experience, leading the prediction portion of cognition (*viśeṣaṇa*) astray. Without some direct cognitive contact with reality the wrong concept would not have been created and deployed through memory.

However, this argument from Causal Parasitism is not strong enough to reject idealism preached by Vasubandhu. All that is needed to generate the concept of x (say, 'person') is a previous experience of x – whether veridical or not. Here the Buddhist will imagine a beginningless chain of false cognition of x. Dasti acknowledges that Causal Parasitism is not as effective as the Epistemic or Semantic Parasitism against the Idealists.

*(III) Parasitism of Content or Meaning:*

Uddyotkara introduces a third kind of Parasitism argument – a parasitism of meaning. The opponent interlocutor contends that there are no external objects – only consciousness exists. Uddyotkara argues that given such a view, the opponent has to account for the 'content' of the concepts or words deployed in states mistakenly thought to reveal an external world.

If the opponent claims that consciousness takes the form of words, then he has to explain what is meant by 'form'. When something is mistaken for something else owing to similarity, it is said to share its form. Given the opponent's position, however, words do not exist, and therefore the statement 'awareness takes the form of words' is meaningless.<sup>117</sup>

In this context Uddyotkara claims that in the absence of a mind-independent, shared world the opponent would be unable to argue his case, since we only experience the content of other's thought by means of external intermediaries, such as sense-organs, air etc. in response the opponent may claim that consciousness simply takes the form of speech. That is, we may have awareness of words in an entirely idealist framework, much as we may have conscious states that resemble things like trees or rocks. Uddyotkara's claim is that for conscious states to 'take the form' or resemble something else, there must indeed be some other thing which they appropriately resemble or target. If not, it makes no sense to speak of them as 'taking the form' of anything. The opponent here contends that due to differences in karmic influence, people have different experiences, as of a river, without need for an external object to 'ground' their experience.

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<sup>117</sup> *atha śabdākāraṃ cittam pratipadyate? tenāpi śabdākāraṃ cittamityākārārtho vaktavyaḥ. ākāro hi nāma pradhānavastusāmānyādatasmimstaditi pratyayaḥ. na ca bhavatpakṣe śabdo vidyata iti śabdākāraṃ cittamiti nirabhidheyam vākyam. – Nyāyavārttika on Nyāyasūtra-4.2.34, Uddyotkara, ND., p.1084.*

Uddyotkara responds that if so then the opponent must be asked how consciousness arises in that very form (the form of specific objects). If consciousness takes the form of blood, then the opponent must explain what blood is. Similarly the form of water or river must be explained. In the sentence, ‘they see a river of pus’, each word, when examined individually, is found to be meaningless, if there are no real external objects.<sup>118</sup>

So, concepts, if divorced entirely from engagement with external reality, lose their content. Having an illusion of blood requires that we be able to deploy the concept of blood. But if we have never had the appropriate kind of interaction with blood, we would not have the concept of blood. Interaction with external object is logically prior to the fact that a word has a semantic content. So, without such interaction with ‘real’ external object, the relevant word would be drained of meaning.

### (G) Allied Arguments

Dasti mentions three other allied (non-parasitical) arguments those establish the dependence of erroneous cognition on something real cognitive mechanism or on *pramāṇa*.

#### (I) Argument from Causal Network

Error states require external, real causal mechanisms that undergird cognitive processes. There must be some identifiable causal systems that account for the existence and nature of the error. Mirages of water arise out of the causal relations between sunrays, the Earth, and a viewer’s perceptual organ. So, anti-realism is untenable.

#### (II) Argument from Probative Force

Some kinds of dependence on *pramāṇas* are required for rational reflection and communication. Therefore, even an ardent skeptic must begin from a position of epistemic trust. The skeptic’s rational persuasion itself requires appeal to trusted sources of knowledge. Without recognition of knowledge-delivering *pramāṇas* of some kind, skeptic’s argument gains no traction.

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<sup>118</sup> *smṛtisaṅkalpavacca svapnaviṣayābhimānaḥ – Nyāyasūtra-4.2.34, ND., p.1083.*

*asati bāhye vijñānameva tatheti bruvāṇaḥ praśavyo jāyate kathaṁ tatheti. yadi rudhirākāraṁ vijñānam? rudhiraṁ tarhi vaktavyaṁ kiṁ rudhiraṁ. evaṁ jalākāraṁ nadyākāraṁ ca vaktavyam. pūyapūrṇāṁ paśyantīti ca vākyasya padāni pratyekaṁ vicāryamāṇāni rūpādiskandhābhāve nirviṣayāṇi bhavanti. – Nyāyavārttika on Nyāyasūtra-4.2.34, Uddyotkara, ND., p.1085.*

(C) Argument from Language

The institution of language, which a skeptic unreflectively and trustingly employs, presupposes the proper functioning of knowledge-sources of various kinds – such as memory and inductive generalization.

Given all the arguments above, the Naiyāyikas did not attempt to stand outside the deliverances of *pramāṇas* in order to critique them. Such is not possible because then one would lose the very resources for rational reflection altogether. Rather Nyāya articulates a theory of default trust in *pramāṇas* and critique individual cognitions as the need arises. As attacks are marshaled against the *pramāṇas* system, the Naiyāyika's dialectical position is that they will show that the challenger himself is subtly relying on *pramāṇas*, though without acknowledging it, and thus is guilty of self-referential incoherence. Default trust in cognition and a fundamental realism are thus woven together in a host of arguments that appeal to Parasitism of various kinds.

We find an echo of this argument from Parasitism in Martin (2009). There he says, “In any case of perfect illusion or hallucination, we can explain its character by reference to the case of veridical perception, and we cannot give an explanation of what it is like except by implicit reference to the kind of veridical perception from which it is indistinguishable.”<sup>119</sup>

We find similar argument in Śāṅkarabhāṣya also. With reference to Dīrṅnāga's comment that internal content appears *as* external object (*bahirvadavabhāsate*). Śāṅkara says that without a real external object we cannot apply it as an instance (*drṣṭāntaprayoga*). We may say that the objects are experienced in externality but we should not say that internal contents are experienced *as* external object when there is no external object. We do not say that Viṣṇumitra (a person) appears as a son of a barren woman. If we do so then the existence of external object is presupposed and indirectly proved.<sup>120</sup>

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<sup>119</sup> As quoted by Matthew R. Dasti in “Parasitism and Disjunctivism in Nyāya Epistemology” (*Philosophy East and West*, Volume 62, Number 1, January, 2012, 1-15).

<sup>120</sup> “*yadantarjñeyarūpaṁ tat bahirvadavabhāsate*” *iti. te api lokaprasiddhāṁ bahiravabhāsamānāṁ saṁvidāṁ pratilabhamānāḥ pratyākhyātukāmāśca bāhyam arthaṁ 'bahirvat' iti vatkāraṁ kurvanti. itaratha hi kasmāt 'bahirvat' iti brūyūḥ? nahi Viṣṇumitraḥ bandhyāputravat avabhāsate iti kaścit ācakṣīta. tasmāt yathānubhavaṁ tattvam abhyupagacchadbhiḥ 'bahireva avabhāsate' iti yuktaṁ abhyupagantuṁ, na tu 'bahirvad avabhāsate' iti. Śāṅkarabhāṣya on Brahmasūtra 'nābhāva upalabdheḥ' - 2.2.28 (Adhyāya.Pāda.Sūtra), VD II., p.418.*

### 3.1.7. Passage to Asatkhyātivāda

However, it seems that the Vijñānavādins have left their logical enterprise half-done. They held that the existence of the internal states is self-revealed. It implies that they are experientially disclosed – not entailed as a logical conclusion. Then should we admit their existence? The Sarvaśūnyatāvādins ask this question. They carry on the logical enterprise unto the conclusion that there exists nothing – not even the cognitions. According to these strict Asatkhyātivādins, the ultimate reality is *niḥsvabhāva śūnya* or Pure Non-being.

## 3.2. *Asatkhyātivāda*

### 3.2.1. Different Versions of Asatkhyāti

Now let us turn towards Asatkhyātivāda. ‘*Asatkhyāti*’ means ‘revelation of unreal’. In the context of the theories of illusion Asatkhyātivāda says that what is revealed in erroneous cognition cannot be real even partially. If it were so, the cognition would not be erroneous. Hence, it is completely unreal. There are different varieties of Asatkhyātivāda.

- According to the *Naiyāyikas*, three things are relevant in the context of a determinate erroneous cognition like the shell-silver illusion: (i) the locus (*adhiṣṭhāna*) of the illusion (shell), (ii) that which is falsely ascribed (*aropya*) to the locus (silver) and (iii) the relation (*sambandha*) between the locus and the ascript (relation of inherence). In the Nyāya terminology, these three elements of determinate cognition are called *viśeṣya*, *prakāra* and *samsarga* respectively. According to Vācaspati Miśra’s version of Anyathākhyāti, *śukti-anuyogika rajata-pratīyogika samavāyasambandha* is unreal. Although an absolutely unreal object cannot be perceived, but an unreal relation, being tagged with real relata (*saduparakta asat*) can be perceived. Since this version of Anyathākhyāti admits revelation of unreal (relation), we can take it as a variety of Asatkhyāti.

- *Madhvacārya’s Abhinava-anyathākhyātivāda* holds that in the illusory perception of silver in shell, shell is present in front of the cognizer, so it is real. But the apparent silver is sublated by subsequent corrective cognition, hence it is unreal. The unreal silver, as being tagged with a real locus, is perceived in illusion. Since the theory holds that unreal object can be superimposed only on a real substratum, the theory is named as ‘*Saduparakta Asatkhyātivāda*’.

• *Asatkhyātivāda in the Strict Sense: the Ānupalambhikas* – There was an ancient atheist Buddhist school which held that everything is unreal. This school was familiar in the name of Sarvaśūnyatāvādī or Nihilist. Vātsyāyana, in his commentary on *Nyāyasūtra*, has referred to this school as *Ānupalambhika*. ‘*Upalambha*’ means perception. Those who deny not only the veridicality of perception but also the existence of such cognition are called *Ānupalambhika*.<sup>121</sup> These nihilists (*śūnyavādī*) are *Asatkhyātivādī* in the strict sense. Going a step further than the *Vijñānavādīns*, they say that there is neither any cognizable external entity, nor any cognitive mental state. In support of this theory that there is nothing (*sarvam śūnyam*), Mādhavācārya has presented an argument in *Sarvadarśanasamgraha*.<sup>122</sup> After the shell-silver illusion when the corrective cognition occurs in the form ‘This is not silver’ then we realize that neither in dream nor in the waking state the silver has been perceived actually. This way the existence of the silver-appearance, as a whole, is denied. If we had experienced silver actually, then all its parts would be existent – the perceptual action, the locus of perception (*idamākāra śukti*), the superimposed entity (*rajatatva*) and the relation of inherence between them. And if any one part of the whole process is non-existent (*asat*), then the whole appearance with the other parts would also be non-existent. In cognitive process, the cognition (*jñāna*), the cogniser (*jñātā*) and the cognized (*jñeya*) are interdependently existent. If any one section is non-existent, the other part also will be non-existent. The *Sautrāntikas* say that illusory silver is *asat* as an external object. The *Vijñānavādīns* say that whatever is cognized as external object are *asat* since there is no external object. All cognition of external object is illusory. Now, if any one part of such illusion is *asat*, then how can the other part (i.e., the cognition itself) be existent? Hence, extending the *Vijñānavāda* position towards completeness, *Asatkhyātivādīns* conclude that not only the external objects but also internal states are *asat*.

### 3.2.2. *Do the Mādhyamikas Propound Asatkhyātivāda?*

Here one important relevant issue might be called for attention. In most of the non-Buddhist texts, the *Śūnyavādīns* or the *Mādhyamika* school of Buddhism has been considered as *Asatkhyātivādī* in the strict sense of nihilism. Perhaps, the term *śūnya*, which literally means void or nothingness, is the cause of such misunderstanding. However, in the philosophy of the *Mādhyamikas*, this term has been taken in a technical sense. The *Mādhyamikas* differentiate

<sup>121</sup> *athedānīmānupalambhikaḥ sarvam nāstīti manyamāna āha.... – Bhāṣya of Vātsyāyana on Nyāyasūtra-4.2.18, NDP V., p.108.*

<sup>122</sup> *Sarvadarśanasamgraha: Bauddhadarśanam (2), Mādhavācārya, SDS., pp.28-30. (line.143-188).*

ultimate reality (*pāramārthika sat*) from the conventional truth (*saṃvṛti sat*) or the world of appearance (*prapañca*). Both of these realities are called *śūnya*, although in different senses. They say that within our categories of intellect we can know the objects in four alternative ways – *sat* or existent, *asat* or non-existent, both *sat* and *asat* or none of them. But the ultimate reality (*paramarthasattā*) cannot be described by any of those four alternatives. Hence, it is indescribable (*avyākṛta*) and devoid of four alternatives (*catuṣkoṭivinirmukta*). That is called *śūnya*.<sup>123</sup> Using powerful dialectic (*dvāndīka*) the Mādhyamikas show that all the concepts, applied in this world of appearance, are self-contradictory. Thus the rule of causal connection (*kāryakāraṇatattva*), Self (*Ātmā*), Time (*kāla*), Space (*deśa*), Motion (*gati*), God (*Īśvara*), creation (*utpatti*), destruction (*vināśa*), the objects of experience (*vastu*), even the Four Noble Truths and *Pratītyasamutpādatattva* are relative and dependent on other conditions. They have only conditional existence. And when we consider them from all perspectives, self-contradiction arises. So, the exact ontological status of the world of appearance cannot be determined. That is why it is called *śūnya* or *niḥsvabhāva*. *Śūnya* does not mean absolute unreal (*atyanta asat*) since, negation is always relative to some affirmation. So, this world of appearance (*saṃvṛti sat*) is not absolutely non-existent but only relatively existent. Hence, Mādhyamika Śūnyavadins are not the Ānupalambhikas who hold that all the objects of cognition are Pure Non-being. Rather the Mādhyamikas have to refute this nihilist position in order to secure the thesis that reality is devoid of four alternatives, because the second among those four alternatives is *asat* or the Pure Non-being.

### 3.2.3. Objections against the Ānupalambhikas

However, from the previous section, it becomes clear that Sarvaśūnyatāvāda depends on Vijñānavāda. So, the refutation of the latter is sufficient for the denial of the former. Maharṣi Gautama in *Nyāyasūtra*, Udyotkara in *Nyāyavārtika*, Kumārila in *Ślokavārtika* and Vācaspati Mīśra in *Nyāyavārtikatātparya* and *Bhāmānī* have taken the same strategy in refuting Asatkhyātivāda. Their arguments against Vijñānavāda are also applicable against Asatkhyātivāda. However, the Vijñānavādins argue against Asatkhyātivāda that if all cognition is equally *asat*, then how the defenders (*pūrvapakṣa*) will prove their own thesis? Hence their stand is a self-defeating one. Those who deny the existence of perceptual self-conscious

<sup>123</sup> *atastattvam sadasadubhayānubhayātmaka catuṣkoṭivinirmuktam śūnyameva. – Sarvadarśanasamgraha: Bauddhadarśanam (2), Mādhavācārya, SDS., p.29. (line.158-159).*



cognition cannot prove anything.<sup>124</sup> The realist Indian philosophers say that Sarvasūnyatāvāda cannot be an account of illusion or even hallucination. A coin is fake only if there is a true coin. Jayanta Bhaṭṭa criticizes Asatkhyātivāda in *Nyāyamañjarī*. He objected that what could be the object of illusion? If it is an object existing in some other time and place, then the doctrine will be nothing but Viparītakhyātivāda. It cannot be an absolutely non-existent object because such thing never appears in consciousness. It may be objected that through the intensity of the subconscious impression, sometimes even a non-existent thing appears in consciousness. But in reply it would be said that for the possibility of such situation there has to be a real object. A subconscious impression is nothing but the vestige left by the previous perception of a *real* object. If we admit that some other kind of impression (*vāsanā*) produces the cognition of a non-existent object (not a residuum of the perception of a real object), then why should it produce the cognition of silver and not that of a sky-flower? Which factor regulates the operation of such an impression? Moreover, an absolutely non-existent object can never appear in consciousness, nor can it induce a person to exert himself to get hold of it.<sup>125</sup>

In *Prameyakalamārtaṇḍa*, Prabhācandra argues that according to Asatkhyātivāda there is neither an external reality nor a subjective cognition. If so, then there is neither any variety in external objects, nor any variety in cognitions. So, there cannot be any variety in illusion. But this variety is an experientially established truth. Hence, the doctrine of Asatkhyāti is unwarranted.<sup>126</sup>

The *Śūnyavādins* hold that *avidyā* is the cause of illusion, which manifests a totally non-existent thing with the help of previous effect or *vāsanā*. Now Vācaspati argues that if *avidyā* is the power to manifest illusory object (*asatprakāśanaśakti*) then the object is the agent or *śakya*. But if the *śakya* is inexistent the relation between *śakti* and *śakya* cannot be satisfactorily explained. And it is also not acceptable that the objects do not have the capacity to be manifested while the respective cognitions give rise to the appearance of the unreal

<sup>124</sup> *apratyakṣopalambhasya nārthadrṣṭiḥ prasidhyati – Dharmakīrti* (as referred by *Sāyana Mādhavācārya* in *Sarvadarśanasamgraha: Bauddhadarśanam* (2), SDS., p.30. (line.183))

<sup>125</sup> *Asatkhyātibhāvākṣepaḥ, Nyāyamañjarī, NMS I., p.164.*

<sup>126</sup> *asataḥ khapuspādivatpratibhāsāsambhavāt. bhrāntivaicitryābhāvaprasaṅgasca; na hyasatkhyātivādinō'rthagataṁ jñānagataṁ vā vaicitryamasti yenānekaprakārā bhrāntiḥ syāt. tasmātpramāṇaprasiddha evārtho vicitrastatra pratibhāti. – Prameyakalamārtaṇḍa, Śrī Prabhā Chandra, PKM., p.49.*

through that capacity called Nescience or *Avidyā*.<sup>127</sup> Unreal cannot be a term of causal relation. Vācaspati argues, is the *asatprakāśanaśakti* real or unreal? If it is unreal is it effected or only made known by it? It cannot be effected since that is unintelligible in the case of the unreal.<sup>128</sup> Neither it is knowable because when the external object is not present then the cognition should be knowable. But we do not find an extra knowable cognition in the place. And even if we admit it there will be an infinite regress of an infinite series of knowable cognitions. Now if you say that the *śakti* is real and it is the essence of cognition, then we shall ask what is the relation between real (cognition) and unreal object? If you say that the relation is of ‘determination’, then we shall say that we should not take help of something unreal to determine the nature of real cognition. Unreal cannot have the power of helping this way. If it had power, it would not be unreal. Nor an unreal object can be a locus of such power.

So, we have seen that although Ātmakhyāti and Asatkhyāti tried to formulate a conceptually consistent or coherent philosophical structure but in respect of the question of what really happen in illusion, they utterly fail. Their account of illusion or hallucination is guided and directed by metaphysical presuppositions which are far from our commonsensical notion of this world. Even if we admit that philosophical speculations should not be biased by commonsensical notion of the world (which is expected to be a version of realism), they should be out and out logical, but the abovementioned objections show that there are logical or conceptual shortcomings in these two theories.

### 3.3. *Anirvacanīyakhyātivāda*

The theory of illusion, advocated by the Advaita Vedāntins is named *Anirvacanīyakhyātivāda*, which says that the metaphysical status of the illusory silver in a shell-silver illusion is neither absolutely real – since it is sublated by a subsequent true perception of shell, nor is absolutely unreal – since it is appeared to us. It has a different degree of reality – uncategorizable or

<sup>127</sup> *na ca viśayasya samastasāmarthyasya virahe api jñānaṁ eva tat tādṛśaṁ svapratyaya-sāmarthyāsāditādr̥ṣṭāntasiddha-svabhāvabhedam upajātam asataḥ prakāśanam, tasmāt asatprakāśana-śaktiḥ eva avidyā iti sāmpratam; – Bhāmatī on Adhyāśabhāṣya.3, Vācaspati Miśra, VDBP., pp.70-71.*

<sup>128</sup> *yato yenamasatprakāśanaśaktirvijñānasya kiṁ punarasyāḥ śakyam? asaditi cet, kim etat kāryam āhosvidasyajñāpyam? na tāvat kāryam asatastattvānupapatteḥ. – Bhāmatī on Adhyāśabhāṣya.3, Vācaspati Miśra, VDBP., p.71.*

unspeakable either as ‘real’ or ‘unreal’ *per se*. Hence, it is *anirvacanīya*.<sup>129</sup> This in-between level of reality is named as *mithyā*.

### 3.3.1. Advaita Metaphysics

The Advaitins’ account of perception and illusion is founded on their exclusive metaphysical and epistemological notions. They are as follows.

The Advaitins’ metaphysics has four compartments:

- (i) The Absolute reality (*pāramārthika sattā*): It is real for all the time and never sublatale in triple stream of experience – waking state, dream and dreamless sleep. This Absolute is non-dual *Brahman* – The Pure Existence, Pure Consciousness and Pure Bliss in essence.
- (ii) The Empirical reality (*vyavahārika sattā*): It is sublatale only by the realization of the Absolute. The world of our common experience has such reality.
- (iii) The Ephemeral reality (*prātibhāṣika sattā*): It is sublatale by the experience of the previous levels of reality. Illusory objects and dream-objects those exist only during the corresponding appearance have this degree of reality. They have *anirvacanīya prātibhāṣika sattā*.
- (iv) The Absolute unreality (*tuccha sattā*): It never becomes an object of direct awareness like square-circle or the son of a barren mother.

The Advaitins are the proponents of *Upaniṣadic nisprapañca Brahmatattva* according to which only non-dual *Brahman* is ultimately real which is the substratum of world illusion, just as the shell is the substratum of silver-illusion. The world of plurality is the product of *Māyā* or *Avidyā*, which is a magical power of creation residing in *Brahman*. Undifferentiated *Brahman* seems to be differentiated and plural being delimited (*avacchinna*) by the product of *Māyā*. *Māyā* has two aspects. The negative one is *āvarana* or veiling nature. *Māyā* hides the reality acting as a screen. The positive aspect is *vikṣepa* or projecting nature. *Māyā* projects or superimposes the world of plurality on the substratum of *Brahman*. *Suddha-Brahman* or Pure consciousness is not knower. Internal organ is a product of *Māyā*. When the internal organ delimits Pure consciousness entering into its being, it is called it is called *jīva*

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<sup>129</sup> *vimatam rūpyādi saccenna bādhyeta, asaccenna pratīyeta, bādhyate pratiyate’pi, tasmāt sadasadvilakṣaṇatādanirvacanīyam. – Advaitasiddhi, Madhusūdana Sarasvatī, AS., p.630.*

(*antaḥkaraṇāvacchinna caitanya*) who is considered to be the cognizing consciousness or *pramātrcaitanya*. When the internal organ conditions Pure consciousness without entering into its being, it is called *Sākṣī* or witness-consciousness (*antaḥkaraṇopahīta caitanya*). The objects of our empirical cognition are neither Pure consciousness nor simply the products of *Māyā*. They are the result of mutual superimposition (*paraspara tādātmyādhyāsa*) of Pure Consciousness and empirical objects. It is called *viśayāvacchinna caitanya*.

### 3.3.2. Advaita Theory of Perception

With the aforesaid basic concepts we can state the Advaita theory of perception. The Advaitins differentiate higher knowledge (*parāvidyā*) from lower knowledge (*aparāvidyā*). *Parāvidyā* is the *Brahman*-intuition which is a supra-intellectual integral and immediate experience (*sākṣāt aporokṣa*). It is perceptual in the sense that it is direct and immediate. While in *Brahman*-intuition there remains no distinction of cognition, cognized and cognizer. So, *Brahman*-intuition is nothing but merging with the Pure Consciousness. This ultimate identification or immediacy of the cognized and the cognizer amounts to the perceptuality of *parāvidyā*. In the cases of *aparāvidyā* or the ordinary knowledge, there always remains a knower – known bipolarity. So, it never involves the immediacy of ultimate identification. *Parāvidyā* is beyond the duality of truth and falsity; but our ordinary experience of this empirical world is either true or false. The Advaitins define true empirical cognition (*pramā*) as the cognition of a real object which is not previously cognized and is not sublated (during the existence of this empirical world).<sup>130</sup> Such empirical cognition might be perceptual or non-perceptual. The Advaitins hold that in the cases of ordinary perceptual cognition also there remains some amount of immediacy which is the mark of perception. So, the Advaitins do not deviate from the definition of higher perception while defining ordinary true perception: True perception is consciousness.<sup>131</sup>

The Advaitins hold that during ordinary perception, the immediacy between the subject and the object is established through the instrumentality of *antaḥkaraṇa*. *Antaḥkaraṇa* resides in the human body pervading the whole body. When an appropriate sense-organ comes in contact

<sup>130</sup> *pramātvam anadhigata abādhita arthaviśayaka jñānatvam . – Vedānta Paribhāṣā, Dharmārajadhvarīndra, VP., pp.7-9.*

<sup>131</sup> *pratyakṣa pramā cātra caitanyameva.– Vedānta Paribhāṣā, Dharmārajadhvarīndra, VP., pp.15-16.*

with an object<sup>132</sup>, translucent *antaḥkaraṇa* moves out to the object through the channel of sense-organ and assumes the form of the object occupying the same position in space with it. This modification of *antaḥkaraṇa* is called *vṛtti*. The consciousness delimited by this *vṛtti* is *vṛtyavacchinna caitanya*. This *vṛtti* or the consciousness delimited by *vṛtti* is considered to be the instrument of perception (*pratyakṣa pramāṇa*), which establishes an immediacy between the perceiver and the percept.

- *The Nature of Pratyakṣa Pramā* – The delimiters differentiate consciousness in virtue of possessing different positions in space. During perception, *vṛtti* and *viśaya* occupy the same space-position and obtain an identity of locus. As a result, they cannot bring about any difference in the consciousness delimited by them. Thus *vṛtyavacchinna caitanya* and *viśayāvacchinna caitanya* become identified. This immediacy or identification of *pramāṇacaitanya* and *viśayacaitanya* is the necessary means (*prayoyaka*) of *pratyakṣa pramā*. And the consciousness, identified in that way, is called perceptual cognition (*pratyakṣa pramā* or *pratyakṣa jñāna*).<sup>133</sup>

- *The Nature of Pratyakṣa Viśaya* – There is no real difference between the *antaḥkaraṇa* and its modification (*vṛtti*). Hence, in the aforesaid means, *viśayāvacchinna caitanya* becomes identified with *antaḥkaraṇāvacchinna caitanya* or *pramātr̥caitanya*. This immediacy makes an object percept (*pratyakṣa viśaya*). However, the object must have the potentiality of being perceived (*yogyatā*) and it must be characterized by ‘presentness’ (*vartamānatva*).<sup>134</sup>

- *The Nature of this Lower-level Immediacy* – The aforesaid identification does not mean an absolute identity between the cognized and the cognizer. In the empirical perception in the form ‘I see this’ (*aham imam paśyāmi*) I-consciousness (subject or *kartā*) and this-consciousness (object or *karma*) are clearly distinguished. The intended meaning of the identification is that the being of the object (*viśayasattā*) is not independent of and separate from the being of cognizing consciousness (*pramātr̥caityasattā*). The object is superimposed on the object-consciousness. The being of a superimposed entity (*āropitasattā*)

<sup>132</sup>The Advaitins hold that the visual and auditory sense organ reach out to the location of their corresponding objects but the objects of olfactory, gustatory and tactual sense-organs themselves come to the location of the corresponding sense-organs in order to be connected.

<sup>133</sup> *ādye pramāṇa-caitanyasya viśayāvacchinna-caitanyābheda iti brūmaḥ. – Vedānta Paribhāṣā, Dharmārajadhvarīndra, VP., p.28.*

<sup>134</sup> *ghaṭāderviśayasya pratyakṣaṁ tu pramātra-bhinnatvam. – Vedānta Paribhāṣā, Dharmārajadhvarīndra, VP., p.48.*

is not separate from the being of its substratum (*adhiṣṭhānasattā*). All the superimposed objects are *mithyā* having no existence on their own. They have being (existence) due to the virtue of the being (existence) of their substratum. So, *viśaya* has no existence over and above that *viśayacaitanya*, which is in turn identified with *pramātr̥caitanya*. So, *viśaya* has no independent and separate existence over and above *pramātr̥caitanya*.<sup>135</sup>

• *The Role of Antaḥkarana in Perception* – *Antaḥkarana* has a special role to play exclusively in the cases of perception. Each object remains covered by the veil of individual nescience. So far as they remain covered by the darkness of *ajñāna* they do not become the content of an existential assertion in the form ‘this object exists’ or ‘this object is perceived’. When the translucent *antaḥkarana* is spatially unified with the object, it lifts only the derivative form of nescience about that individual. It can not remove the cosmic nescience of *Māyā* which hides the substratum-consciousness and projects the material objects. We can say that *Brahman* is doubly coated. It remains covered by the covering power of *Māyā*. On that covering, *Māyā* projects empirical objects that remain hidden by a second level covering of the darkness of individual nescience. *Vṛtti* dispels only that temporary darkness and manifests the projection of *Māyā*, i.e., the object.

However, this direct acquaintance is absent in the cases of non-perceptual mediate cognitions like inference, because the outgoing of *antaḥkarana* is involved only in the case of perception. And until the *vṛtījñāna* is collocated with the correlative *ajñāna*, it cannot dispel the *ajñāna*. The removal of *ajñāna* causes the vividness (*spaṣṭatā*) of the percept which is lacking in the non-percepts.

• *The Role of Sākṣīcaitanya in Perception* – For the Vedāntins, cognition is a kind of revelation – being conscious about something. The internal organ or the modifications of internal organ are the products of *Avidyā*, hence they are unconscious (*jaḍa*). That which itself is unconscious cannot be conscious about something else. Therefore, the *vṛtti* itself cannot reveal the object of perception. Only the Pure Consciousness can have such faculty. It is Consciousness which is the only spectator or revealer (*dr̥k*); everything else is unconscious, hence are the objects of revelation (*dr̥śya*). It is the substratum-consciousness which manifests everything. Remaining within this empirical world, we call it the *Sākṣīcaitanya* or the

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<sup>135</sup> *pramātr̥abhedo nāma na tāvadaikyam. kintu pramātr̥-sattātiriktasattābhāvaḥ. – Vedānta Paribhāṣā, Dharmārajadhvarīndra, VP., p.49.*

impartial witness consciousness. Now, although *vr̥tti* is material (*jaḍa*), it is translucent and reflects light. During perception, the light of the witness consciousness is reflected on *vr̥tti* and the form of the object is manifested. In this way the veil of individual nescience, which was suspending between the empirical object and the witness consciousness (or the *vr̥tti*-consciousness), is lifted by the *vr̥tti*. Then the object (as well as the *vr̥tti*) is illuminated by *Sākṣīcaitanya*. The illuminated or revealed object is called percept and the illuminated *vr̥tti* is called perception.

• *The Importance of Vr̥tti-centered Perceptual Mechanism* – The Advaitins do not suppose that our sense-organs receive the fragmentary stimulations and the impression or affection is carried to the brain for organization. In such an account, there remains an unbridgeable gap between the psychological process and the cerebral process. In western psychology the relation between mind and body has been explained in different ways, but still now no satisfactory account has been found. Vedānta attempts to mitigate this uncompromising dualism with the hypothesis of *antaḥkaraṇa* as an intermediate reality. Although it is made up of subtle matter, it has some advantage over other gross objects. It can reflect the light of consciousness and appears to be conscious. It is active, although material. Hence, it might be the perfect meeting point of matter and consciousness.

Another important aspect is that, the account avoids the ‘atomic approach’, which holds that the fragmentary bits of stimulation are unified into a whole object by an internal process. But if that is the case then the unity of the external object does not impose any causal obligation on the unity of the internal content. Whether the internal unifying principle will follow or copy the external unification is merely a matter of chance. There will remain no necessary connection between the structure of the reality and our mental construction. Here the Advaitins suggests that *antaḥkaraṇa* itself moves outwards and grasps the object *in its totality*. This synthetic approach enjoys the theoretical advantage that the Gestalt psychologists enjoy over the Atomists.<sup>136</sup>

This account successfully avoids representationalism which inevitably leads to one kind of skepticism regarding the nature of the external world. The Advaitins advocate a pure direct-acquaintance theory of perception where perception is defined in terms of identity or

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<sup>136</sup>In ‘*Six Ways of Knowing*’, D.M. Datta has presented the Advaita model of perception as an identification of physical, physiological and psychical gestalt, SWK., pp.52-61.

immediacy, established through *vṛtti*. However, the account does not suffer from the problems of the direct theory of perception or that of the direct realism. These theories cannot even accommodate the possibility of illusion in their framework. Admitting the instant production of an ephemeral silver and the corresponding *avidyāvṛtti*, the Advaitins solve the problem.

• *The Necessity for admitting Avidyāvṛtti – Antaḥkaraṇavṛtti* cannot account for all kinds of perceptual cognition. There are some objects that remain ever-revealed and ever-connected to the witness-consciousness from the very moment of their origin. *Antaḥkaraṇa* itself, the properties of *antaḥkaraṇa* like pain and pleasure and the objects of illusion are such things. They do not have any unknown existence and therefore are never covered by the darkness of individual nescience. Therefore, for the perception of them, we need not admit the aid of any mental mode (*antaḥkaraṇavṛtti*) for lifting the veil of ignorance. However, the witness-consciousness cannot reveal any specific object – internal or external, without referring to its specific form. It perceives a specific object reflecting on its form. Now, the object itself is not open to the witness-consciousness. So, it needs a mediation of something which has the form of the object and also which is open to the witness-consciousness. The Advaitins, hold that in such cases the individual nescience (*Avidyā*) itself is modified into the form of the mind, mental states and illusory objects. It is called *avidyāvṛtti*.

### 3.3.3. The Advaita Mechanism of Illusion

According to the Advaitins, illusion also is perceptual in nature. In case of illusion of silver in shell, ephemeral silver is produced in the shell in front of the perceiver and a corresponding mode of nescience is produced in the perceiving agent. Both these things are sublated by the subsequent true perception of empirical shell. Hence, perceptual illusion is defined by the Advaitins as ‘the consciousness, delimited by a perceptible, present but empirically sublatable object that has no existence over and above the consciousness delimited by the nescience modified in the form of that object’.

In *Vedānta Paribhāṣa*, five different causes of the illusory objects are enlisted analyzing the particular case of shell-silver illusion:

1. The defective visual sense organ. The defect is such that it makes the organ over receptive of reflected light and non-receptive of the specific quality of the object (*kācakāmāladidoṣa*).



2. The contact of sense organ with the locus of silver, i.e., sense-contact with the shell (*saṁnyoga*).
3. Evocation of previous effect of silver (*saṁskāra*).
4. *Avidyā* or nescience which is the transformative material cause of this world-evolution.
5. The nondiscrimination between shell and silver.<sup>137</sup>

The process goes on in the following way. When the defective visual sense organ of a person is connected to the shell lying beforehand, the internal organ flows out to the object and is modified into the form of ‘this’ having only the properties of ‘thisness’ and ‘glitter’. Although the sense organ is connected to the shell and its specific property shellhood, it cannot receive them due to the defect. Hence, there cannot be any mental modification in the form of ‘shellhood’ or ‘shell’. When the mental modifications in the forms of ‘this’, ‘thisness’ and ‘glitter’ (*idamākāra*, *idantvākāra* and *cākacikyākāra antahkaraṇavṛtti*) are equipositioned with the object in space, then the consciousness delimited by the object, *idam* is said to have no existence over and above the consciousness delimited by the mental modification. The mental modes are nothing beyond the mind itself. This way, an identification is established among the mind, modes and object.

The corresponding mental modification destroys only the person’s temporary ignorance about the glitter and thisness of the object ‘this’. As a result an ‘immediately present glittering object’ is manifested by the witness-consciousness of the person. Now, silver is similar to the presented object, because both of them glitter. Being inspired by an attraction towards silver, the perception of similarity evokes the previous effect of silver (*rajatasamskāra*).

We know that empirical objects are nothing but the consciousness delimited by the productions of *Avidyā*. Now there are generic delimiters such as ‘this’ – which delimits consciousness in other occasions also; and there are specific delimiters also such as shell. In the case of the perception ‘this is shell’, the object-consciousness is a combination of ‘this-consciousness’ and ‘shell-consciousness’. The former one is the generic portion and the latter

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<sup>137</sup> *tathāhi-kācādi-doṣa-duṣita-locanasya purovarti-dravya-saṁnyogādidamākārā cākacikyākārā ca kācidantahkaraṇavṛttirudetī.....tataśca pramāṭṛcaitanya-bhinna-viśayacaitanya-niṣṭhā śukṭitva prakārikā avidyā cākacikyādi-sādrśya-sandarśana-samudbodhita-rajata-saṁskāra-sadhrīcīna kācādi-doṣa-samavahitā rajatarūpārthakāreṇa rajata-jñānākāreṇa ca pariṇamate. – Vedānta Paribhāṣā, Dharmārajadhvarīndra, VP., pp.93-95.*

one is the specific portion of the object 'shell'. Now *Avidyā* is defined in terms of its object and locus. It is held that consciousness is the locus as well as object of *Avidyā*. The locus (*aśraya* or *adhāra*) of the shell-producing *Avidyā* is 'this-consciousness' and its object (*viśaya* or *adhiṣṭhāna*) is 'shell-consciousness'.

In case of shell-silver-illusion, the energised previous effect of silver agitates and perturbs the elements of this shell-producing-*Avidyā*, i.e., *śuktyavaccinnacaitanya-viśayaka idamavachinnacaitanya-āśrita avidyā*. As a result, the said *Avidyā* is transformed into an ephemeral silver. On the other hand, the elements of the *Avidyā*, which is residing in the consciousness delimited by the mental mode – 'this' (*idamākāra antaḥkaraṇavṛtтыavacchinna caitanya* or *pramāṇacaitanya*), are also agitated and modified into the form of silver (*rajatākāra vṛtti*). It is not a mental mode (*pramānavṛtti*) but a mode of ignorance having the form of silver (*rajatākāra avidyāvṛtti*).

However, the Advaitins say that the object of the illusion – 'this is silver', is a combination of 'this' and 'silver', which are superimposed on each other in the relation identity. It is neither purely empirical nor purely ephemeral but has an empirical-ephemeral existence. It is a combination of empirical truth and ephemeral falsity (*satyāsatya*). Due to the mutual superimposition the property of empirical 'this' (the property of being empirically present in front) is falsely ascribed or induced (*upacarita*) to the ephemeral silver and the property of silverhood is known in the empirical 'this'. Taken separately, the object – 'this' is empirical in essence. But as being connected with the ephemeral silver, it is also considered as ephemeral. So we can call the whole combination – 'silver-as-present-in-front' is an ephemeral entity. On the other hand, at the level of cognition, there remain two different modes (*vṛtti*) – one is *idamākāra antaḥkaraṇavṛtti* and the other is *rajatākāra avidyāvṛtti*. Now, the content of *pramānavṛtti* is '*idam*' and the content of *avidyāvṛtti* is '*rajatam*'. Due to the mutual superimposition, the object lying in front (*idam*) and silver (*rajat*) appears to be identical. Now, cognitions (*vṛtтиjñāna*) are qualified by their contents. Hence, the appearance of identity between the contents induces the appearance of identity between those *vṛttis*. Thus there occurs a single unified cognition in the form '*idam rajatam*'.<sup>138</sup>

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<sup>138</sup> VP., pp.93-105.

### 3.3.4. Origination of Ephemeral Silver

The most interesting part of the Advaita theory of illusion is the instant-origination of an ephemeral object before the eyes of the perceiver. This *prātibhāṣikarajatapurovartitva* saves the account from the problems of direct realism on the one hand and that of constructivism on the other. However, regarding the mechanism of its origination, there are several views.

Some of the Advaita Vedāntins have accepted a level distinction in *Ajñāna*. Mahadevānanda Sarasvatī says that *ajñāna* is twofold – *Māyā* and *Avidyā*. The power of projection (*vikṣepaśakti*) is predominant in *Māyā*, which is the adjunct of *Īśvara*. The power of veiling (*āvaraṇśakti*) is predominant in *Avidyā*, which is the adjunct of *jīva*.

Sadānanda divides nescience (*ajñāna*) into collective (*samaṣṭi*) and individual (*vyāṣṭi*). The collective nescience is the adjunct of *Īśvara* and is the cause of cosmic illusion. The individual nescience is the adjunct of *jīva* and is the cause of individual illusion.

Vācaśpati and Vimuktātman recognize original or primal nescience (*Mūlā avidyā*) and individual or modal nescience (*Tūlā avidyā*). *Mūlā avidyā* is the adjunct of *Īśvara*. It is the beginningless positive root nescience which is the material cause of this empirical reality. The object and locus of *Mūlā avidyā* is *Brahman* or the Pure Consciousness. *Tūlā avidyā* is the adjunct of *jīva* and is the material cause of ephemeral reality. *Tūlā avidyā* creates ephemeral entity only for that person. The object and locus of *Tūlā avidyā* is conditional consciousness or *jīva*. Ephemeral reality is private whereas the empirical reality is equally perceivable by all. *Tūlā avidyā* superimposes ephemeral objects on empirical objects. *Mūlā avidyā* superimposes empirical reality on the *Brahman*. Only the cognition of the substratum can dispel illusion. Hence, the cognition of empirical object (*vṛttijñāna*) destroys *Tūlā avidyā*, whereas, only *Brahman*-intuition can dispel *Mūlā avidyā*. It dispels *Tūlā avidyā* also since Pure *Brahman* is the substratum of everything. This difference explains the difference between empirical reality and ephemeral reality.

Vidyaraṇya holds that there is no real difference between *Mūlā avidyā* and *Tūlā avidyā*. What is called *Tūlā avidyā* is nothing but a different functional state of *Mūlā avidyā*. Vidyaraṇya calls it *Avasthā avidyā*.

However, Dharmarājadhvarīndra has a different view. He does not admit kinds in *avidyā*.<sup>139</sup> He says that Absolute reality has no origination (*ajanya*). Empirical reality is originated by the primal nescience which is considered to be a cosmic defect (*Avidyārūpadoṣajanya*) and superimposed on the Pure Consciousness. Ephemeral reality is originated by the same nescience, in association with some adventitious conditions like individual and occasional defects (*āgantukadoṣajanya*). The defect in visual organ is a necessary condition for the production of ephemeral silver and the corresponding *avidyāvṛtti*, in absence of which none of them is produced. But defect is an adventitious or occasional condition which the other persons may not have. For him no ephemeral silver is produced. That is why the ephemeral silver is said to be private and occasional.<sup>140</sup>

### 3.3.5 An Objection against the Process of Unification and its Reply

Now, against the Advaita mechanism of illusion one may object that it is not free from the problems of constructivism. The advantage of Advaita theory of perception was that it avoided atomic approach and rejected a constructivist account which inevitably leads to representationalism and skepticism. The success of the theory lies in the fact that no internal process of unification was allowed by the Advaitins. But the mechanism of illusion involves a unification of *antaḥkaraṇāvṛtti* and *avidyāvṛtti*. The mechanism says that although two different *vṛttis* are produced in illusory situation, they are fused together and transformed into a single unified cognition. Now, obviously this fusion-process is an internal process. If so, then we have to say that the Advaitins are propounding some form of constructivism while explaining illusion.

The Advaitins meet this objection with quite boldness. They say that those two *vṛttis* are never fused together. The singularity of illusory cognition does not depend on the unification of *vṛtti*, since *vṛtti* itself is not cognition.<sup>141</sup> And the duality in *vṛtti* does not necessitate the duality in the produced perceptual illusory cognition. Because perception is defined as ‘consciousness’ (*caitanya*) and it is the same witness consciousness which is modified in the generic form of

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<sup>139</sup> VP., pp.115-117.

<sup>140</sup> The properties of *antaḥkaraṇa* like pain, pleasure etc., are perceived through individual *avidyāvṛtti* – hence they are also private and occasional. But since they are not produced by the adventitious condition, defect, they are not illusory objects. Those states are the direct products of the cosmic or primal ignorance or (*Māyā*). That is why they have empirical reality and the perception of such states is not illusory.

<sup>141</sup> *Vṛtti* itself is not knowledge because it is insentient. In Advaita philosophy, the consciousness, conditioned by *vṛtti*, is considered to be the knowledge.

‘this’ (with the aid of *pramāṇavṛtti*) on the one hand, and in the specific form of ‘silver’ (with the aid of *avidyāvṛtti*) on the other. The singularity of illusion depends on the fact that the same single *Sākṣīcaitanya* (Consciousness, conditioned by a single *antaḥkaraṇa*) is conjointly modified by the forms of those two *vṛttis*.

### 3.3.6. How can Sākṣīcaitanya Reveal an Unconnected Object?

It may again be objected that although the ephemeral silver is superimposed in the relation of identity on the consciousness delimited by empirical ‘this’ (*idamavacchinna caitanya*), there is no direct connection between ephemeral silver and the witness consciousness since, the production of ephemeral silver and the production of *avidyāvṛtti* are parallel processing. Then how can silver be manifested by such an ‘unconnected’ witness-consciousness?

The Advaitins answer that while perceiving ‘this’, *idamavacchinna caitanya* becomes identified with the *antaḥkaraṇāvachhinna caitanya*, via an identification with *idamākāra antaḥkaraṇavṛttyavacchinna caitanya*. Now, *antaḥkaraṇāvachhinna caitanya* or *pramāṭṛcaitanya* has no existence over and above the *antaḥkaraṇopahita caitanya* or *Sākṣīcaitanya*. Hence, we can say that *idamavacchinna caitanya* is identified with the *Sākṣīcaitanya*. Now, silver is superimposed on *idamavacchinna caitanya* which is identified with *Sākṣīcaitanya*. Hence, we can say that silver is connected to *Sākṣīcaitanya* in the relation of superimposition. Vedāntins do not define perception in terms of sense-object contact. Hence, no such connection between the illusory object and the person in illusion is necessary for the perceptuality of illusion. Here, equiposition of space defines everything, which is a form of immediacy.

However, such immediacy is not sufficient for the modification of witness-consciousness in the form of silver. A mode (*vṛtti*) in the form of silver is needed as an associate. But this *vṛtti* cannot be an *antaḥkaraṇavṛtti*. If so, then it will destroy the individual *Avidyā* and its ephemeral product. We have seen that the same silver-producing-conditions, working parallelly, produce a *rajatākāra-avidyāvṛtti*. With the aid of this *avidyāvṛtti*, the witness consciousness is modified in the form of silver and manifests the ephemeral silver.

### 3.3.7. What if those Parallel Processes do not go Hand-in-hand?

But, however, one may again object that there is no direct causal connection between the illusory object (*prātibhāṣika rajat*) and the originated cognition in the part of illusion

(*rajatākāra avidyāvṛtti*). Rather they are parallelly produced by two different *Avidyās*. *Prātibhāṣika rajat* is produced out of the *Avidyā* which resides in the consciousness, delimited by *idam*; and *rajatākāra avidyāvṛtti* emerges out of the *Avidyā* which resides in the consciousness, delimited by *idantākāra antaḥkaraṇāvṛtti*.

The Advaitins might say that both of these transformations happen due to the same set of causal conditions (*doṣa, saṁyoga, saṁskāra* etc.). But, the opponent would ask – is there any immediate relation between X and Y that are produced by the same causal condition Z? And if there is no such relation, then how can we say that X is *about* Y? The Advaitins answer that in the context of illusion no such immediate connection between *vṛtti* and *viśaya* is required. Both of them are inspired by the effect of silver (*rajatasamskāra*). Hence, the modification of *Avidyā* in the form of silver (*rajatākāra avidyāvṛtti*) is *about* silver (*rajataviśayaka*).

But the problem might be more serious than it appears. The account of parallel processing opens up a logical possibility that any one of those processes might be blocked in the midway by some external prohibiting factor, permitting the completion of the other process. Production of ephemeral silver without the silver-*vṛtti* is admissible. But if silver-*vṛtti* is produced without the corresponding ephemeral silver in front of the cognizer (*purovartirajata*), then one of the Advaitin's fundamental contentions would be hampered. The Advaitins consistently accommodated the possibility of illusion within their direct acquaintance theory of perception by saying that ephemeral silver (*anirvacanīya prātibhāṣika rajata*) is produced in front of the perceiver during illusion. If the suggested mechanism of illusion cannot guard this contention against all odds, the consistency of the theory of *Anirvacanīyakhyaṭi* will be questioned. Hence, the mechanism should not remain open to such a logical possibility.

### 3.3.8. The Metaphysical Objection

Now, here is another important part of the previous objection. It is regarding the nature of what appears in illusion. The illusion of silver is sublated by the empirically true cognition in the form 'this is not silver' (*nedam rajatam*). The Advaitins say that the cognition indicates an absolute absence (*atyantābhāva*) of silver in shell. They also say that an ephemeral silver is produced in that locus during illusion. This is a sheer contradiction. Here, the Advaitins rejoin that the correcting cognition indicates the absolute absence of empirical silver – not that of ephemeral silver. But the question arises, how can the cognition of the absence of *empirical* silver sublate the cognition of *ephemeral* silver? In reply, the Advaitins further rejoin that the

content of the sublating cognition actually is the absence of ‘ephemeral silver, as having empiricity’ (*vyavahārikatvāvacchinna prātibhāṣika rajat*). The said absence is called *vyādhikarāṇa-dharmāvacchinna abhāva* or the absence of an object as having such a property which never belongs to it, rather belongs to an altogether different object.<sup>142</sup> The cognition says that there is no ephemeral silver which is delimited by empiricity – in any division of time. The sublation of an object is meaningful when the object is sublated as it was appeared in the illusion. During the illusion, silver appeared as empirical silver; otherwise the person would not move towards it, because everyone knows that ephemeral silver is not subject to practical use. But the question would arise here, what is the ontological status of the empiricity (*vyavahārikatva*) manifest in the illusory cognition? Is it ephemeral and instantly produced during the illusion? The Advaitins answer, ‘no’. Originally, that empiricity belongs to shell, not to the silver. In illusion, instantly-produced ephemeral silver is ‘falsely known’ as having empiricity.<sup>143</sup>

Jayanta Bhaṭṭa notices this account of misperception and announces that *Anirvacanīyakhyāti* is nothing but a variety of *Anyathākhyāti*, where the property of a different object (*vyādhikarāṇa-dharma*) is known in another object.

However, the Advaitins might have an answer to this objection. They may say that it is not the case that only the properties of empirical shell and ephemeral silver are mutually known in each other, but objectively – in the domain of reality – such connections are ephemerally produced. Empiricity of shell is *vyavāharika sat* and is ontologically present from before. But the *connection of empiricity in ephemeral silver* is instantly produced. It also is *prātibhāṣika sat*. At the ephemeral level of reality, there happens a mutual induction of ephemeral silver and this ephemeral connection.

### 3.3.9. Is the Concept of ‘Mutual Induction’ acceptable at the level of Ontology?

The Advaitins took a good attempt to solve the age-old problem of direct realism (or the theory of direct perception) with the help of the hypothesis of parallelly originated ephemeral

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<sup>142</sup> *Pañcapādikākāra* Padmapādācārya says that the cognition of ephemeral silver is not sublated by the cognition of the absence of ephemeral silver, rather by the cognition of the empirical shell in the form – ‘this is shell’ (*idaṃ śukti*). The cognition in the form ‘*nedam rajatam*’ comes afterwards as a repetition (*anuvāda*). So, illusion is sublated partially – only in the part of illusory content, and not in the part of ‘this’.

<sup>143</sup> VP., pp.118-121.

(*prātibhāṣika*) objects that are real in some sense but sublata by knowledge. Parallel production of such objects saves direct realism. And the subsequent sublation of them accommodates the possibility of error in the theory. They have successfully avoided the problems of constructivism denying the fusion at the level of *vṛtti*. However, in order to keep the accent of direct realism intact, they have admitted the fusion at the objective level (*arthādhyāsa*). For them, the world of illusion (individual or cosmic) is a fusion of different degrees of reality. This empirical world is the fusion of Pure Existence (Absolute Truth) with the empirical objects (empirical falsity). And the object of say, shell-silver illusion is a fusion of empirical ‘this’ (empirical truth) with ephemeral silver (ephemeral falsity). Since, the relation between two different degrees of reality is unintelligible in this empirical level of communication, Advaitins have explained it metaphorically. They have said that the empirical properties are induced (*upacarita*) to the ephemeral objects in the same way that the redness of hibiscus is induced to transparent crystal. But, in this analogy no one supposes that the redness is actually transferred to the crystal at the objective level. Everyone believes that the crystal appears to be red in our cognition. So, it is always a *jñānādhyāsa* and never an *arthādhyāsa*. The whole process is *in* us. Here, the reality has not changed parallelly with our cognition. So, this metaphor is too weak to take us to their conclusion. Metaphorical arguments try to explain a target domain with the help of a source domain in respect of some similar features and expect that the other properties of the source domain also will be transferred to the target domain. If the shown instance were the case of both *jñānādhyāsa* and *arthādhyāsa*, then we could say that the illusory situation also involves both of them since it is similar to the hibiscus-crystal case in the *jñānādhyāsa* aspect. But this is not the case. The Advaitins might say that the analogy is between *jñānādhyāsa* and *arthādhyāsa* themselves. Noticing a superimposition at the level of cognition, they are arguing for a corresponding fusion at the objective level. But this answer also is unacceptable because, the concept of superimposition itself presupposes that the superimposed property has *not* actually produced in the substratum. Hence, the concept of *fusion* is diametrically opposite to that of *superimposition*. Hence, the latter cannot be the ground of an analogical argument for the former. The Advaitins might say that what happens in the objective domain also is a kind of superimposition (*adhyāsa*). Here, the term ‘*adhyāsa*’ has been taken in an extended sense. The nature of the interaction between two different levels of reality cannot be expressed through the familiar terms. That phenomenon is remotely linked with superimposition which is a cognitive phenomenon. Here we may say that to call that interaction as *superimposition* or *adhyāsa* is merely a literary



expression. It might be a metaphor but cannot be a philosophical assertion. Here it seems that somehow the transparency of a philosophical account is lost in the mist of metaphor.

Now, the Vedāntins may say that without metaphor it is impossible for us to describe the Ultimate Reality, because we are in the empirical domain. What is the nature of reality and in what mysterious way this phenomenal world has sprung out, cannot be understood by discursive philosophical arguments. Although the empirical world follows certain logical, physical and psychological rules those can be known through discursive enterprise (conceptual or empirical). But, we can have only some hints about what is happening behind the stage of the world-show, through some specific portion of the stage-show. Illusion (*jñānādhyāsa*), dream and dreamless sleep are those hints. Only *Brahman*-intuition is a direct acquaintance with Truth but that awareness is non-communicable. Remaining within this empirical domain we can at most try to understand the reality through the hints or by metaphors. That is why, in Advaita Vedānta, we can see the predominance of metaphor. The nature of *Brahman*, the nature of *Māyā*, the process of evolution, delimitation of *Brahman* by empirical objects, *Prativimvavāda*, *Avacchedavāda*,<sup>144</sup> the process of cognition – everything has been explained through metaphor.

Here also we have seen that Anirvacanīyakhayātivāda also suffers from theoretical problem regarding their account of the mechanism of perception. In this chapter we have seen that these idealist theories do not help much in our enterprise. Therefore, let us turn towards the realist camp and find out alternative systems of presuppositions those can be tested empirically.

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<sup>144</sup> These are the theories that explain the relation of *Jīva* and *Īśvara* with *Brahman*. *Prativimvavāda* says that *Īśvara* is the reflection of *Brahman* in beginningless primal nescience or *Avidyā* and the *Jīvas* are the reflections of *Brahman* in different *antaḥkaraṇas* or intellects, which are the products of *Avidyā*. *Avacchedavāda* says that *Īśvara* is *Brahman* delimited by *Māyā* or *Avidyā* and *Jīvas* are *Brahman* delimited by different *antaḥkaraṇas*.

## CHAPTER – 4

### Indian Realist Theories of Illusion and Selecting Presuppositions

In the realist camp, there are three principal theories of illusion: Akhyātivāda, Viparītakhyātivāda and Anyathākhyaativāda. Here in this chapter, we shall discuss them accordingly and search for an empirical theory of illusion.

#### 4.1. *Akhyātivāda*

Among the theories of illusion Akhyātivāda is the most uncommon which rejects the possibility of erroneous cognition altogether. The propounder of this thesis is the Mīmāṃsaka philosopher Prabhākara. He holds that all cognition is veridical (*sarvaṃ jñānaṃ yathārtham*). No cognition can ever be erroneous in nature. This contention seems to be contrary to our common sense. But let us see how the followers of Prabhākara establish their point.

##### 4.1.1. *The No-Error Theorists Reject Object-Content Dualism and Scepticism*

The Prābhākara Mīmāṃsakas say that the etymological meaning of *yathārtha* is ‘*artha sadṛśa*’ or ‘similar to the object of cognition’, meaning ‘*artha-avyābhicārī*’ or that which does not deviate from the object. The Prābhākaras say that which is manifested in cognition is its object. In the cognition of a picture, the picture is the object since it is manifested through that cognition. That which is not manifested through that cognition, such as a jar, can never be its object. Since cognition always manifests its own object, it can never be contrary to its object. One may say here, that in the case of perception of silver in a shell, the cognition of course is contrary to its own object because the cognition has manifested its object (shell) as something else (silver). The Prābhākaras would reply that here the object of cognition is neither the *shell* nor the *shell as silver*. The first one is not manifested in cognition and the second one is a logical impossibility or *alīka* like sky-flower. Manifestation of *x* as *y* is contrary to our experience. We never perceive shell as silver. Either we see a shell or we perceive a piece of silver. So, in that perception there is no falsity. Its object is silver which is manifested through it. The opponent may say that here shell is the object of the cognition since it is a real entity which has caused the cognition; whereas the silver is not real and it has not caused the said cognition. In reply the Prābhākaras say that if ‘being real’ be the criteria of ‘being an object of cognition’ then all the real objects in the world will become the object of cognition in question. And if ‘being the cause of the cognition’ becomes the criteria of ‘being an object of

cognition’, then the other causes of the cognition (sense organ, light, mind etc.) will also become the objects of that cognition. But we do not say so. Hence, we must concede that what is manifested in cognition is its object. And such object can never be contrary to its cognition.

According to the Prābhākaras, that which is apprehended in a cognition is the object of that cognition. Nothing else is the object.<sup>145</sup> Even in the instances of error or doubt the content of cognition agrees with fact conveyed by the cognition. If it is conceded, even in a single instance, that cognition conveys something other than what is presented in it then there will be no confidence in the validity of any instance of cognition.<sup>146</sup>

The Prābhākara Śālikanātha says that dream cognition is memory, hence it is true. Doubt also is *yathārtha* since it consists of two correct memories of two items having a common feature. The instance of yellow conch the yellow colour is of the bile. It is an instance of *bhedāgraha* between two correct perceptions (*grahaṇa*) – perception of the substance conch and perception of the yellow colour of bile. Similar is the case of bitter molasses (*tikta guḍaḥ*). In the instance of the perception of two moons (*dvicandrabodha*) the rays proceeding from the eyes of the observer are split into two paths and the observer sees the same moon by each set of the eyes. Hence he does not realize that it is the same moon presented in two cognitions. However, both cognitions of moon are correct. In the case of *alātacakra* or circularly moving torch a series of cognitions of the torch are produced in quick succession – all of them are correct. But due to the quickness the spacio-temporal difference among them is not realized.<sup>147</sup>

Śālikanātha warns that if we subscribe to the theory of *anyathākhyāti* propounded by the Naiyāyikas and hold that what is presented in a cognition is merely a form of the cognition and no object outside, then it will amount to the cognition of the non-existent. The authors of Nyāyasiddhi, Nārāyaṇa Bhaṭṭa and A. Subrahmanya Shastri, warn that in the so called cases of illusion like shell-silver illusion non-existence of silver, and consequently total denial of

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<sup>145</sup> *atra brumo ya evārthaḥ yasyaṁ saṁvidhi bhāsatel  
vedyaḥ sa eva nānyaddhi vidyāt vedyasya lakṣaṇam// – Prakaraṇapañcikā III-23, Śālikanātha, PP.,  
p.33.*

<sup>146</sup> *yadi cārtha parityajya kvacidbuddhiḥ pravartate/  
vyabhicāravatī svārthe kathaṁ viśvāsakāraṇam// – Prakaraṇapañcikā III-66, Śālikanātha, PP., p.34.*

<sup>147</sup> PP., pp.33-47.

outside object, will be established. If it is said that silver is existent in some other place, then non-existence of the so-called relation will be established.<sup>148</sup>

One thing has to be noted here. For the Prābhākaras, there is no distinction between object and content of cognition. Generally those who subscribe to some kind of representative realism hold that the thing present in front of the cognizer during perception, to which the sense organ is conjoined, is the object. It plays a causal role in generating the perception. And that which is manifested in cognition is the content of it. The mismatch of object and content brings about the situation which we name 'illusion'. That is, when the content is contrary to the object, the cognition becomes *svaviṣaya-vyābhicārī* or *ayathārtha*.

The Prābhākaras argue in favour of their thesis that once we admit the possibility of deviance of object in cognition, skepticism would be invincible, and no cognition would be able to move us accordingly. So we should not lose this foothold. Vasubandhu, the renowned Buddhist philosopher, argued that if in some cases of awareness we are aware of objects that are not there (at least the way they appear to us) then all cases of awareness could be so. It is because, from the phenomenal point of view, we do not have any neutral ground for distinguishing one awareness from another. The Prābhākaras here counter-argue that if some cases of awareness make us aware of the objects which are present there, then all cases must be so, since the sense-faculty etc. cannot change their intrinsic nature of causing true cognitions.

#### 4.1.2. *The Nyaya Objection*

There is a theoretical debate between the Nyāya and the Prābhākara Mīmāṃsaka regarding the nature of error/illusion. In this matter, the Naiyāyikas propound *Anyāthākhyātivāda* which says that illusion is the perception of one thing as another thing that is not present in front of the perceiver but exists in some different place or time. On the other hand, the Prābhākaras advocate *Akhyātivāda* or 'No Error Theory' which says that all cognitions are true. There is no false cognition. Thus denying the existence of false cognition altogether, the Prābhākara Mīmāṃsakas eradicate the possibility of skepticism. It helps them to establish that all

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<sup>148</sup> 'rajatakārasya svarūpeṇa bhānāt na asatyatā. nāpi śuktirūpatā' iti dhīreva sākārā syāditi bahyārthāpalāpo durnivārah. jñānarūpatvāsambhave asataḥ khyātiprasaṅgaḥ. anyathā sataḥ eva rajatasya atra doṣavaśāt saṃsarga iti tarhi saṃsargāṃśe asataḥ khyātiprasaṅgaḥ. – *Nyāyasiddhi* 11611, PP., p.46.

knowledge, those are preached in the *Vedas*, are true. However, the Naiyāyikas are not so threatened by the possibility of skepticism. They admit the possibility of false cognition and set criteria for true and false cognition.

Generally we believe that true cognition leads to successful behaviour or volition (*saphalapravṛtti*) and the false one leads to unsuccessful behaviour or volition (*viphalapravṛtti*). And it is evident to all that sometimes we are led to unsuccessful volition. Perception of mirage in desert leads one to collect water; but reaching at the spot he does not find water. Hence, if someone says that there is no false cognition then he has to give an alternative causal explanation of such unsuccessful volitions.

The Prābhākaras certainly had tried, but in doing so they had to confront the Nyāya opposition. In some cases, they counter-argued and refuted the Nyāya position also. Gaṅgeśa Upādhyāya, the founder of Navya-Nyāya, had introduced the debate in his renowned treatise *Tattvacintāmani (Pratyakṣakhaṇḍa: Anyathākhyātivāda)*.<sup>149</sup> Viśvanātha has referred to it in his *Kārikāvalī (Bhāṣā Pariccheda)* and in its commentary – *Siddhāntamuktāvalī*. There is an exposition of this Nyāya-Prābhākara duel. We find a detail analysis of the problem in *Dinakari Tīkā* (a commentary on *Kārikāvalī* by Dinakara) too.<sup>150</sup>

In *Siddhāntamuktāvalī*, Viśvanātha defines *pramā* or true cognition as a cognition which reveals the qualification 'x' as it's predicate and has such an object as its subject that has a certain relation to the property 'x'. The *sūtra* runs thus: '..... *bhramabhinnam tu jñānamatroccyate pramā. atha vā tatprakāraṁ yajjñānam tadvadviśeṣyakam. tat prama.....*'<sup>151</sup>, or that cognition is a true one which is different from false cognition. It indicates that cognition, having a particular predicate, such that the subject of the cognition is the locus of the predicate. In *Siddhāntamuktāvalī*, Viśvanātha clarifies this definition as '*tadvadviśeṣyaktve sati tatprakāraṁ jñānam prametyarthaḥ*'.<sup>152</sup> It involves two important epistemological concepts, *viśeṣya* and *prakāra*, in terms of which the Neo-Naiyāyikas define true and false cognition. Hence, we need to analyze them. Any cognition is about something. This 'something' is called *viṣaya* or object. Now, this 'object of cognition' is a complex entity

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<sup>149</sup> TCMA., pp.60-68. & 152-170, (*Anuccheda: 32-36 & 77-86*).

<sup>150</sup> KV., pp.483-488.

<sup>151</sup> *Kārikā-134,135*, KV., pp.480-481.

<sup>152</sup> KV., pp.481.

having three components – *viśeṣya*, *prakāra* and *saṁsarga*. *Viśeṣya* is the existent point of reference which is characterized by something. Grammatically, it is called the ‘subject’ of a proposition. *Prakāra* is the characterization of the *viśeṣya*. Grammatically, this qualification or characterization is called predicate or *viśeṣaṇa*. Epistemologically, when such a qualification or characterization or predication is revealed in a cognition, it is called *prakāra*. So, there is a minor distinction between *viśeṣaṇa* and *prakāra*. *Viśeṣaṇa* becomes *prakāra* when it is revealed in a cognition. *Samśarga* is the relation between the *viśeṣya* and the *prakāra*. It is the association of the subject with the revealed predicate. Let us take a concrete example. The perceptual cognition of, say, a pot has for its object (*viśaya*) a complex entity which may be described as ‘something which is characterized by potness in the relation of inherence’. Here, the point of reference or the pot itself (*ghaṭa*) is *viśeṣya*, potness (*ghaṭatva*) is the *prakāra* and the relation of inherence (*samavāya*) is the *saṁsarga*. The said cognition is *ghaṭaviśeṣyaka ghaṭatvaprakāraṇa samavāyasamśargaka jñāna*. Hence, the cognition has corresponding three properties: (i) *ghaṭa-viśeṣyatva* (ii) *ghaṭatva-prakāratva*, and (iii) *samavāya-samśargakatva*. Now, in this case, the property of being a pot (*ghaṭava*) surely inheres in the pot (*ghaṭa*). If *ghaṭatva* is considered to be the qualification ‘x’ (which the *sūtra* designates by the term, ‘*tat*’), *ghaṭa* surely is qualified by ‘x’ in a certain relation. It is ‘*tat-vat*’. Since the cognition is *ghaṭatva-prakāraṇa* or ‘x’-*prakāraṇa* or ‘*tat*’-*prakāraṇa* and also has the property *ghaṭa-viśeṣyatva* or ‘*tat-vat*’-*viśeṣyatva*, it is an instance of true cognition.

Now, if a person had misperceived a piece of brick as a pot, the cognition would reveal the qualification potness, but the point of reference would in no way be related to the potness, because it is a piece of brick – not a pot. And we know that, in the piece of brick, there is no potness, but the absence of potness. So, the *viśeṣya*, here, is not ‘*tat-vat*’ but ‘*tat-abhāva-vat*’. Such a cognition is an instance of a determinate false cognition or *bhrama* or illusion. Hence, Viśvanātha defines illusion as follows: ‘*tacchūṇye tanmatiryā syādapramā sā nirūpitā*’,<sup>153</sup> i.e., that (cognition) is a false one which is about (the presence of) the absence of which is in the place. This definition is clarified in *Siddhāntamuktāvalī* as ‘*tadabhāvavati tatprakāraṇaṁ jñānaṁ bhrama ityarthah*’.<sup>154</sup> It means that *apramā* or false cognition is a cognition which reveals the qualification ‘x’ as its predicate, in a certain relation to its subject, but the subject is not related to the qualification ‘x’ in that way; rather, the subject is related to the absence of that qualification ‘x’.

<sup>153</sup> *Kārikā-127*, KV., pp.476.

<sup>154</sup> KV., pp.476.

Here, the opening part of the definition of *pramā* (*tadvadviśeṣyakatve sati*) differentiates *pramā* from *apramā*. But the Prābhākaras are the proponents of *sarvajñānayatvārthavāda*. According to them, there is no false cognition – all cognition is true. Hence, that differentiating part of the definition of *pramā* is redundant (*vyārtha*) – having no use.<sup>155</sup> The defining characteristic of true cognition – that is of true cognition – should only be ‘*tatprakāratva*’. One can object against these No-Error theorists that if all cognition is true then why, in some cases, cognition leads to unsuccessful behaviour? Sometimes a silver-seeking person exerts himself to pick up a piece of tinsel or a shell. And when he perceives that the object in front of him is mere tinsel and not a piece of silver, he realizes that his previous cognition about the object was wrong. It was a misperception of silver in tinsel, which prompted him to collect silver. But since there was no real silver in that place his volition, and also the corresponding action, became unsuccessful – he did not get silver. Now, illusion has been well-accepted as the cause of unsuccessful volition or action. If there remains no illusion, such volition and action remain ever unexplained.

#### 4.1.3. The Prābhākaras’ Explanation of Unsuccessful Volition and Illusion

In reply to the above objection the Prābhākaras say that unsuccessful volition can be explained in somewhat different way. And it is as follows:

All cognition is true; there is no false cognition. It is true that in the unsuccessful volitional situation there occur cognition in the form ‘*idaṁ rajatam*’. But it is not a single qualified false cognition – but a combination of two different cognitions – both of which are true. The contact of visual sense-organ with the object lying in front (tinsel) produces a perceptual cognition of that object. But due to some defects, the specific property of tinsel, which differentiates tinsel from all other like and unlike things (tinselness), remains unnoticed. Hence, the object is perceived as having the property of ‘thisness’ (*idantā*). Along with this, some other properties of tinsel, those are equally possessed by a piece of silver, such as glitter etc., also are perceived. Now, the perception of this similarity, along with the affection towards silver – which was pre-existent in the silver-seeking person – evokes the impression of silver and produces the memory of silver in the person. Now, generally, memory reveals its object as that

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<sup>155</sup> *nanu sarvajñānānām yathārthatvāt pramālakṣaṇe viśeṣaṇavyāvarttyāprasiddheḥ viśeṣaṇavaiyartham anyathākhyātau mānābhāvāt //1// – Anyathākhyātivāda, Tattvacintāmaṇi, Gaṅgeśa, TCMA., p.1.*

which was previously perceived. That is why, the form of the memory of silver is, ‘that silver’ (*tat rajatam*). But in this particular situation, the part of thatness is erased (*pramuṣṭa*) from the object of memory and the mnemonic cognition is produced in the form – ‘silver’ (*rajatam*). The part of thatness is the distinguishing mark of memory cognition, in the absence of which, the produced memory-cognition remains non-distinguished from the previously produced perception in the form ‘*idam*’. These two cognitions are never false; they may be incomplete but true. Now, the said cognitions are produced one after another, scarcely leaving any time-gap between them. Due to this immediacy (*nairantarya*) they are not distinguished from one another. Non-discrimination (*bhedāgraha*) between two cognitions ensures non-discrimination between their objects. Failing to grasp the distinction between silver and the object-lying-in-front, one prompts himself for wrong action.

Another thing is that the cognitions are linguistically expressed in the same case-ending (first case): ‘*idam*’ and ‘*rajatam*’. Due to the aforementioned immediacy, these two expressions seem to be a single expression of a single cognition. It is a wrong linguistic expression, which leads to wrong action. According to the rules of Sanskrit grammar, there holds the relation of one-way-identity (‘*tādātmya*’ or ‘*bheda-sahiṣṇu-abheda*’) between the referents of the equal cased terms in a proposition. Here, the wrong linguistic expression expresses a co-location (*sāmānādhikarāṇya*) of the property of ‘thisness’ (*purovartitva*) and the property of ‘silverness’ (*rajatatva*), which leads to unsuccessful volition or action.

In a nutshell, the cause of any volitional activity (*pravṛtti*) towards an object-in-front is the non-discrimination of that object with something desirable (*iṣṭabhedāgraha*). Here, silver is a desirable thing for a silver-seeking person. Hence, the non-discrimination of the object-in-front (tinsel) with silver initiates a volitional activity in the person towards the tinsel. Since the cause of the volition is non-discrimination, and not any cognition, the failure of the volition has nothing to do with the falsity of cognition. The volition has failed because the non-discrimination was generated due to some defect. The corresponding cognitions are always true; they may be incomplete but never false.

The Prābhākaras have analyzed another example of so called illusion in the following way. When a jaundiced person looks at a white conch he obtains cognition in the form of ‘yellow conch-shell’ or ‘*pīta śankha*’. Due to jaundice, the visual sense organ of the person remains full of bile (*pīṭta*), and this bile is emitted with the rays of his eyes. Due to this defect (*pīṭta*



*doṣa*), the whiteness of the conch is not perceived although the conch itself, in its essence, is perceived. The bile, present in the rays of eyes, itself seems to be transparent when it is seen from outside. But when it is seen along the line of the eye-rays, its yellowness becomes apparent and only the jaundiced person can have such an angle of sight. However, the person does not perceive the bile in its essence. He perceives only its yellowness (*pītatva*). Now, the perception of conch and the perception of yellowness are two different true cognitions. But the perceiver cannot apprehend the difference due to that defect. Due to the absence of the difference (*bhedāgraha*) between these two perceptual cognitions, objects of those cognitions (conch and yellowness) are not apprehended as non-related (*asamsargāgraha*). Although, conch and yellowness are apprehended as different, they are not apprehended as non-related. During the normal perception of any yellow object, the yellowness is not apprehended as non-related to the object. Otherwise we would not refer to the object as yellow. So, in respect of this *asamsargāgraha*, both the situations are similar. Due to this similarity, the aforesaid two incomplete perceptions produce such a linguistic expression that is similar to that of a normal perception of yellow conch (*pīta śaṅkha*). This similarity of *asamsargāgraha* (and similar linguistic expression) produces similar volitional activity or *pravṛtti*. In the case of the illusion, ‘*idam rajatam*’, the *bheda* between the cognitions and between their objects are not apprehended. But in the case of ‘*pīta śaṅkha*’, only the difference (*bheda*) between the cognitions is not apprehended. The objects are apprehended to be distinct, but they are not apprehended to be non-related. Another difference is that, here, both the true cognitions are perceptual, whereas, in the case of ‘*idam rajatam*’, ‘*idam*’ is perception and ‘*rajatam*’ is recollection. The Prābhākaras explain hallucinations and dreams as *pramuṣṭatattāka smṛti* where the difference between this *pramuṣṭatattāka smṛti* and the perceptual situation in general is not noticed. While dreaming we do not become aware of the fact that our eyes are closed, there is no daylight etc. These facts are the differentiating factors of perception in general, and recollection. Due to the absence of that awareness we do not become able to differentiate recollection from perception. Another important factor is that the differentiating feature of a recollection, that is the ‘thatness’ of its object, is not revealed while dreaming. That is why, we take *pramuṣṭatattāka smṛti* as perceptual cognition.

#### 4.1.4. An Objection From The Perspective of Parsimony And Its Reply

Here the Naiyāyikas may raise an objection. Suppose that there is a real piece of silver, perceiving which truly one tries to get it and his effort becomes successful. Now, the cause of

this successful volition is a determinate cognition – the subject of which is silver and the predicate of which is the property of silverness and the property of thisness (*idantāvacchinna rajataviśeṣyaka rajatatvaprakāra jñāna*). In another word, the cause of this successful volition is such a cognition that cognizes a real and ‘in-front-existing’ piece of silver as having silverness. The Prābhākaras may say that the cause of successful behaviour is determinate cognition (*viśiṣṭajñāna*) and the cause of unsuccessful volition is non-discrimination (*bhedāgraha* or *aviveka*). But in that case, we have to imagine two different causal laws to explain similar kinds of phenomena that could be explained under the head of one single causal law. In philosophy, this unnecessary assumption is held to be vicious in the name of gratuitousness (*gauravadoṣa*). Hence, the Prābhākaras have to stand apart from their own position for the sake of logical economy (*lāghava*). They have to admit that determinate cognition is the common cause of volition. The volition becomes successful when the cognition is true and fails when the cognition is false.

In response to this objection, the Prābhākaras say that the cause of successful volitional also is non-discrimination – not a determinate cognition. When a piece of real silver remains present in front and is perceived without defect, the difference between the object-in-front and the silver is not perceived; because there is no difference between them. Due to the absence of the difference, it is not perceived. So, in all the successful volitional situations there remains non-discrimination or *bhedāgraha*. The Naiyāyikas also are bound to accept it. If that is regarded to be a common cause of volition then logical economy also is maintained. Moreover, false perception cannot be the cause of anything since it does not even exist. Sense-object-contact is required for perceptual cognition. When there is no real silver in front of the perceiver, the sense-organ by no means can come into contact with silver. Due to the absence of cause (*kāraṇabādheṇa*) the effect cannot be generated. Due to the absence of *sannikarṣa* perception cannot be generated. There is no real silver in tinsel. So, perception of silver in tinsel is not possible. The cognition of silver in the relevant situation was not at all perceptual – it was mnemonic.

#### 4.1.5. Against the Nyāya Theory of Jñānalaksana Sannikarsa

The Naiyāyikas also admit that the perceptuality of a cognition rests upon the intercourse of its object with the sense-organ. In order to meet up this requirement they admit a new kind of sense-object-contact that can connect the sense-organ with a spatio-temporally remote object. The contact is of the nature of cognition (*jñāna*), the content of which is connected to the

sense-organ. Hence the name of that contact is *jñānalakṣaṇa sannikarṣa*. In this way we can perceive the silver which is present in some another place or time (*anyathā*) in case of misperception of silver. The Prābhākaras may say that this assumption of *jñānalakṣaṇa sannikarṣa* is superfluous and therefore it violates the law of economy, but the Naiyāyikas say that this superfluity is a fruitful one – it is *phalamukhagaurava*. If any assumption is indispensable for a proper explanation, without which the phenomenon in question remains inexplicable, it has to be accepted. Such assumption is not vicious. Without the assumption of this extra-ordinary sense-object contact the perceptuality of illusion could not be explained. In this way, the Naiyāyikas establish the existence of illusion or false cognition (*bhrama*) and the cognition of elsewhere/elsewhen object (*anyathākhyāti*). According to them, everyone admits that the cause of successful volition is determinate cognition. Hence, the cause of unsuccessful volition, also, is determinate cognition. It is because both of these successful and unsuccessful volitions have the property of being volition. Thus the Naiyāyikas avoid the vice of superfluity.

The Prābhākaras would reply that they also avoid the said vice, accepting a single cause of the volition in general. And the cause is non-discrimination or *bhedāgraha*. This theory is more economic, since it assumes neither *jñānalakṣaṇa sannikarṣa*, nor *anyathākhyāti*, nor the existence of false cognition (*bhrama*). Moreover, even the Naiyāyikas have to admit that non-discrimination is the cause of unsuccessful volition. The cause of any event is the absence of its hindrance (*pratibandhakābhāva*). The factor which prevents an effect from coming into being is the hindrance against that effect. If a person could discriminate the object, lying in front of him, from silver, he would never rush to collect the object – such volition would never arise in his mind. So, discrimination (*bhedāgraha*) is the hindrance against the said volition; and its absence, i.e., non-discrimination is a cause of his unsuccessful volition.

This story is true in the case of successful volition also. Even when the real silver is present in front of the eyes, the person would not have the volition to collect it if he miraculously discriminates it from silver. So, discrimination (*bhedāgraha*) is the hindrance against successful volition also. Hence, non-discrimination (*bhedāgraha*) is the cause of volition in general (*pravṛtti*). In the situation of successful volition there remains no difference between the beforehand object and silver – that is why the difference is not apprehended. And in the situation of unsuccessful volition, although there remains a difference between silver and tinsel, that difference is not apprehended due to some defect.

When non-discrimination is an inevitable assumption, it would be more economic if we explain the whole thing by non-discrimination only. And we find that the Prābhākaras are doing the same. They say that non-discrimination alone can explain both kinds of volitional situation. So, one may say that from every aspect, the Prābhākara thesis is more economic; hence is more acceptable.

#### 4.1.6. An Objection Regarding 'Samūhāmbana Jñāna' and its Answer

In reply to the Prābhākaras, the Naiyāyikas refer to a cognitional situation which ensures the existence of false determinate perception or illusion. And illusion involves the perception of a thing existing somewhere else (*anyathākhyāti*). Suppose that a piece of silver, along with a piece of tinsel (*raṅga*) is present before the eyes. In such a situation, one may have a perception in the form 'These two pieces of silver' (*ime rajate*). This is a single perceptual cognition of a plurality of things (*samūhāmbana pratyakṣa jñāna*), which is followed by (partly) unsuccessful volition. Here, the Prābhākaras have to admit that the cognition of silver is perceptual because silver is present before the eyes – it is not elsewhere. The property of silverness (*rajatatva*) is known through the ordinary contact of 'inherence in the conjoined' (*samīyukta-samavāya sannikarṣa*). The visual sense-organ is connected to such a substance (silver) in which the said property inheres. Since the sense-contact is not absent, the Prābhākaras are bound to admit that the generated cognition is perceptual. However, this determinate perceptual cognition is not wholly true. The cause of a true perception is not any sense-object contact – but only a virtuous one. A contact becomes virtuous only when the sense-organ is connected to such a subject (*viśeṣya*) in which, the quality (*viśeṣaṇa*), which is revealed as a predicate (*prakāra*) in the produced cognition, inheres. So, the contact with *viśeṣaṇavadviśeṣya* is the cause of true perceptual cognition. Here, the visual sense-organ is connected to silver and tinsel – but the property of tinselness has not been revealed in the cognition. Hence, the part of eye-tinsel connection is not virtuous and the corresponding part of the perceptual cognition is not true – hence false. We can say that silverhood does not inhere in the eye-connected tinsel. Hence, in the part of tinsel, the cognition cannot be true. Hence, the existence of false cognition is proved. And if the existence of it is inevitably proved in one place, there is no superfluity in accepting the same in some other place.

The Prābhākaras reply that in this particular situation, the cognition is not wholly perceptual. The cause of the perception of silver is the sense-contact with silver. Here, one part of the

produced cognition is due to the sense-contact with silver. But the eye-tinsel contact also is there, which can never produce the perception of silver – it can produce only the perception of tinsel. Due to the defects (like the proximity of a silver-piece etc.), the property of silverness here is memory-driven, having its ‘thatness’ erased. The same defects obscure the tinselness in the perception of tinsel and make it the perception of ‘tinsel – only having thisness’. It causes the non-discrimination between tinsel and silver, which, in turn, causes unsuccessful volition. So, actually, there occur three true perceptions: a complete perception of silver, an incomplete perception of tinsel, having thisness, and an incomplete memory of silverhood. Due to the non-discrimination the total linguistic expression also turns out to be wrong. However, cognitions are never false.<sup>156</sup>

#### 4.1.7. An Objection Regarding Stalemate or Perplexed Situation and its Reply

Now, the Naiyāyikas move to another instance of a perceptual cognition of plurality of things, where tinsel and silver are perceived in the opposite order. The form of the produced cognition is ‘these two things are silver and tinsel respectively’. In that situation, the silver-seeking person approaches to that object which he thinks to be silver neglecting the other object. That means, he approaches to the tinsel neglecting the silver-piece, and both of his actions become unsuccessful in respect to his expectation. However, the person may perform incorrect operation but he does not become perplexed. The Naiyāyikas explain this phenomenon with the help of *anyathākhyāti*. They say that the produced perceptual cognition was determined by silverhood in the part of tinsel and it was determined by tinselhood in the part of silver. In other words, the tinsel-part of the *viśeṣya*, which is the seat of the absence of silverhood, is known as being determined by silverhood; and the silver-part of the *viśeṣya*, which is the seat of the absence of tinselhood, is known as being determined by tinselhood. Hence, the perception is illusory – in both of its parts. And the illusion explains the unsuccessful behaviour of the person. Now the Naiyāyikas object that the Prābhākara thesis predicts a different consequence. It predicts that there will be simultaneous volition (*pravṛtti*) and neglect (*nivṛtti*) towards each of the silver-piece and the tinsel-piece. The Prābhākaras hold that non-discrimination with a desirable object causes volition and non-discrimination with non-desirable object causes neglect. Now, no one is different from itself. Hence, there is no silver-difference (*rajatabheda*) in silver and there is no tinsel-difference (*raṅgabheda*) in tinsel. Due to the absences of those differences, they are not apprehended. So, we can say that the

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<sup>156</sup> KV., pp.487.

situation involves the absence of the apprehension of the difference of desirable silver in silver (*rajate iṣṭarajatabhedāgraha*) and the absence of the apprehension of the difference of non-desirable tinsel in tinsel (*rañge aniṣṭaraṅgabhedāgraha*). The former one generates volition towards silver and the later one generates neglect towards tinsel. At the same time, due to some defects, tinsel will be non-discriminated from silver and silver will be non-discriminated from tinsel. Hence, there will be *rajate aniṣṭaraṅgabhedāgraha* and *rañge iṣṭarajatabhedagraha*. The former one generates neglect towards silver and the later one generates volition towards tinsel. In this way, simultaneous volition and neglect towards each of the objects will be generated in the person. As a result, there will be a deadlock or stalemate situation regarding the person's activity. He will be perplexed regarding what-to-do and will not be able to do anything. But in reality such a consequence is not generated from the said situation. Hence, the Prābhākara thesis is contrary to the reality.

However, the Prābhākaras confront this objection with quite boldness. They say that the defects, which cause the second pair of *bhedāgraha*, work as a hindrance against the generation of the first pair of volition and neglect. The defect which causes *rajatabhedāgraha* in *rañga* prevents the generation of the neglect towards *rañga*. And the defect which causes *raṅgabhedāgraha* in *rajata* obstructs the generation of the volition towards *rajata*. Hence, under the spell of defect, there remains only the volition towards tinsel, along with the neglect towards silver – and the person acts accordingly. Therefore, the objection of simultaneous volition and neglect towards the same thing is baseless.<sup>157</sup>

#### 4.1.8. The Dilemma: 'Ubhayatah Pāsā Rajju' – Are its Horns Graspable?

Being thus replied, the Naiyāyikas stretch the domain of their argument and say that even if the Prābhākaras did not have to admit the existence of *anyathākhyāti* in the perceptual situations, they are bound to do so in the situations of inferences. The cause of perception is no cognition; but the cause of inference is another cognition named *parāmarśa*. In such situations, it is easy to show that at least one of these cause and effect is determinate false cognition or *anyathākhyāti*. The Naiyāyikas present a dilemma to prove their thesis.

They ask the Prābhākaras that what is the instrumental or the most important cause (*karaṇa*) of inference. The Prabhakaras are not supposed to consider any determinate cognition

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<sup>157</sup> KV., pp.487-488.

(*viśiṣṭajñāna*) as the cause of inference. If so, then they have to admit the existence of false inferential cognition (*bhramānumiti*) and false suggestive cognition (*bhramaparāmarśa*). Hence, they will say that the cause of inferential cognition is non-discrimination – just as they said that the cause of volition is non-discrimination. Now, the Naiyāyikas would say that sometimes we infer the existence of fire in lake. The Prābhākara thesis suggests that the cause of this inference is the non-discrimination between the lake and the locus of smoke, where smoke is the sure sign of fire. We do not apprehend the difference between the lake and the locus of smoke; and we know that where there is smoke there is fire. As a consequence, we infer fire in lake. Now, this inferential cognition, ‘that the lake is fiery’ is a determinate cognition. And it is a false inference (*asad anumiti*); since, we all know that lake is a sure seat of the absence of fire. In the previous cases, the non-discrimination was said to generate volition or action. And the Prābhākaras felt no pain in saying that volition or action could be wrong. But here, the generated entity is inference, which surely is a determinate cognition. Now the Prābhākaras are bound to admit the existence of false determinate cognition. Where there is a tri-level causal chain, such as *parāmarśa* → *anumiti* → *pravṛtti/vyavahāra*, the acceptance of *anyathākhyāti* is inevitable at the middle of the chain.<sup>158</sup>

Now, the Prābhākaras may say that there is no false inference. All inference is true (*sadanumiti*). But in that case, the Naiyāyikas would say that there are some instances where we have to admit the existence of false determinate cognition as the cause of true inference.<sup>159</sup> As for example, the false *parāmarśa*, ‘this hot iron-ball has smoke, which is uniformly associated with fire’, produces a true inference ‘this hot iron-ball is fiery’. So, the Naiyāyikas demand that even if there is no false inference, the Prābhākaras are bound to admit the existence of false determinate cognition as the cause of true inference – at least in some cases. So, we have seen that either as an effect or as a cause, the admission of false cognition is inevitable.

However, the first of these two horns of the aforesaid dilemma is graspable, because it does not represent the Prābhākara’s theoretical nexus honestly. And the Naiyāyikas are not unaware of this fact. We find a reflection of this awareness in Gaṅgeśa’s *Tattvacintāmaṇi* and in the commentary of Dinakara on *Bhāṣā Pariccheda*, which gives a hint for a possible

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<sup>158</sup> KV., pp.488.

<sup>159</sup> The Naiyāyikas believe in ‘Naturalised Epistemology’. Hence, they believe that a false *parāmarśa* might give rise to a true inference.

answer. The Prābhākaras may say that there is no false inferential cognition. What we call *bhramānumiti* is nothing but a juxtaposition of perception and memory. In the case of a true inferential cognition, the perception of the probans (*hetu*), being situated in the subject (*pakṣa*), gives rise to the memory of the *hetu*'s relation with such an entity which is uniformly associated with the *hetu*. This entity is called probandum (*sādhya*) and the memory is about the relation of concomitance (*vyāpti-sambandha*) between *hetu* and *sādhya*. The Prābhākaras do not admit the emergence of a cognition named *parāmarśa* at the third level in the mechanism of inference. Hence, what has been referred here as the cause of so-called *bhramānumiti* is a juxtaposition of incomplete perception and memory.

In some cases, there occurs an incomplete perception of *hetu*, the specific feature of which is obstructed because of some defects. And then another similar thing is memorized, erasing the 'thatness' of memory. As a result, these two cognitions (and their objects) are non-discriminated. An example of such an inference is that where someone is held to infer the existence of fire in lake from its smoke. At first, the vapour of water was incompletely perceived. The perception of its similarity with smoke triggered the memory of smoke. Due to the non-discrimination between smoke and vapour, their loci are also non-discriminated. Now, the cognition of smoke, in turn, triggers another (complete) memory – the memory of the *vyāpti* relation between smoke and fire. In such a cognition, the locus of probans (smoke) is non-discriminated from the locus of probandum (fire). As a result of these two non-discriminations the locus of vapour (lake) is non-discriminated from the locus of fire.

In some other cases, the *hetu* is perceived as situated in *pakṣa* completely but due to some defective association the perception triggers the memory of such an entity that is not uniformly associated with the *hetu*. Since all cases of *hetu* is not the cases of that memorized entity, their loci are (in some cases) different. But defects do not permit the difference to be apprehended. This non-discrimination ensures the non-discrimination between the *pakṣa* and the locus of *sādhya*. An example of such an inference is that where someone is supposed to infer red-hot iron-ball as smoky from its fire.

So, we have seen that different faulty situations of inference are actually different sets of cognition-complexes. In those juxtapositions, the *pakṣa* is non-discriminated with the locus of *hetu* which in turn is non-discriminated with the locus of *sādhya*. Either one or both of these non-discriminations happen under the spell of defect. Now, these two non-discriminations



ensure the non-discrimination at the next level. Eliminating the liaison (i.e., the *hetu*), the *pakṣa* is directly non-discriminated with the locus of *sādhya*. And this defect-oriented non-discrimination causes wrong behaviour or wrong linguistic expression at the next level.

And just like the previous perceptual cases, here also we can say that we can imagine similar causal chain of non-discriminations in the cases of true inferences also. Because, non-discriminations are already present in those cases, as *pratibandhakābhāva*. In the case of the true inference – ‘The hill is smoky, therefore fiery’, there remains no difference between hill and the locus of smoke. We know that object of perception is one of the necessary causes for perception. Hence, difference is the cause of apprehension of difference or discrimination. So, the absence of difference must be the cause of non-discrimination. Since, there is no difference between hill and the locus of smoke, there must remain a non-discrimination between them. If there were discrimination, the *pakṣadharmatājñāna* would not arise. In this way, the *vyāpti*-relation also involves the non-discrimination between the locus of smoke and the locus of fire. And in turn, the resultant inference involves the non-discrimination between the locus of smoke and the locus of fire. The only difference between the case of *sadanumiti* and so called *asadanumiti* is that the later one involves such a non-discrimination that is due to or under the spell of defect (*doṣādhina bhedāgraha*), where, the former one involves such a non-discrimination that is not under the spell of any defect (*doṣānadhina bhedāgraha*). Hence, there remains no threat of superfluity.<sup>160</sup>

However, there is a problem.

So far we have discussed that *doṣādhina bhedāgraha* produces another *doṣādhina bhedāgraha* and that *doṣānadhina bhedāgraha* produces another *doṣānadhina bhedāgraha*. But if there is a possibility where there is a crisscross between those causes and effects? The second horn of the Nyāya dilemma depicts such a situation where false *parāmarśa* (which the Prābhākaras refer to as *doṣādhina bhedāgraha*) produces a true inference (which the Prābhākaras refer to as *doṣānadhina bhedāgraha*).<sup>161</sup>

Let us analyze this situation and see what is wrong with it.

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<sup>160</sup> KV., pp.488.

<sup>161</sup> The other way is theoretically acceptable; because, defects can interfere at any time. So, *doṣādhina bhedāgraha* might be produced out of *doṣānadhina bhedāgraha*.

In that inference, there occurs a so called false *pakṣadharmatājñāna* where red-hot iron ball is said to be known as smoky due to some defect. It is nothing but a complex of two cognitions: the perception of red-hot iron ball as ‘this’, being the ‘fireness’ obstructed; and the memory of smoke without its ‘thatness’. At the next level, the memory of smoke arouses the association of smoke with fire. Accidentally, it is the memory of ‘fire’ which was obstructed at the first level. However, there is a difference. At the first level it might come as percept but now it has come to us as a memory-content. Hence, we have seen that the defect, involved at the first level cognition, has left an effect only on the felt aspect of the third level inferential cognition – sparing its epistemological aspect. And the credit of this ‘sparing’ goes only to the second level cognition. So, we can say that, here also, the resultant so called inferential cognition is under the spell of defect. And having been acquired such a cognition, if a person wishes to show another person the situation as he perceives, his volition will face an utter failure. He would try to convince that the cognized fire is an inferred one but the other person, who is not under the spell of defect, will say that the fire is a percept. The after-perception of the former person would be ‘I infer fire’ (*vahnim anumini*); but the after-perception of the later person would be ‘I see fire’ (*vahnim pratyakṣāmi*). Hence, this situation also is an instance of a chain of non-discrimination under the spell of defect.

One might feel uncomfortable with such an explanation and it is true that we are not sure whether the Prābhākaras would conform to such an explanation or not. Moreover, this explanation depicts the process of inference differently. It is a matter of doubt whether such a parallel thesis could be constructed regarding inference. Even if we construct it, we are not sure whether it can explain all the situations of inferences and *hetvābhāsas*. But so far as the Nyāya-objection is concerned, the explanation seems to be successful against it.

#### 4.1.9. Intra-Theoretic Consistency : An Overall Reflection

So, we have seen that the Prābhākaras have put the theory of *bhedāgraha* consistently in their own system. In order to see this consistency we may focus on some other spokes in the nexus of their presuppositions. One of the fundamental presuppositions of the Prābhākaras is that before being sure about the truth (*prāmāṇya*) of a cognition one does not move accordingly. The knowledge of the truth of a cognition is necessary for performing the volitional action according to the cognition. But experience tells us that we do not wait for any proof for the truth of the cognition and engage ourselves in action. So, in order to keep the theoretical nexus

consistent with the perceptual evidence, they said that whenever cognition occurs, we immediately 'know' its 'truth'. To say this, they had to subscribe to both the theories – *sarvajñānayatathārvāda* and *svataḥprāmāṇyavāda*. *Svataḥprāmāṇyavāda* holds that the truth of cognition is generated and known/revealed immediately by the same condition of the generation and revelation respectively and *sarvajñānayatathārvāda* holds that all cognitions are true. The previous presupposition is true only when the latter theories are accepted, otherwise not.

In contrast to the Prābhākaras' system we can refer to the Nyāya system which presupposes that ascertainment of the truth of cognition is not necessary for any volitional activity. The determinate cognition is sufficient for producing volitional activity (the physical assistance on the cognizer's part is also necessary), unless the cognition is proved to be false. Hence, we can say that the determinate cognition, along with the absence of the ascertainment of its falsity, can produce volition. It means any determinate cognition can move us accordingly, even if that is false, until that falsity is known to us. This presupposition is consistent with our experience that we are prompted to action without looking further whether the produced cognition is true or false. So, there is no problem in admitting *parataḥprāmāṇyavāda* and the possibility of false cognition in this system, as the Naiyāyikas did. Actually, the Prābhākaras' system values an intuition that when a cognition occurs, immediately by default we believe in the truth of that cognition, while the Naiyāyikas differentiate between 'what we think to be true' and 'what is true in itself'. For them, that which appears to us to be true may not be so if the appearance does not match with reality. But we have seen that the Prābhākaras do not admit the object-content dualism. For them, *ālambana* and *pratibhāsa* is synonymous. In the context of this theoretical background, they can consistently subscribe to the No-Error thesis.

This way all the other schools also have offered their alternative positions that start with some fundamental presuppositions and depending on those axioms the whole superstructure is built up. Any conflict between the schools regarding any issue ultimately boils down to the conflict of their presuppositions. But each of those systems is internally consistent. When the conflict of presupposition becomes apparent and the time of choosing one among the alternative consistent schemes comes, all the schools set the criteria of parsimony as the determining factor, and try to prove that their own system is lighter (*laghu*) than the others'. This is a speculative, rather than an experimental approach. The followers of Indian schools are generally not ready to alter their fundamental contentions or axioms. That is why they prefer

speculation to an experimental approach where an impartial empirical test model might be devised in order to see whether those axioms or hypotheses are grounded on or supported by our experience or not. We may mention *en passant* that Vidyāraṇya and Vācaspati took similar enterprises in *Vivaraṇaprameyasamgraha*<sup>162</sup> and *Bhāmatī*<sup>163</sup> respectively in rejecting Akhyātivāda, where they tried to get the answer to an empirical question on the basis of conceptual analysis. The main purpose of such speculation is to provide a consistent picture of a particular system and to prove that it is the lightest following the law of parsimony.

#### 4.1.10. An Empirical Question Regarding the Perceived Character of Illusion?

However, it is not the case that the Indian schools have not given importance to the experiential evidence; the Naiyāyikas hold that in order to be acceptable, any theory has to pass the empirical test. Being logically consistent is not sufficient. The offered system must be grounded in our experience. The Prābhākaras' theory might be attacked on this count. The author of *Siddhāntamuktāvalī* presented a separate argument in order to prove the existence of *anyāthākhyāti*. In the last line of this account, Viśvanātha says that *anyathākhyāti* or false qualified cognition is supported by perceptual apprehension.<sup>164</sup> He says that the nature of any determinate cognition is reflected in the mental perception of that cognition (*anuvyavasāya*). They hold that *anuvyavasāya* is infallible in determining the nature of *vyavasāya*. After the said cognition, the mental perception arises in the form 'I have known the object (tinsel) as silver'. It proves that the said cognition (*vyavasāya*) was a determinate false cognition. Following the same trail it can also be said that in the case of the first example of illusion the after-perception occurs in the form – 'I have perceived the object (tinsel) as silver'. It proves that the said cognition was a perception – not a complex of perception and memory. However, the Prābhākaras do not believe in this presupposition. They hold that the perceptuality of a cognition is determined exclusively by the collection of all its causal factors (*kāraṇasāmagrī*). Then the Naiyāyikas would say that there is a difference between 'to be determined' and 'to know'. It seems that, like any philosophical debate, this debate also is never-ending.

That, which reveals cognition, also reveals the nature of that cognition. This truism is also acceptable to the Prābhākaras, although they are *svaparakāśavādins*. According to the

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<sup>162</sup> VPS., pp.200-227.

<sup>163</sup> VDBP. pp.97-106.

<sup>164</sup> *ittham ca anyathākhyātau pratyakṣam eva pramāṇam, rangam rajatatayā aveḍṣam iti anubhavāt iti samkṣepaḥ.* – *Siddhāntamuktāvalī on Kārikā 135 & 136, Viśvanātha, KV.*, p.489.

Naiyāyikas, cognition is revealed in a subsequent mental perception (*anuvyavasāya*) and the Prābhākaras say that cognition reveals itself. Whatever may be the revealer, it must reveal the nature of the revealed cognition. If the Prābhākaras' thesis were right, then after the illusion is over, we would have recognized – 'I perceived *this* first and then remembered *silver*'. But when the illusory situation is over, we do not have such experience. Instead we recognize that the object (shell) was being apprehended as silver. It proves that the previous instance of illusion was a *viśiṣṭapratyaya*, or the cognition of the object present in front (shell) as being qualified by the property of being silver (*śuktiviśeṣyaka rajatatvaprakāraka anubhava*). The Naiyāyikas call it *viparyaya* or *bhrama*. Vidyāraṇya also presented the same argument against the Prābhākaras. Jayanta Bhaṭṭa criticizes the Prābhākaras that, during illusion we do not apprehend any non-discrimination or *bhedāgraha*. It is not apprehended even when the illusion is gone. Even after correction, we do not think that the difference between '*idam*' and '*rajatam*' was not being apprehended during the illusion. Rather we realize that shell was being apprehended as silver. So, our experience does not support Prābhākaras' contention.

#### 4.1.11. Internal Problems

Besides this empirical non-support, there are two internal problems in the Prābhākara account. They are as follows:

(I) It has not been clearly stated in the whole discourse that how an absence can generate another absence. Moreover, the Prābhākaras do not admit the independent existence of absence. Then how could it be causally effective?

(II) According to the Prābhākaras themselves a defect cannot produce a novel effect. It only can obstruct the production of effect. It does not have *svatantrakāryotpādakaśakti* but only *kāryajananaśaktivighātakatva*. If that is true, then how can a *bhedāgraha* produce unsuccessful volition, being associated with defect? It should not produce any volition or anything at all.

Hence, although the Prābhākaras were successfully finding an alternative way of explaining illusion, dodging the Nyāya counterexamples, the path seems to head to a dead end. Hence, we can say that the Prābhākaras' account of mechanism of error is inconsistent with their fundamental principle. Let us list out their axioms:

1. All cognition is true.
2. There is no object-content dualism.
3. Truth of a cognition is generated and known immediately.
4. Ascertainment of the truth of cognition is necessary for the corresponding volitional activity.
5. Absence has no independent reality.
6. Behaviour or action is not a product of a qualified cognition but of non-apprehension.
7. Defect does not produce new effect. It obstructs the production of effect.
8. Defective non-apprehension with desired object produces volition in the cogniser.
9. Defective non-apprehension with undesired object produces neglect in the cogniser.
10. If the object does not remain present before the sense-organ, it cannot be connected to it.
11. Illusion is a combination of two different, true although incomplete, cognitions.

Here, we have seen that Axiom No. 5 is not consistent with Axiom No. 6; and Axiom No. 7 is not consistent with Axiom No. 8 & 9. Hence, we can say that the system suffers from internal inconsistency (*svabacobyāghāta*). From this discourse, we have to pick up only one psychological assertion for further examination: whether illusion is a single qualified false cognition or is it a combination of two different true but incomplete cognitions.

For comparison, we can sketch the Nyāya (and Bhāṭṭa) axiomatic system in correspondence with that of the Prābhākaras. It is as follows: (we shall discuss it in the later section)

1. There are true as well as false cognitions.
2. Object is the cause of cognition and the content is that which is revealed by cognition.
3. Truth of a cognition is generated by virtue (*guṇa*) and known through inference.
4. Ascertainment of the truth of cognition is not necessary for the corresponding volitional activity.
5. Defect (*doṣa*) produces new effect.
6. The object, absent before the sense-organ, might be connected to the organ extraordinarily.
7. Behaviour or action is produced by qualified cognition, not by non-apprehension.
8. Illusion is a single qualified false cognition. No perception can be partly perceptual and partly memory because perceptuality is a *jāti* which should not have the vice of admixture (*sāṅkaryā*). The Bhāṭṭas differ at this point they hold that illusion is a single

qualified false cognition that is partly perceptual and partly memory. It is *nṛsiṃhākāra jñāna*.

With this list of presuppositions, let us discuss the Nyāya and Bhāṭṭa theories of illusion.

#### 4.2. *Anyathākhyātivāda* and *Viparītākhyātivāda*

The Nyāya and the Bhāṭṭa philosophers have offered alternative versions of Satkhyātivāda against the Prābhākaras' No-Error theory. According to the Naiyāyikas, the cases of illusion are the cases of single qualified false cognition. Absence of cognition of difference (*bhedāgraha*) may be a necessary condition for a particular behaviour. But the principal cause of a conscious person's behaviour is a qualified cognition (*viśiṣṭajñāna*), whether it is true or false. That all cognitions are true is an unwarranted presupposition. In order to prevent the skeptics' challenge, we need not subscribe to such an extreme stand, which rejects the possibility of falsity altogether. The Prābhākaras said that the admission of even a single promiscuous cognition would open up the possibility that perhaps all cognitions are false. The Naiyāyikas offer here a simple test, which can determine the status of a cognition. If the cognition under fire leads to successful action, it is true; if it fails, it is false. From these results we can infer the truth or falsity of the cognition in question. The Prābhākaras, however, do not subscribe to this *parataḥprāmāṇyavāda* where the truth of a cognition X is revealed by another cognition Y. Because, until the doubt on the truth of Y is removed, X's truth cannot be proved beyond doubt and so on *ad infinitum* causing vicious infinite regress (*anavasthārūpa anīṣṭaprasaṅga*). So, *svataḥprāmāṇyavāda* is logically sounder. The Naiyāyikas say that it is not at all a harmful situation since the regress is causal. Such infinite chains are experientially evident to us like the egg-hen regress. So it is a virtuous one (*prāmāṇika*). But the *svataḥprāmāṇyavādins* might answer that firstly it is not a causal but an epistemological regress. Secondly, even if we admit that it is an acceptable one causing no theoretical problem, our problem is not solved. The doubt on the truth of X is not ultimately removed since at each point, it is transferred to the next step through an infinite causal chain.

Indeed, it is a problem for the Naiyāyikas since they use a pragmatic method to ascertain the truth of cognition, while subscribing to one kind of correspondence theory of truth. If they would have said that 'truth' is nothing but 'the cognition's efficacy in serving a practical purpose successfully', then the theoretical system would be stronger, since there would be no instance of accidentally-unsuccessful true cognition or by-chance-successful false cognition.

The doubt-level would then come down to zero. But the Naiyāyikas here may validly claim that no cognition regarding this world of experience is beyond a theoretical doubt. Doubt-level never comes down to zero. But in practical situation, that infinitesimal doubt never comes up to the minimum efficient level. So, we can ignore it practically. However, if the Naiyāyikas say so, they will be nearer to Humean skepticism. The Naiyāyikas need not be alarmed by the said objection since they are fallibilists who hold that cognitions are always testable against new evidential context. The truth of cognition is never beyond question.

However, in reply to the said objection, the Naiyāyikas take an offensive stance and say that the theory of *svataḥprāmāṇyavāda* can be refuted on the ostensible ground that it fails to do justice to an indisputable fact of experience. We may doubt our unusual experience, with which we are not habituated in a particular context. Suppose a person is aware of the fact that in desert, people often experience mirage. Now, coming across to an oasis in a desert unexpectedly, he may doubt whether he perceives an oasis or a mirage (*idaṁ jalajñānam pramāṇa vā*). In such a situation, the person has the knowledge of his own experience since it is the object (*dharmin*) of his doubt (*samsaya*). But he does not know whether that experience is true or not. This fact is contrary to the *svataḥprāmāṇya* thesis, which says that what reveals cognition reveals its truth also. The Naiyāyikas say that the principal function of a theory is to explain the facts of the world that we experience. In the name of making a system flawless, the Prābhākaras are undermining this fact.

The truth of cognition is revealed by some other cognition, not by that which reveals the cognition itself. So, the Prābhākaras do not have any reason to reject the simple test-device to check the status of cognition whether it is true or not. The Prābhākaras may say that even if they subscribe to *parataḥprāmāṇyavāda* they would not be ready to give up their No-Error theory (*sarvajñānayathārvāda*). They would like to offer an alternative test-device, which will not presuppose the existence of false cognition. However, it seems to be an impossible task since such a model will not be able to accommodate the fact that some cognitions lead to successful action and others lead to unsuccessful action. We have seen that the model of *bhedāgraha* has doomed to fail. So, in order to explain the variety in the effect, we have to admit the variety in their causes; and these causes are *pramāññāna* and *apramāññāna* respectively. Moreover, against the skeptics' challenge, there are strong arguments. In Vātsyāyana's *Nyāyabhāṣya*, it is said that cognition cannot be considered to be false without the existence of a corrective cognition. In such a case, the corrective cognition has to be a true



cognition since a false cognition cannot correct any other cognition. So the very possibility of a false cognition itself presupposes the existence of a true cognition. The argument from parasitism reminds one of Ryle's arguments that a coin cannot be deemed counterfeit, unless there is a true coin similarly a perception can be called illusory only in contrast with other perceptions which are veridical and trustworthy. So, the Prābhākaras need not worry so much about the skeptics' threat and subscribe to *sarvajñānayathārthavāda*.

#### 4.2.1. Whether Nyāya Propounds any Form of Epistemic Disjunctivism

The Nyāya says that in order to counter Buddhist skepticism one need not be a No-Error theorist like the Prābhākaras. Because, now he has a new weapon, argument from parasitism, which says that error is asymmetrically dependent on truth. Here a relevant question will come. Do the Nyāya arguments from parasitism anticipate or endorse some kind of 'Epistemic Disjunction'?

The Naiyāyikas are considered as direct realists to whom the admission of object-content duality is irrelevant. But some may hold that commonsensically one cannot explain error or illusion successfully without admitting a common level of representation. And the acceptance of object-content dualism necessarily leads to some form of representationalism or conceptual constructivism. Even if that is true then also we can say that the Naiyāyikas have tried to secure their direct realism even they have accepted object-content dualism. The Nyāya position might be interpreted as rejecting the dualism only in the cases of veridical perception. Hence they are propounding some form of disjunction theory, may be McDowellian one. Matthew R. Dasti<sup>165</sup> is in support of this view supposing that asymmetric dependence of error on truth entails such conclusion.

Disjunctivism is the denial of the claim that there is a common kind of experience between misperceptions and perceptions that is of robust explanatory value. Disjunctivism holds that though misperceptions and perceptions are superficially, i.e. phenomenologically or macroscopically similar, they are chemically or microscopically distinct. So the misperceptions and perceptions should not be categorized as being of the same epistemic kind.

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<sup>165</sup> Dasti, M.R., 'Parasitism and Disjunctivism in Nyāya Epistemology', *Philosophy East and West*, 62, 1, University of Hawai'i Press, January, 2012, pp. 1-15.

McDowell's Epistemic Disjunctivism,<sup>166</sup> ED, is offered as an alternative to the 'highest common factor' view of experience. This HCF view maintains that veridical and non-veridical cases share a common kind of mental state. This view is motivated by the argument from illusion. The argument is that since deceptive cases are experientially indistinguishable from non-deceptive cases, the experiential intake of both cases must be the same. And that is the highest common factor. In the deceptive case that factor (experiential intake) falls short of the fact because it is consistent with there being no such fact. So, in the non-deceptive case also, that factor falls short of the fact and gives no warrant for certainty (like deceptive state). McDowell marshals HCF line of reasoning as follows:

1. Veridical and non-veridical perceptions of say yellow lemon are phenomenologically indistinguishable from the first-person point of view.
2. If two states are phenomenologically indistinguishable in first-person experience, then they should be categorized as falling under a common epistemic kind.
3. If two states are of the same epistemic kind, then they provide the same epistemic warrant.
4. So, veridical and non-veridical perceptions provide the same warrant.
5. If two states have the same kind of warrant then they provide the subject with the same experiential intake.
6. So, one's experiential intake is the same in veridical and non-veridical cases. And that is HCF.

HCF view says that the ultimate basis of our beliefs about the external world lies in mere appearances that cannot acquire more warrant than what is provided by what is common between veridical and non-veridical cases.

Against HCF view, McDowell endorses ED, which has four main components:

1. Perception is a capacity for knowledge. It is a capacity to get into a position in which one has indefeasible warrant for certain beliefs. Though the capacity is fallible, but in non-defective exercise that fallibility does not kick in.

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<sup>166</sup> Soteriou, Matthew, 'The Disjunctive Theory of Perception', *The Stanford Encyclopedia of Philosophy*, Summer 2014 Edition, ed. Edward N. Zalta, URL = <<http://plato.stanford.edu/archives/sum2014/entries/perception-disjunctive/>>. Retrieved on 19.03.2015 at 10:05 pm.

2. Perceptual appearances of defective and non-defective cases are metaphysically distinct. There is a disjunction between an appearance of objective states-of-affair and an appearance as of objective states-of-affair which does not exist.
3. Hence, perceptual appearances, being metaphysically distinct, have asymmetric warrant.
4. Perceptual experience is non-factorizable. Having an aspect of objective reality perceptually present to one entails that the reality appears to the person in a certain way. But that is not to say that having an aspect of objective reality perceptually present to one can be factored into some non-mental conditions and an appearance, which is conceived as a mental state.

ED provides a transcendental argument against epistemic skepticism. It is as follows:

Premise 1: If ED is true, then there are transcendental reasons for rejecting epistemic skepticism.

Premise 2: ED is true.

Conclusion: So, there are transcendental reasons for rejecting epistemic skepticism.

Dasti thinks that like the Disjunctivists the Nyāya also holds that true cognition and error are metaphysically distinct. Although a non-veridical perception is phenomenally indistinguishable from a veridical perception, there is no ‘highest common factor’ between those two states which might imply symmetric experiential intake and symmetric epistemic warrant, as the Cartesians think. In this way Nyāya keeps itself unaffected by Cartesian or Buddhist skepticism.

However, A.J. Vaidya<sup>167</sup> thinks that Epistemic Disjunctivism is incompatible with vision science which propounds Proximity Principle (PP), which is the basis in nearly all scientific study of perception. It is as follows:

PP: Holding constant the antecedent psychological set of the perceiver, a given type of proximal stimulation (over the whole body), together with the associated internal afferent and

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<sup>167</sup> Vaidya, Anand Jayprakash, ‘Nyāya Perceptual Theory: Disjunctivism or Anti-Individualism?’ *Philosophy East and West*, 63, 4, October, 2013, University of Hawai’i Press. pp. 562-585.

efferent input into the perceptual system, will produce a given type of perceptual state, assuming that there is no malfunctioning in the system and no interference with the system.

This principle supports the 'highest common factor' view because different distal stimuli may produce the same proximal stimulus depending on the subjective conditions. There is an empirical fact that different distal causes can yield proximal stimulation that is relevantly the same. This empirical fact entails that perception of entities in the distal environment is fallible. The PP, together with this empirical fact entails that the same type of perceptual state can be veridical or non-veridical, perceptually referential or non-referential. Hence, perception involves an ability-general kind in common between veridical and non-veridical states. But ED denies that there is such a common kind between veridical and non-veridical state. So, ED is inconsistent with PP or vision science. Hence ED is unacceptable.

Suppose a person is seeing an object, another person is seeing its duplicate and still another person is hallucinating that object, due to an abnormal confluence of light. We shall suppose that the light array hitting the retina is type-identical in the three cases – or at least sufficiently similar that the perceptual system cannot make use of the difference. So, although here the distal stimuli are different, the proximal stimuli are of the same kind. And according to PP same kind of proximal stimulus will produce same kind of perception. So, there is an ability-general common kind between veridical and non-veridical perceptions.

However A.J. Vaidya admits that the Nyāya endorses metaphysical distinctness between veridical and non-veridical cognitive states – but not through admitting disjunctivism, but by admitting different causal processes for the production of veridical and non-veridical states. The Nyāya Misplacement Theory of Illusion (MTI) entails that (i) veridical and non-veridical states are metaphysically distinct because of the distinct causal processes that go into each state; and (ii) the causal difference makes MTI different from ED and consistent with Burge's Perceptual Anti Individualism or PAI.<sup>168</sup>

Misperception (as opposed to hallucination, to which MTI does not apply) is a case where an object is seen to have a property which in fact the object does not have. Three things are important as causes of misperception like snake-rope illusion:

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<sup>168</sup> Burge, Tyler, 'Individualism and Self-Knowledge', *The Journal of Philosophy*, 85(11), November, 1988, 649-663.

1. In order to misperceive a rope as a snake the person must first possess the concept of snake.
2. During misperception the normal causal process of seeing rope as a rope is interrupted by a memory of snake. The memory of snake is arisen and imposed into awareness. By contrast during true perception no memory is intervened into causal stream of true perception.
3. Misperceptions of  $x$  as  $y$  is based on an objective feature that  $x$  looks similar to  $y$ .

Among the aforesaid points, 1 and 2 are subjective conditions and 3 is objective condition.

Now, the question is what is the feature that makes veridical states metaphysically distinct from misperceptions? MTI maintains that the causal pathways make the difference, and the difference in causal pathways explains the metaphysical difference. In misperception a memory has intervened in an appropriate way. In veridical perception there is no such intervention.

In the definition of perception given by Gautama the term 'inerrant' or '*avyabhicārī*' rules out misperception from the domain of perception. And the metaphysical distinction between veridical perception and misperception is explained by the difference in causal processes. In veridical perception the pathway is 'normal', without any intervention of memory. In the cases of misperception the pathway is 'non-normal', with an intervention of memory.

In the Nyāya framework 'epistemic warrant' is irrelevant for the truth of a cognitive state. It is the causal process which makes a cognition true (or false). Hence, Nyāya theory is far from Mc Dowell's Epistemic Disjunctivism.

A.J. Vaidya tried to show that Nyāya MTI is closer to Burge's PAI, which supports Proximity Principle against ED. A.J. Vaidya says that:

1. ED does not give a better footing for understanding an epistemic position as being one of default trust rather than doubt. It is possible that PAI provides a better explanation for default trust.

2. Neither epistemic, nor causal, nor meaning parasitism can deny HCF theory. Nyāya system of perceptual theory is such that it does not have to find out an internal common component, because Nyāya provides a causal or etiological account of the sources of knowledge. So, the credit goes to Nyāya system, not to parasitism. Moreover, it may be the case that Nyāya theory is amenable to the existence of such common factor between veridical and non-veridical cases of perception.
3. Three forms of Parasitism do not lean directly toward ED. (i) Epistemic Parasitism is a thesis about what is a necessary condition for identifying and recognizing a false case of perception. It does not require denying HCF thesis. (ii) Causal Parasitism appears to be no more the thesis of asymmetric dependence. (iii) Meaning Parasitism appears to be an outright example of Anti-Individualism about meaning, because the central thesis of Anti-Individualism with regard to meaning is that an individual's use of a term depends on factors outside their personal psychology. These factors include social and physical facts about their environment. An individual cannot mean *y* by the term '*x*', unless the individual has causally interacted in some way with *y*.
4. McDowell announces ED via the non-factorizability and metaphysical distinctness of veridical and non-veridical mental states. However, his full account is tied to the additional thesis that perception is a capacity to know, and that veridical and non-veridical states have asymmetric warrant. The robustness of McDowell's ED should lead us to think critically whether Nyāya Parasitism really reaches as far as ED.

McDowell's ED is motivated by an attempt to provide a transcendental argument against epistemic skepticism. ED appears as a response to Cartesian skeptical frame, which took the method of doubt as a starting point of philosophical reasoning. Now, Dasti rightly understands that Nyāya epistemology starts from the default position of trust as opposed to doubt. Hence classical Indian frame is not similar to Cartesian skeptical frame. A.J. Vaidya thinks that a motivation for the Nyāya account is the search for criteria by which one can explain how perception is an instrument of knowledge by looking at how the causal processes involved in misperception are distinct from those involved in perception. And this component makes the Nyāya thesis amenable to Burge's PAI.

Burge says this general ability to use the information in common between the three cases is explanatory for how we come to have a perceptual system at all. Without such ability we could not have evolved to have a perceptual system. And of course, the possibility of the system

evolving also requires that there are veridical states. (Perhaps the Nyāya theory of successful volition is relevant here. Veridicality ensures success and success drives evolution in the right track.) ED, by contrast, denies that there is an explanatorily relevant kind in common between the three states. While PAI individuates perception at a type-level commonality, ED does so by virtue of the conditions at a token-level. Given that in the three cases the perceptual state is only phenomenally similar, and not target similar, ED maintains that the states are different in an explanatorily robust manner relevant to the classification of epistemic kinds.

McDowell and Burge agree that asymmetric dependence of error on truth plays an important role in a theory of perception. Veridicality is a necessary condition for the possibility of perception; concept-possession and perceptual capacities are enabled by veridicality. However, what they disagree on is what follows from asymmetric dependence. PAI maintains that veridicality is necessary for a perceptual system to arise. ED maintains that veridicality is an essential property of a perceptual type.

According to ED three conclusions follow from the asymmetric dependence:

1. Metaphysical distinctness: A perception is either a mere appearance or a presenting of an objective fact.
2. Asymmetric warrant: The epistemic warrant in a veridical case is not the same as the epistemic warrant in a non-veridical case.
3. Non-factorizability: A veridical perception cannot be factored into an appearance and the objective fact that makes it a veridical perception.

Among these claims, the first and the third one are metaphysical claims and the second one is an epistemic claim. Burge says that asymmetric dependence entails Anti-Individualism which says that ‘perception only makes sense against the background of veridical states’. And this metaphysical claim entails neither of those aforesaid claims. It entails neither (a) that there is no common factor of explanatory importance between veridical and non-veridical perception, nor (b) that veridical nor non-veridical states have asymmetric warrant.

McDowell’s ED includes four theses:

1. Perception is a capacity to know.
2. Veridical and non-veridical states are metaphysically distinct.

3. Veridical and non-veridical states possess asymmetric warrant.
4. Veridical states are non-factorizable.

A.J. Vaidya says that although MTI accept 2 but it falls short of ED. Moreover, MTI is compatible with PAI. He discusses MTI in relation of the four theses of ED in the following way:

1. Nyāya epistemology says that perception is an instrument for knowledge – not a capacity to know. McDowell says that a perceptual capacity is a capacity to get into a position in which one has indefeasible warrant for certain beliefs. But defeasible or indefeasible warrant is not important factor in Nyāya epistemology.
2. Nyāya endorses that veridical and non-veridical states are metaphysically distinct. But the reason it shows is that the causal processes in those cases are distinct. Whereas the disjunctivists emphasizes that veridical and non-veridical states are superficially or phenomenologically similar; and phenomenological similarity is not sufficient for categorizing epistemic kind. It is the truth condition in external world that determines epistemic kind. The Nyāya emphasizes on the causal processes (which may include the truth condition of external world in the form of *doṣa* and *guṇa*). In the case of misperception memory intervenes as a necessary condition but in the case of veridical perception it does not. Hence, we can say that, the fact that two accounts offer a metaphysical distinction between veridical and non-veridical states entails neither that both accounts offer the same distinction nor that they offer it for the same reason.
3. Nyāya would deny the third thesis, because the idea of justification as a component of knowledge is not operative in the frame of Nyāya epistemology. Nyāya epistemology does not appear to engage the internalist intuition that justification is a necessary condition of knowledge. So, warrant is irrelevant in the context of Nyāya epistemology. Moreover, asymmetric warrant was proposed against the background of Cartesian frame of skepticism, which is absent in the context of Nyāya epistemology.
4. McDowell's claim that perception is non-factorizable says that perception cannot be factored into some mental and some non-mental conditions. If we try to impose this idea on MTI then it will be like the following: MTI is an etiological theory or causal theory, which says that the causes of misperception can be factored into object, sense-organ and memory. And the causes of perception can be factored into object and sense-organ. At most MTI can say that the veridical perception is non-factorizable because it denies the presence of memory state, which is present in non-veridical state.



Now these two stances are completely different. McDowell's non-factorizability claim gives a positive explanation for veridicality. It says that a state is veridical because the occurrence is based on something being perceptually present to one. Objective reality is what explains the veridicality of perception. But MTI does not give us a direct positive account of perception. The conditions that Nyāya imposes on perception, for example being non-erroneous, are stated as necessary conditions, and not as positive explanatory conditions.

Hence MTI is incompatible with ED. Vaidya says that PAI offers a better option for categorizing MTI. There are two reasons why this is so:

1. Both PAI and MTI require that there be objective features of the perceiver's environment that can play an explanatory role in how a misperception is produced. Both maintain that all perception requires a background of veridical perception. In MTI, the objective similarity between coiled rope and coiled snake (which is in the perceiver's environment) explains misperception.

Both PAI and MTI are consistent with Proximity Principle or PP. PP states that holding constant the antecedent psychological set of the perceiver, a given type of proximal stimulation (over the whole body), together with the associated internal afferent and efferent input into the perceptual system, will produce a given type of perceptual state, assuming that there is no malfunctioning in the system and no interference with the system. According to Philips (2004), as A.J. Vaidya writes in page 580 of the previously mentioned article, the key feature of MTI is that "snakehood is available to become illusory predication content through previous veridical experience of snakes. This is because it gets fused into a current perception by means of a foul-up in the normal causal process through the arousing of a snakehood memory formed by previous experience of snakes". So, both of MTI and PP acknowledge the importance of proper functioning and non-interference with the causal system. PP maintains that a certain type of perceptual state is the output of the relevant causal process as long as there is no malfunction or interference. MTI maintains that misperception is a consequence of an interference with the causal system. Hence, for Nyāya epistemology, perception is the result of the proper functioning of the causal system, and misperception is the result of interference, occurred in the normal causal processing. Hence both PAI and MTI look carefully at the causal role of the environment and the make-up of the subject in the production of a perceptual

state, although they may not propound the same causal story MTI is closer to PAI than ED because MTI and PAI look at the causal story in rendering an account of perception and misperception, whereas ED does not look at causation in explaining the difference between veridical and non-veridical states. It simply looks at the veridicality conditions.

However, if we admit that Nyāya is in accord with Proximity Principle then we may say that Nyāya admit some kind of representation which may be common in a veridical and a non-veridical state. PAI admits such a level of perceptual representation that is never subpersonal. That means we always remain conscious about perceptual representation. So, if PAI is the right platform for the Nyāya epistemology then we have to admit that Nyāya endorses Representative Realism.

#### 4.2.2. Anyathākhyāti: The Mechanism of Illusion

So, we have seen that for the Nyāya, cognition is a causal phenomenon and the Nyāya theory of misplacement endorses alternative causal pathways or mechanisms which differentiate a false cognition from a true one, although there is a phenomenal similarity between the true and false cognitions. The Naiyāyikas now present their own theory of illusion and describe the illusory situation. They say that, during the illusion of silver in shell, our sense organ is connected to the shell present before the perceiver. But its shellhood is obscured due to some defects such as reflected sunrays. Similarity of silver in shell and the person's desire for silver prompt the person to take it to be a piece of silver. The resulted cognition is a determinate one (*viśiṣṭajñāna*). The content of any determinate cognition has three parts. The pure point of reference or the locus (*ādhāra*), which is cognized as being characterized or determined by a qualifier, is called *viśeṣya* (determinandum). The qualifier, manifested in the cognition, is called *prakāra* (determinans). And the relation between the two is called *saṁsarga*.

In the illusion of silver in shell, *viśeṣya* or the determinandum is the object present in front of the perceiver, i.e., the shell (*śukti*). The *prakāra* or the determinans is the property of being silver (*rajatatva*). And the relation (*saṁsarga*) is inherence (*samavāya*). Thus the cognition becomes '*śuktiviśeṣyaka rajatatvaprakāraka samavāyasaṁsargaka viśiṣṭajñāna*'. The Naiyāyikas define *apramā* or false cognition as a cognition, which has for its determinans something 'p', when its determinandum is, in reality, the locus of the absence of that something 'p' (*tadabhāvavadviśeṣyaka tatprakāraka jñāna*). The aforesaid cognition is *rajatatvaprakāraka*, when its *viśeṣya* is shell, which is the locus of the absence of silverhood

(*rajatatvābhāvavat*). So, it is *apramā* or false cognition. In illusion, the shell appears to be qualified by *rajatatva* but in reality it has *śuktītva* which is not manifested in the cognition. The manifested qualification is called *prakāra* and the actual qualification of the *viśeṣya* is called *viśeṣaṇa*. This mismatch of qualification of the cognition (*prakāra*) results in false cognition. There is no falsity in the domain of *viśeṣya*. So, the Naiyāyikas' dictum: '*dharmini sarvamabhrāntam prakāre tu viparyaya*'.

The Naiyāyikas hold that in illusion we perceive an object as something else (*anyathā*). Hence the theory is named *Anyathākhyātivāda*. There is another interpretation of the name that reflects its metaphysical considerations. The Naiyāyikas are staunch realists (*sadvādins*) who hold that content of cognition can never be unreal or *alīka*. Even the illusory content, silver (or the property of being silver), is real. Although it is absent in front of the perceiver, it is existent in some other place or time (*anyathā*). In this sense *Anyathākhyāti* is a variety of *satkhyāti*.

The Bhāṭṭa Mīmāṃsakas also agree with the view that the content of erroneous cognition is not unreal but wrongly cognized or wrongly localized. The Bhāṭṭa view is named somewhere as *Anyathākhyāti* and somewhere as *Viparītakhyāti*. It holds that the illusory contents are as real as the contents of veridical cognition. The difference between an illusory and a veridical perception of the same form *idam rajatam* is that in the former case, silver is present here and now, but in the later case, silver is present somewhere else, which the knower happened to see earlier.

The names *Anyathākhyāti* and *Viparītakhyāti* are used to refer to the same thesis in some occasions. These terms have been used interchangeably. The Vaiśeṣikas such as the writer of *Nyāyakandalī*, Śrīdhara Bhāṭṭa, and the writer of *Kiraṇāvalī*, Udayana, also supported this theory in the name of *Viparītakhyātivāda*. However, these two theses are not the same. The Bhāṭṭas, who are the supporters of *Viparītakhyāti*, admit complex cognitive state or *nṛsiṃhākāra jñāna* in the illusory situation but the Naiyāyikas, who are the supporters of *Anyathākhyāti*, do not admit it.

#### 4.2.3. A Metaphysical Objection and The Bhāṭṭas' Reply

However, one may object that although the separate elements of an illusion i.e. the shell (*viśeṣya*), silverhood (*prakāra*) and inherence (*saṃsarga*), are real, but the state-of-affairs,

which the illusion describes, is not at all a part of the world. The total content does not seem to be real or existent anywhere. In reply, the Bhāṭṭas say that although, in some sense, it is unreal, it is not completely unreal or *alīka*. The unreality of shell-as-silver is not to be regarded as a negative fact or negation (*abhāva*), since *abhāva* does not have any independent ontological status other than its terms, i.e., its locus (*anuyogī*) and its negatum (*pratiyogī*), those are positively real. ‘Shell-as-silver’ means ‘Shell is not silver’; and the negation involved is nothing but the shell (in respect of silver) or the silver (in respect of shell) – both of which are real. Since shell can never be a piece of silver, it is unreal only as silver. Similarly, silver is unreal only as a shell. The silver that appears in illusion is, in itself, real. But, then the question arises that what is the difference between a veridical and the non-veridical cognition if both of them reveal the reality alike? In such a situation the illusory nature of an illusion remains unexplained. In reply, the Bhāṭṭas say that everything in this universe has two aspects – essential (*svarūpa*) and relational (*pararūpa*). ‘Being a pot’ is the *svarūpa* of a pot, which is an independent aspect of it, whereas, ‘not being a cloth’ is the *pararūpa* of the pot, which is a dependent or relational aspect of it. Now, we can describe a thing either by a positive mark (*sadrūpa*) or by a negative mark (*asadrūpa*). If we cognize an object regarding its essential or intrinsic aspect positively (*sadrūpa svarūpa*) or regarding its extrinsic aspect negatively (*asadrūpa pararūpa*), then the cognition will be veridical. It will be like ‘the pot is pot’ or ‘the pot is not a cloth’. And the reverse will be non-veridical – ‘the pot is not a pot’ or ‘the pot is cloth’. Illusion is of the fourth kind. In illusion, a thing’s extrinsic feature is known positively (*sadrūpa pararūpa*) and in the corrective cognition the extrinsic feature is described negatively (*asadrūpa pararūpa*). The illusory cognition ‘*idam rajatam*’, presents a real entity (shell) having an extrinsic feature (silverness), which is real but does not qualify the shell. And the veridical cognition ‘*idam na rajatam*’ presents a real entity (shell) as having a negative feature of such an entity (silver), which is real but different from shell.<sup>169</sup>

#### 4.2.4. Untenability of the Bhāṭṭas’ Reply

But, this explanation, offered by the Bhāṭṭas, is untenable at least for two reasons:

(A) The Bhāṭṭas are confused about the proper meaning of *pararūpa*. In the context of the corrective cognition ‘It (shell) is not silver’ they have defined it as a relational aspect of the shell involving a reference to an extrinsic thing. However the aspect is never extrinsic to the

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<sup>169</sup> CFA., pp.104-109.

shell. But in the context of the cognition ‘It (shell) is silver’ *pararūpa* is defined as a feature which is not an aspect of a real shell, but extrinsic to the shell. In the former sense of *pararūpa* it can never be a *sadrūpa* of the shell simultaneously and in the latter sense it can never be an *asadrūpa* of the shell.

(B) In the whole account, it has been presupposed that that *abhāva* or non-existence has no independent metaphysical status and it actually refers to the locus as the *asadrūpa* of the locus. But, this is actually the Prābhākaras’ contention. They do not admit non-apprehension (*anupalabdhi*) as an independent means of cognition. The Bhāṭṭas, on the other hand, admit that *abhāva* is an independent category, known by the sixth means of cognition – *anupalabdhi*. It is of two types – *Samsargābhāva* and *Anyonyābhāva*. *Samsargābhāva* is in turn of three types – *Prāgabhāva*, *Dhvānsābhāva* and *Atyantābhāva*. Actually, there is not much difference between the Naiyāyikas and the Bhāṭṭas regarding the account of *abhāva*. So, this ‘*svarūpa - pararūpa*’ account is ambiguous as well as inconsistent with the Bhāṭṭa system.

#### 4.2.5. The Nyāya Strategy: Atomic Approach

The Naiyāyikas have turned aside the question of the reality of the total content and taken an atomistic view. They hold that each of the components of the total content is real – either here in this place, or somewhere else. Some of the Bhāṭṭa philosophers also hold similar view. But before elaborating their account it must be said that it is an injustice to the main objection – whether the total content of illusion is real or not. As an answer to this question, the Advaitins have launched a commonsensically alien concept of ephemeral (*prātibhāsika*) object, which is instantly created in front of the perceiver. This way they explain the perceived character of illusion. According to them, this *prātibhāsika rajata*, corresponding to the cognition ‘it-as-silver’, is neither absolutely (or practically) real nor absolutely unreal. Here, the Naiyāyikas might say that during the illusion ‘*idam rajatam*’, we refer to the object present by ‘*idam*’. It has ontological reality. Even the Advaitins admit the empirical reality of ‘*idam*’ (*śukti*) and ephemeral reality of ‘*rajatam*’. Now, can there be a single object in this world, which possesses different degrees of reality? We can place the objection differently and say that if, during illusion, the silver were understood to be an ephemeral object, we would not move towards it in order to pick it up (since we know that such object does not serve any practical purpose). So the total content of illusion is ‘*purovarti prātibhāsika rajat – as – vyavahārika rajat*’. And logically there cannot be any object anywhere corresponding to it. It is an *alīka*

object like a square circle. To avoid this '*Asatkhyātivāda*', the Advaitins also have to subscribe to an atomistic view and check the reality of each parts of the cognition. Actually, they have done the same and assigned different degrees of reality to the different parts of illusion. So, the Advaitin's view ultimately leads to *Anyathākhyāti*.

#### 4.2.6. A Problem in the Atomic Approach

The Nyāya position is nearer in spirit to Locke's empiricism, which says that although there is no such thing in this world corresponding to the idea of 'Golden Mountain', still all the components of this compound idea (the idea of 'gold' and that of 'mountain') have corresponding real entities. These things produce simple ideas of them through sensation. Later, the combining faculty of our mind joins them together and creates a novel one. And all such compound ideas are reducible to the simple ideas of the real things. However, Locke did not say anything about the real entity corresponding to the relation, manifested in the cognition of Golden Mountain. It may be irrelevant to Locke's theoretical framework but the Naiyāyikas are supposed to explain it. Prof. Bimal Krishna Matilal said that according to the Naiyāyikas, such relations are *created* on the spot. But here one may question whether merely an epistemic process can create a metaphysical entity like *samavāya*. Moreover, in shell-silver illusion, the relation is *samavāya*, which is one and eternal; hence it can not be created. The relation (*samsarga*) that figures in the illusion relating two things, one of which is present here (shell) and the other is present elsewhere (silver), cannot be real. There is neither any *samavāya* relation between shell (*śukti*) and the property of being silver (*rajatatva*) nor any relation of identity (*abheda*) between shell and silver. The older Naiyāyikas (also Pārthasārathi Mīśra and Vācaspati Mīśra) hold that such relation is unreal. But this position is self-defeating and against the spirit of *Satkhyātivāda*. Moreover, the Advaitins would object that how can an unreal relation bind two real things? The Bhāṭṭas may say that the relation actually does not relate anything but only is known as doing so. But, in a determinate cognition, no unrelated conglomeration of discrete elements is cognized. The terms are cognized as being related to each other by a certain relation. If the relation in question is unreal, what should be the status of the terms related by such an unreal relation? Will not it be also unreal? Why not extend the logic and consider that the *prakāra* also is unreal although known to be real? If cognition of unreal *samsarga* is theoretically accepted then, the cognition of unreal *prakāra* also might be admitted. Therefore it is better to subscribe to *Asatkhyātivāda*.

We have mentioned that Sucharita Miśra, a Bhāṭṭa Mīmāṃsaka, has given a reply to this objection in Kāśikāṭikā of Ślokavārtika. He said that the relation should not be considered to be a separated element from its *pratiyogī*. The relation and its *pratiyogī* form a unity which is existent elsewhere during illusion. In the case of shell-silver illusion, it is not *rajata* but the *rajatasamavāya* which is present elsewhere. So searching for any real entity corresponding to the relation itself is quite pointless.<sup>170</sup>

#### 4.2.7. *The Navya Naiyāyika's Solution*

Carrying on the atomic approach a step further, the Navya Naiyāyikas said that we have to sever those properties from the relation in the same atomistic way as we cut apart *viśeṣya* and *prakāra*, and then see whether those separate elements are real or not. The relation cognized in illusion is real but it only lacks at least one of the two relative properties or features (*dharma*) those remain present in the cases of true cognitions. An illustration will make it clear. In the case of true cognition that there is a pot on the ground (*ghaṭavat bhūṭalam*), the ground is the *viśeṣya*, the pot is the *prakāra* and the relation of contact (*sanyoga sambandha*) is the *samsarga*. Now, each relation must have two relata – one is the locus (*anuyogī*), and the other is that which is located (*pratiyogī*) in the locus in that relation. Here, the pot (*ghaṭa*) is the *pratiyogī* and the ground (*bhūṭala*) is the *anuyogī* of the relation of contact. So, the relation is ‘*bhūṭalānuyogika*’ and ‘*ghaṭapratyogika*’. So, the relation has two properties – (A) the property of being such that whose locus is ground (*bhūṭalānuyogikatva*) and (B) the property of being such that whose *pratiyogī* is pot (*ghaṭapratyogikatva*). In the cases of true cognition, the relation possesses both of these properties. But in the cases of illusion the relation (which is nonetheless, real) lacks any one or both of these properties. The *samavāya* relation, manifested in the shell-silver illusion, is real but it lacks at least one among the two properties: (a) *śuktianuyogikatva* and (b) *rajatapratyogikatva*. The shell-residing *samavāya* lacks (b) though it possesses (a); whereas, the silver-residing *samavāya* lacks (a) but possesses (b). All other cases of *samavāya* relation in the world are such that they possess none of those particular properties. So, we can see all the constituent elements of even the illusory cognition (*śukti*, *rajata*, *samavāya*, *śuktianuyogikatva* and *rajatapratyogikatva*) are separately real, although are not arranged together in reality.

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<sup>170</sup> PM., pp.213-220.

The atomistic stance presupposes that the property of having a particular *anuyogī* and that of having a particular *pratiyogī* are unimportant and non-essential for an individual relation. But, a token relation can be identified only by referring to its *anuyogī* and *pratiyogī*. The manifested token relation was determined by those two *dharmas* together. Such a relation of course is unreal. Moreover, the theory implies that the cognition of a relation is possible without the cognition of its *anuyogī*. This is not acceptable.

So, the question boils down to how to define a relation. If we define relation in terms of its relata, then those relata must be intrinsic to the relation, otherwise not. Now, *viśeṣya*, *prakāra* and *samsarga* are epistemological concepts that are meaningful only in the context of a determinate cognition. The Prācīna Naiyāyikas defined *samsarga* in terms of a direct reference to *viśiṣṭabuddhi*. It is a relation representing an item of reality which has a unique and independent relation to the determinate cognition. *Viśeṣya* is defined to be the *anuyogī*, and *prakāra* is defined as the *pratiyogī* of such a relation or *samsarga*. There might be alternative defining strategies holding *viśeṣya* (or *prakāra*) to be the basic one (having a unique and independent relation to the determinate cognition) and defining others depending on that. But the Navya Naiyāyikas contend that such strategies are unwarranted since an ontological attitude has been taken in defining the other two concepts. The epistemic factor has been withdrawn in those cases. It is unjustified. All of them should be defined in terms of the direct reference to *viśiṣṭabuddhi* independently of the other concepts, since all of them enjoy independent relations to cognition. In such case the *samsarga* need not be such a relation, of which, the *anuyogī* is *viśeṣya* and the *pratiyogī* is *prakāra*. It is the relation in itself – whatever may its relata be. And there is no reason to hold that such a relation is unreal.

From the answer it becomes clear that the Naiyāyikas are talking about the type-relation which is no doubt real. But are we really supposed to be concerned about the reality of an indefinite relation? Will not then our search would be trivial and philosophically insignificant? The correcting cognition '*idam na rajatam*' reports that the relation, which was cognized in illusion as connecting *viśeṣya* (*idam*) and *prakāra* (*rajatam*), is absent. The correcting cognition does not seem to undertake an irrelevant responsibility to report the absence of such a relation which does not hold between those things which are revealed in the illusion such as the *samavāya* holding between the Statue of Liberty and its white colour. It proves that the illusory cognition did not report about *any* relation of that type, but a particular token relation which the correcting cognition denies. Vācaspati holds that such token relation is unreal,



although its relata are real entities. During illusion we ascribe the connectedness on two unconnected objects. This view is one variety of *Asatkhyāti* named *Saduparakta-Asatkhyātivāda*. However, this metaphysical debate will again turn back to the question whether we should take a ‘strict’ atomistic approach or ‘at some level’ holistic approach in considering the illusory content.

#### 4.2.8. The Objection against the Theory of Deśāntarīyatva and its Reply

The crux of the Nyāya theory was that the illusory content is real but is present elsewhere (*anyathā*). The Advaitins bring charge against the thesis of *Deśāntarīyatva*. Padmapāda in *Pañcapādikā* and Prakāśātman in *Pañcapādikā-Vivaraṇa* have said that neither the illusory cognition nor its corrective cognition can prove such a thesis. A sentence cannot mean anything that it has not said. The sentence ‘*nedam rajatam*’ cannot mean that the silver in question *exists in some other place*, because it does not say so. Neither is it an instance of *arthāpatti* due to the absence of its causal assemblage. And after a pot is broken, its *dhvaṃsābhāva* is perceived. But for that reason it cannot be said that the pot exists elsewhere, because the pot has been destroyed and now it exists nowhere.<sup>171</sup>

In reply to this objection, firstly we must say that in the context of the whole theory of *Anyathākhyāti*, it has been clear that the emphasis is more on *kālāntarīyatva* than on *deśāntarīyatva*. Illusory content is supplied from the memory of previously experienced object. So, here, *real* means *real at any point of time*. The content of illusion is supplied from the memory-trace or *saṃskāra*. *Saṃskāra* of an object is produced by the experience of that object. If there were no real object there would not be any experience of it. We have discussed earlier that the hypothesis of the ‘trace-illusion-infinite-chain’ is untenable. So, the memory-traces always are causally grounded in real objects which are present elsewhere or elsewhere.

<sup>171</sup>*tathāca bādhakajñānam – ‘nedam rajatam’ iti viśiṣṭadeśa-kālasambandham rajatam vilopayadevodeṭi, na deśāntarasambandhamāpādayati; tathā’navagamāt. nārthapattya; iha bhagnaghaṭābhāvavattāvanmātreṇāpi tatsiddheḥ. – Pañcapādikā, Padmapādācārya, BBPV., pp.245-248.*

*nedam rajatam, kiṃtu deśakālāntare buddhau vetyanavagamāditi bhāvaḥ. yāvadabhidhānasāmarthyam hi vākyamartham pratipādayati, deśāntaravartitvam tvanabhihitam na vākyārtha ityarthah. evam sati pratipannasya vastuno’trabhāvo’nyatra sattvamantareṇānupapannah, ityarthāpattya vākyam gamayīṣyatīti, netyāha – nārthapattyeti..... kiñca loke’pi pratipannopādhāveva yasya niṣedhaḥ, tasya niṣedhopādhisajātīyopādhyantare sattvam na kalpyata ityāha – iha bhagnaghaṭābhāvavaditi. yathā pratipannadeśo niṣiddhasya ghaṭasya na deśāntare sattvam, evam pratipannadeśa-kālavastusarvopādhau niṣiddhasya na pratiyogitvenāpratipannasarvopādhau sattvasiddhirityarthah.– Pañcapādikāvivaraṇa, Prakāśātman, BBPV., pp.245-247.*

#### 4.2.9. An Important Metaphysical and Semantic Issue

Before switching over to the epistemological questions, one important metaphysico-semantic issue is required to be addressed. It is about the meaning of the term *real*. Different schools of Indian philosophy have taken this term in different senses. But hardly had they clarified those concepts before they went on discussing them. It causes unnecessary complication. For the Naiyāyikas, 'real' means existent in this world in a spatio-temporal framework. If it exists nowhere in any point of time, it is unreal. For the Advaitins, reality has three degrees. X is absolutely real if it (and its cognition) is never sublated. X is practically real if its cognition is sublated only by the cognition of that which is absolutely real. X is ephemerally real if its cognition is sublated by other corrective cognition of a practically real object. X is unreal if it is inconceivable or never-appearing. When the Advaitins say that illusory object is not 'real', they mean that it is not 'absolutely real'. So, for them, *reality* means *absolute reality*, which is never-sublatable (*trikālābādhita sattā*). They hold that neither the illusory objects nor the empirical objects are *real*. Those objects are not *unreal* (in the strict sense) either, because they appear to us. Hence these ephemeral and phenomenal worlds are non-describable, *mithyā*. Appearance does not prove their reality nevertheless disproves their unreality. But according to the Mīmāṃsaka, Bhartṛprapañca or Pāñcarātra, which has appeared at any point of time, is real.<sup>172</sup> The Mīmāṃsakas do not accept the Advaitins' concept of Non-dual *Brahman* which is the never-sublatable Absolute Reality. Hence, both of the empirical and ephemeral realities of the Advaitins are equally real for the Mīmāṃsakas. The Naiyāyikas also hold the same view. But they define reality as the property of being the locus of the universal of existence (*sattājātimānatvam sattvam*). On the other hand, according to the Buddhists, only that which has causal efficacy is called real (*arthakriyākarītvam sattvam*). However, when these divergent senses are properly considered, the opposing theories may not be found to be as opposing as they seem to be. Actually, the contesting philosophical stands are expressing comments on *real* objects, presupposing their own senses of 'reality', when they are very much aware of the fact that those comments would be inappropriate, if different senses of 'reality' are presupposed. If we keep this in mind from the beginning of our discussion, we might avoid unnecessary intellectual juggleries. And if we are aware of the fact that we differ from each other regarding the meaning of the word 'real' (*sat*) and due to this difference regarding that basic issue all the other complications have emerged, then we should discuss

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<sup>172</sup> *prakāśamānatāmātram sattvam*. – *Bhāmātī on Adhyāśabhāṣya, Vācaspati Miśra, VDBP.*, pp.63-64.

about that basic issue first. But whenever we have tried to do so, the debate took us another step deeper and confronted us with a more basic (difference regarding the) metaphysical presuppositions of the contestant theories. Often the semantic presuppositions are found to be based on metaphysical presuppositions. And going another step deeper they tried to prove which metaphysical theory is more economic (*laghu*) and in what sense it is economic. A theory may be *laghu* in two different senses – whether the theory is *conceptually* economic or *metaphysically* economic. So we have to prioritize the senses of economy (*laghutva*).

Let us take an example. According to the Naiyāyikas, reality or *sattā* is defined as the property of being the locus of the universal of existence (*sattājātimānatvam sattvam*). This is their semantic presupposition which is different from that of the Advaitins. For the Advaitins what is never-sublatable is absolutely real (*trikālābādhitā sattā*). Now, realizing this basic difference the Advaitins object that the Nyāya semantics is wrong, because the Nyāya definition is not supported by the Nyāya metaphysics. The Naiyāyikas themselves say that universal inhere only in substance (*dravya*), quality (*guṇa*) and action (*karma*). It cannot inhere in another universal (*sāmānya*), in ultimate differentiator (*viśeṣa*), in inherence (*samavāya*) and in absence (*abhāva*). If so then *sattājāti* is not present in *sāmānya*, *samavāya*, *viśeṣa* and *abhāva*. Hence these categories are not *sattājātimat* and therefore are not real (*sat*).

The Naiyāyikas reply to this objection saying that *sattājāti* is present in those four categories although it does not inhere in them. *Sattājāti* resides in *sāmānya* and *viśeṣa* in *ekārthasamavāya sambandha* and it resides in *samavāya* and *abhāva* in *ekārthasāmānādhikarānya sambandha*. Pitcherness (*ghaṭatva*) is a *sāmānya* which inheres in pitcher (*ghaṭa*). Now *sattājāti* also is a *sāmānya* which inheres in the same substance, pitcher. So pitcherness and *sattājāti* both reside in the same object pitcher in the same relation inherence or *samavāya*. So the relation between pitcherness and *sattā* is the relation of ‘being inhere in the same object’ or *ekārthasamavāya sambandha*. In the same way, *viśeṣa* inheres in the eternal substances such as atoms and *sattājāti* inheres in the same atom. So, the relation between *viśeṣa* and *sattājāti* is the relation of ‘being present in the same object in the relation of inherence’ or *ekārthasamavāya sambandha*. According to the Naiyāyikas, inherence (*samavāya*) is a separate category which resides in the relata of this relation of inherence in self relation (*svarūpa sambandha*). Pitcherness (*ghaṭatva*) inheres in pitcher (*ghaṭa*). So the relation between pitcherness and pitcher is inherence (*samavāya*). Now, this *samavāya* as a separate category resides in both the relata, i.e. pitcher and pitcherness. But if it is said that the

*samavāya* resides in *ghaṭa* and *ghaṭavta* in relation of *samavāya* or inherence then an infinite regress will set in. So, it is said that *samavāya* resides in its relata, i.e. in *ghaṭa* and *ghaṭatva* here, in self-relation *svarūpa sambandha*. Now, *sattājāti* inheres in the same pitcher in which *samavāya* resides in self-relation (*svarūpa sambandha*). So, *samavāya* and *sattājāti* are co-located in the same substratum, although in different relation. So, they are related to each other in relation of ‘being co-located in the same substratum’ or *ekārthasāmānādhikaraṇya sambandha*. In similar way an absence such as the absence of cloth (*paṭābhāva*) resides in its locus such as the ground (*bhūtala*) in relation of qualification and qualified (*viśeṣaṇatā* or *svarūpa sambandha*). In the same ground (*bhūtala*) *sattājāti* resides in the relation of inherence. So, the absence and the *sattājāti* are co-located in the same substratum (in different relations). Hence, they are related to each other in relation of *ekārthasāmānādhikaraṇya*.

So, the Naiyāyikas conclude that *sattājāti* resides in *dravya*, *guṇa* and *karma* in *samavāya sambandha*; it resides in *sāmānya* and *viśeṣa* in *ekārthasamavāya sambandha*; and it resides in *samavāya* and *abhāva* in *ekārthasāmānādhikaraṇya sambandha*. Hence, all of the categories (*padārtha*) are real.<sup>173</sup>

The Advaitins now say that the Naiyāyikas are postulating three different relations to explain the same thing. So the theory propounded by the Naiyāyikas suffers from the fallacy of overloadedness (*gauravadoṣa*) and hence is unacceptable. But the Naiyāyikas say that according to them *samavāya* is numerically one as a metaphysical category. So, their theory is metaphysically economic – hence acceptable.

#### 4.2.10. The Epistemological Question and an Answer to it

The Anyathākhyātivādins and the Viparītakhyātivādins hold that the illusory content, silver, is real although present in different spatio-temporal locations. A pertinent epistemological question arises then as to, how can such a distant object be cognized in illusion. The Prābhākaras had a ready answer that the so called illusory content is nothing but an object of our memory. It is silver being remembered (*smāyamāna rajata*) which was perceived earlier at a different location. Now, it is true that the previous experience of silver is partially responsible for shell-silver illusion. If I had no experience of silver, I would not have such

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<sup>173</sup> *sattvaṁ nāma paraṁ sāmānyaṁ, tadāśrayatvena dravyaguṇakarmmasu sadvyavahārah, tadekāśrayatvasambandhena sāmānyaviśeṣasamavāyeṣu. – Gūḍārthadīpikā of Madhusūdana Sarasvatī on Śrīmadbhagavad Gītā - 16.2., BGGD., p.108.*

illusion of silver. But it is not acceptable that illusion is a juxtaposition of two cognitions – perception of *idam* and recollection of *rajata* – as the Prābhākaras say. We have seen that it is a single qualified false cognition (*viśiṣṭapratyaya*), where the *viśiṣṭa* is *idam* and *prakāra* is *rajata* or *rajatatva*.

Some of the Bhāṭṭa Mīmāṃsakas have tried to solve the problem holding that although it is a *viśiṣṭapratyaya*, its different parts are cognized through different means of cognition. The part *idam* (*viśeṣyāṃśa*) is perceptually given while the part *rajatam* (*prakārāṃśa*) is recollected. The resultant cognition is partly perceptual and partly mnemonic. It is hybrid or man-lion cognition (*nṛsiṃhākāra jñāna*). Since the Naiyāyikas do not admit such mixed cognition (in terms of its category) they sarcastically call such cognition as ‘*narasimhākāra*’ or of the form of man-lion indicating a manifestation of Śrī Viṣṇu.<sup>174</sup> The Bhāṭṭa Mīmāṃsakas agree with the Prābhākaras’ account of the illusion-generating-mechanism, up to the production of *pramuṣṭatattāka smṛti*. But the Bhāṭṭas say that the mechanism does not stop here. Since the *tattā* of the *smāryamāna rajata* is obscured, we falsely identify it with the perceived object *idam*. Thus, the silver, which is actually present elsewhere or elsewhen, is wrongly localized to be here and now, as a qualification of *idam*.

#### 4.2.11. The Nyāya-Bhāṭṭa Debate: Rajatajñāna – Pratyakṣa or Smṛti?

But the Naiyāyikas do not admit this Bhāṭṭa account. The reason they show is that a particular instance of cognition cannot be partly perceptual and partly non-perceptual since *pratyakṣatva* or ‘perceptuality’ is a *jāti* or universal. The Naiyāyikas hold that there must be some common feature or *anugata dharma* in a particular group of instances, by virtue of which they are called by a common name. This *anugata dharma* is *jāti*. The Naiyāyikas enunciate realistic theory of universal and say that these common features are eternal entities, inhering in all the particulars (*nityatve sati anekasamavetattvam*). But any common feature cannot be regarded as *jāti*. There are certain obstacles. The attribute, whose presence in *anugata dharma* disallows it to be regarded as *jāti*, is called ‘deterrent’ or *jātibādhaka*. Those common features in which the *jātibādhakas* are present are called *upādhi* or attribute. One of those *jātibādhakas* is *sāṅkarya*, which says that if two different properties are such that one of them resides in the locus of the other and also in the locus of the absence of the other, then none of them will be considered to be *jāti*, such as, the property of being a physical element (*bhūtatva*) and the

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<sup>174</sup> TCMP., pp.607-608.

property of having a form (*mūrtatva*). *Bhūtatva* resides in *akāśa* which is without a form and *mūrtatva* resides in mind which is not a physical element. Moreover, both of them reside in earthen pot. So, they are not *jāti*, but *upādhi*. Now if a cognition is considered to be partly perceptual and partly mnemonic, the cognition will be the locus of *pratyakṣatva* and *smṛtitva*. Besides, there are instances of purely perceptual true cognition and that of pure recollection. So, due to the presence of these overlapping and non-overlapping zones, none of these properties will be called a *jāti*. But *pratyakṣatva* is a *jāti* according to the Naiyāyikas. Therefore, no cognition can be partly perceptual and partly non-perceptual. Illusion is wholly perceptual.<sup>175</sup>

But this contention is supposed to face strong opposition. The Naiyāyikas do not posit hybrid cognitions since they admit *sāṅkarya jātibādhaka*, but the Bhāṭṭas may not have such constraint. Although the Advaitins admit the perceptual character of illusion, they do not admit the Naiyāyikas' theory of eternal *jāti*. According to them, *Brahman* alone is eternal. They do not admit even the theory of *samavāya* – the relation, in which the *jātis* are supposed to reside in the instantiating particulars. The Advaitins do not admit the ontological reality of *relation* since that would lead to infinite regress. On the other hand, Buddhists hold that there are no *jāti*. Everything is momentary. Universals are nothing but names, signifying the absence of objects called by other names (*atadyāvṛtti* or *apoha*). Moreover, the Navya Naiyāyikas do not admit *sāṅkarya* to be a *jātibādhaka*. There are several cases where one of the two overlapping attributes has been considered to be a *jāti* while the other is not considered to be so. Thus the property of being a sense-organ (*indriyatva*) has become an *upādhi* while the property of being earth-element (*pṛthivītvā*) has been considered a *jāti*, though they have overlapping as well as non-overlapping zones (common locus – olfactory sense-organ). The same story holds in case of *śarīratva* and *pṛthivītvā* (common locus – human body). The Navya Naiyāyikas say that if *sāṅkarya* is considered to be a *jātibādhaka*, then even *ghaṭatva* cannot be a *jāti*, since this property overlaps with the property of being gold (*svarṇatva*). A golden pot has both of them, an earthen pot lacks the latter and a golden ring lacks the former. And if there is no *jātibādhaka* named *sāṅkarya*, then *pratyakṣatva* can be considered to be a *jāti* even if there is *nṛsiṃhākāra jñāna – idam rajatam*. So the reason is not at all convincing.

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<sup>175</sup> It should be noticed that the Naiyāyikas do not admit *pramātvā* as a *jāti*, because it may be partly erroneous and partly non-erroneous. If so, then what is the point or necessity of accepting *pratyakṣatva* as a *jāti*?

However, the Naiyāyikas have another strong reason to regard perception as a *jāti*. They say that phenomenally there is no difference between a true perceptual cognition of silver and misperception of silver in shell. In both the cases silver is apprehended with equal vividness. Recollection lacks such prominence. In both cases, we recognize afterwards in introspection that we have not only *known* but *perceived* silver. The absence or presence of different kinds of cognitions are cognized in the Self in the form like – ‘*asti me etat pratyakṣam nāsti me tat pratyakṣam*’ (I have this perception but do not have that perception) or ‘*asti me saiśāyajñānam nāsti ye saiśāyajñānamiti*’ (I have doubt, I do not have doubt etc.).<sup>176</sup> In *Nyāyakusumāñjaliḥ*, Udayana has referred to Gautama in support of this thesis, where Gautama says that the presence and absence of all the alternative determinate cognitions are experienced (through internal organ) in different bodies by the Self, determined by different bodies.<sup>177</sup> Introspection of a determinate cognition (*anuvyavasāya*) reveals the nature of that cognition. In the case of shell-silver illusion, *anuvyavasāya* occurs in the form – ‘*aham rajatam pratyakṣāmi*’. Hence, here silver is not recollected, but perceived. The perceived character of illusory content is phenomenally evident.

#### 4.2.12. Is it Possible to be Mistaken about one’s own Cognitive or Mental State

The Bhāṭṭa philosophers have not explained this perceptual nature of illusory content. They might say like the Prābhākaras that, during illusion, we do not actually perceive silver although we think that we do. But this account might seem to be counter-intuitive to many philosophers. They would say that the phenomenal character of a mental state is self-evident to the person in that state. No one can falsify the fact that I am feeling pain even if there is no medical evidence for my pain. And if I am not feeling pain, no one is justified in ascribing pain to me like the doctor of *Cikitsāsaṅkaṭ*, Tārinī Kavirāj, speaking to Nandabābu, “Of course you are in pain, but you do not know it”.<sup>178</sup> But, here the Mīmāṃsakas would say that the question is not whether certain mental state *appears to me* as perceptual or not, but whether the mental state in question actually *is* perceptual or not. That is, whether it has been produced by sense-contact with proper object (*satsamprayoga*) or not. In favour of the Prābhākaras, Kisore Kumar Chakraborti argues that our introspection during illusion should not be regarded

<sup>176</sup> *Bhāṣya of Vātsyāyana on Nyāyasūtra-5.1.31*, NDP V., pp.436-437.

<sup>177</sup> ‘*yadsūtrayāt – jñānavikalpānām bhāvābhāva sainvedanāt adhyātmam*’ – (*Nyāya Sūtra 5/1/31 iti*) – *Nyāyakusumāñjaliḥ (4/4)*, Udayana, NKS., p.369.

<sup>178</sup> Tārinī - “*Hoy, jānti pāro nā!*” – *Cikitsāsaṅkaṭ*, Rajshekhar Basu (*Parashurama*), Rajshekhar Basu, *Cikitsāsaṅkaṭ*, Parashuram Granthavali (Vol. I) (5<sup>th</sup> edition), M.C. Sarkar and Sons Pvt. Ltd., 14, Bankim Chatujye Street, Kolikata-73, Baishakh, 1394 Bangabda, p.25.

as reliable evidence for the illusion's perceptuality. On the other hand, if our introspection is a result of post-illusion analysis, then we will never arrive at such an *anuvyavasāya*. Rather, in such cases, we become aware of the fact that the previous experience was my *imagination* and not *perception*. The thesis receives the support from a post-illusion common experience. When the illusory phase is over, we arrive at a subsequent corrective *anuvyavasāya* of the form – '*I thought I saw X, but I didn't*'.<sup>179</sup> Similar account of illusion has been given by D.M. Armstrong,<sup>180</sup> who says that during illusion we are inclined to believe falsely that we (veridically) perceive some object or state-of-affairs. But this account should explain why during illusion our introspection reveals it as a perception.

On the ground of recent psychological theories, Dr. G.P. Bhatt has tried to explore the reason why we take recollection to be a perceptual one. Phenomenally, the identifying mark of a perception is the vividness of its content. If, somehow, the content of recollection acquires such vividness, we may take it to be a percept. Modern psychological experiments show that an image and a percept are distinguished through the difference in the degree of vividness. But under imperfect conditions of sensibility such as low illumination they are apt to be taken for one another. A percept with low intention may be taken for an image and image with high intention may be taken for a percept. Gestalt psychologists advocate for the mixing up of perception and imagination by the process of filling up the gap.<sup>181</sup>

It is now scientifically proved that the presence of a neurochemical named endorphine can suppress pain-sensation and create pleasure-sensation even when the external stimulus is the same. It can be said that since there is no change in the external stimulus, the *transformation* is only at proximal level. Endorphine helps to release the neurotransmitters like dopamine (which is supposed to be the cause of pleasure-sensation) which obstructs the cause of pain sensation at the proximal level and itself works as a proximal cause of pleasure sensation. As a consequence at the phenomenal level, a transformation of pain-sensation to pleasure-sensation is experienced. So, there may be a pain-pleasure-continuum at the phenomenal level. Similarly it can be said that due to some inner psychological factors the energization of a memory-trace

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<sup>179</sup> Kisor Kumar Chakrabarti, "The Truth about Perceptual Error", *Essays in Indian Philosophy*, ed. Sukharanjan Saha, Allied Publishers Limited in collaboration with Department of Jadavpur University, 1997, pp.297-311.

<sup>180</sup> D.M. Armstrong, *Perception and the Physical World*, New York, Humanities Press, 1961, Chapter: 3, 5 & 6.

<sup>181</sup> EBP., pp.99-100.



may stimulate the proximal cause of perception at the neural level<sup>182</sup> in such a way that at the phenomenal level we can posit the possibility of *recollection-perception transformation* through an increasing degree of vividness (increased over a particular threshold) of the energized content. It is presupposed that the energization threshold rightly differentiates the phenomenal *feelings* and when the proximal cause of perception becomes active the corresponding feeling is resulted. However, this account is subject to empirical tests and further research on neurophysiology.

In this context, it should be noticed that the discussion undermines one important distinction. There is an epistemological difference between recognizing the character of cognition directly in our experience (*svasanivedana*), and perceiving a perception (*anuvyavasāya*). The former is an affection-type mental state and the latter is a perceptual cognition. The question would arise whether the perceptuality of illusion is *felt* or *known*? Perhaps, the immediate *felt* aspect of illusion is *like to be in perception*. And this feeling is reported in a subsequent introspection. The Mīmāṃsakas do not say that the report about the *feeling* is wrong. They only want to say that the causal condition of the cognition in question is not that of a perception. And it is only the causal condition of a cognition that defines or categorizes it. Indian Realist theories are concerned only about the distal stimulus of perception. But if we introduce another physical level in between, named ‘proximal stimulus’ at the neurophysiological level, then the problem of *representation* and the problem of *causal-phenomenal correlation* may be solved. But the approach is more scientific than philosophical. Hence, let us now take a philosophical approach to discuss the possibility of taker’s mistake.

The relevant philosophical question in this context is that is it possible to mistake about introspective self-report? We may be mistaken in the context of knowing the external world. But are we fallible about the first person awareness of current mental states (CMS)? Here we have to keep in mind a distinction between what is natural or descriptive phenomenon and what is normative phenomenon. Headache is a descriptive phenomenon, whereas counting is a normative one. We may be mistaken about counting but we possibly cannot be wrong about the fact of having a headache. However, the philosophers of East and West are divided into

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<sup>182</sup> The Naiyāyikas hold that the physical organs those we can perceive and call ‘sense-organ’ are not the sense-organs. They actually are the seats of the actual intangible sense-organs those are composed of subtle physical elements (*pañcabhūta*). As for example, the eyeball (*caṣurgolaka*) is not the visual sense-organ but it is the seat of the real visual sense-organ. We can compare it with the optic nerve or with the activities in the neural level.

two camps, one favouring the infallibility of self-awareness and the other denying the same thesis. The infallibilists say that our awareness of headache is indistinguishable from the headache which is a natural phenomenon. A headache cannot be non-veridical; hence the awareness of headache also is non-veridical. The same thing is true regarding anger and other current mental states (CMS). Now, that headache is a natural phenomenon is hard to be denied but the indistinguishability of headache and its awareness has been under attack. The infallibilists about CMS have two claims:

1. First-person authority or Self-luminosity Theory, which says that your CMS will be self-revealed to yourself.
2. Denial of Private Access of one's mind, which says that you cannot know other's CMS directly.

The first theory says that you have the sole authority of your own mind. You are privileged to get access to your own mind. And when the assertion of yourself is sincere, you are always right. The second theory says that no one else has such a privileged access to your mind.

Freud, Durkheim, Malinowski etc. deny this privileged access theory. Freud had clinical evidence to say that sometimes we may be mistaken about our own mental states. I may think that I hate a person X but that actually may be a disguised form of love. Actually I love X. And through clinical tests or psychotherapeutic sessions a doctor gradually discovers the truth which was unknown to the patient. So, Freud says that sometimes the doctor knows better than the subject himself about the subject's mental state. But Descartes, Chisholm, Lawrence Bonjour maintain that first-person self-ascription of mental states are free from possibility of error. When I feel that I hate X, I indeed do so. May be that hatred had been generated out of some kind of attachment or love. I cannot make mistake about me. I have unchallengeably correct authority. The fallibilists here may cite the example of phantom limb experience. It is a clinical fact that even after the amputation of a limb, the person experiences different sensations in the absent portion of his body. He feels pain etc. in that phantom limb. Is not his awareness about those sensations wrong? The infallibilists will say that although there is no corresponding limb where he feels pain but that he is feeling pain is true. The corresponding nerve-cells are activated in the brain. This debate between infallibility and fallibility may be affected by the debate between internalism and externalism. The externalists take the objective truth condition of a cognition as an integral part of the cognition whereas the internalists say

that the objective truth condition has nothing to do with the internal state. Suppose that there is a Twin Earth where there is Twin Gold named XYZ. Now, if John, who is a inhabitant of Earth, goes to Twin Earth and there finds a piece of XYZ, he will have the cognition in the form, 'this is gold'. If he is told to think over this first order thought he will have a second order thought in the form 'I perceive gold'. The externalists will say that even this second order thought is also a mistake because its truth value is dependent on the truth condition of the first order thought. But the internalists will say that the external truth condition of the first order thought is irrelevant to the truth value of the second order thought. That the object XYZ appeared to John as gold is true. It does not matter whether the appeared object actually was gold or XYZ.

Chisholm propounds a strong version of internalism. He says that we can never be mistaken about our self-presenting states of mind. Wittgenstein attacks this self-luminosity theory. He says that while in CMS we do not have any judgment. We express it through an exclamatory word. While in pain we say 'ouch!!'. Rosenberg also said that self-reportive state is retreat from belief. Hence, it is not a belief which can be true or false. But the internalists like A.J. Ayer would say that it is a judgment. Regarding our own mental state we may make mistake. But that mistake is not a factual error but only a verbal error leading to mistake in categorization. Suppose while seeing a lotus one says that it is a tiger lily. Now it may happen that the person correctly perceives all the qualities of lotus in the situation. But from childhood he learnt the thing as tiger lily. So there is no factual error but he is attaching a wrong linguistic tag to the correctly perceived object. So, it is a verbal error. The same thing happens in the case of introspective self-report regarding CMS. Suppose that at the time  $t_1$  I become aware of my CMS that I am worried; but later at the time  $t_2$  I think that no I actually was annoyed. And still later at the time  $t_3$  I rectify myself and return to my former judgment that I was worried. The internalists would say that what happens here is a confusion of linguistic usage and categorization. The CMS is correctly and equally revealed to me across the time. But I am attaching different linguistic tags to the same CMS.

Paul Churchland and Arindam Chakrabarti are against this view. Churchland says that we may be mistaken about our own mental states due to three reasons. If the CMS is below the threshold of just noticeable difference (JND) we may not capture it truly. The states which come in quick succession or are for a short period cannot be captured by us. The second reason is that due to lack of habit perception we may not be aware of some CMS. Suppose some

insensitive skin area is cured. Then for some period of time the sensations in those areas will not be revealed to us. Thirdly, suppose a spy is tortured for ten days with hot iron rod. Then he will lose his sensation. And what is true for sensation is true for CMS also. So it is questionable that how far the 'mineness' of CMS can capture the exactness of it. Arindam Chakrabarti gives two arguments in favour of his fallibilistic view. Following Quine he says that the very distinction between factual error and verbal error is questionable. The claim about external world in sense-experience and the meaning of a word are not separate from each other. They affect one another. Semantic convention is not completely free from our experience. And observable convention is not free from semantic convention. The line of distinction is thin. Hence, we cannot distinguish linguistic mistake from factual mistake. Take the statement 'Blackberry (*kālojām*) is black'. Here the term blackberry should mean that it is always black. Hence the statement should be tautologous. But our observation tells us that the fruit, which we call by the name 'blackberry', is not black but deep purple. When we perform incorrect linguistic application regarding our own mental states or when we are confused regarding whether we are 'afraid' or 'anxious', we actually do incorrect classification of categories. And this wrong classification is a factual error. Secondly Arindam Chakrabarti says that one is not the sole authority on the contents of one's thought and feelings. It cannot be denied that there is some information which is known only to me (which happens at  $t_3$ ) but that claim is different from private access theory. Arindam Chakrabarti says that the possibility of looking back to our mental states entails an uncertainty which ensures error. Our mental states are so complex that they cannot be said to be known correctly in all the time – either by spontaneous or by deliberate look. Spontaneous look is casual while deliberate look is determined by preconception. As an example we may say that Muller Lyer illusion happens during spontaneous look but in deliberate look it vanishes. We can shift our look from one to another. Our mental states are so complex that neither look ensures correctness. Secondly self-report is a judgment. Wittgenstein said that CMSs are groans. They are not propositional functions. But if so then we shall not be able to produce any judgment about self. Hence self-report is judgment. And if it is judgment then it has every right to be false also; since self-report is not logically tautologous. We have to admit the possibility of its being false. But Arindam Chakrabarti is minimally fallibilist, who says that although we may be wrong about our own mental states at time  $t_2$  but ultimately at time  $t_3$  we correctly capture our own mental state. Moreover, afterwards, at any point of time we can reopen the matter and evaluate whether we have correctly captured the mental state or not.

The primary condition of introspection is that it generates knowledge about only mental events about one's own mind. It generates judgments about one's currently ongoing mental life in addition with immediately past or even future mental life within a certain narrow temporal window called spacious present. Those who advocate causal theory of introspection (self-detection model) holds that introspection detects immediate past mental life. On the other hand self-shaping and self-fulfillment model endorse that introspection targets even immediate future mental life.

Some mental events are not introspectively penetrable such as the cognitive processes involved in early visual processing or the detection of phonemes (Marr, 1983; Fodor, 1983). Some philosophers like Gardner, Velleman, Moran etc. admit the existence of unconscious beliefs or desires in Freudian sense.

There are several varieties of epistemic perfection those are attached with introspection. Suppose P is a proposition self-ascribing a mental state or process such as 'I am in pain' or 'I believe that S'. P is *infallible* just in case if I make that judgment it is not possible that P is false. Likewise, P is *indubitable*  $\equiv$  if I make the judgment it is not possible for me to doubt; P is *incorrigible*  $\equiv$  if I sincerely make the judgment it is not possible for anyone else to show that P is false; P is *self-intimating*  $\equiv$  if it is not possible for P to be true without my reaching the judgment the I make the judgment P.

Descartes endorsed infallibility and indubitability of self-ascriptions. Locke, Hume, Husserl, Ayer and Lewis followed Descartes in endorsing infallibility depending on the arguments centered on intuitive appeal to the apparent impossibility of doubting or falsifying self-ascriptions such as experiencing pain or seeing red. Recent infallibilists have narrowed down the scope of infallibility, for example, to thoughts about thoughts (Burge, 1988) or pure phenomenal judgments about consciousness (Chalmers, 2003). They argue that the self-ascriptions are infallible because they *contain* the self-ascribed mental state. Chalmers holds that direct phenomenal beliefs about our experiences are partly constituted by an underlying phenomenal quality. Fodor (1998) might have objected that beliefs contain concepts – not conscious experiences; hence, phenomenology should not be a part of or constituent of beliefs. In anticipation of such objections the advocates of the containment account have often appealed to 'phenomenal concepts'. However, such phenomenal concepts should exist during the time of the experience and expire immediately after the experience is passed. Chalmers

conceded this, but Pappineau (2002) held that imaginative recreation of phenomenology in thinking about past experience is commonplace.

Now instead of this constitution account or self-fulfilling model if we admit a causal account or self-detection model where introspection is held to involve a causal process from an ontologically distinct self-ascriptive (which is not a constituent element of the self-ascription), then infallibilism is threatened. The causal process logically leaves the possibility of interference and error. A stroke, quantum accident or clever neurosurgery may break the otherwise reliable relation between target mental states and their self-ascriptions.

Richard Rorty (1970) advocated introspective incorrigibility as the mark of mental. Dennett (2000, 2002) also supported this view. However incorrigibility does not imply infallibility. I may be wrong even if no one can prove me wrong. So, this account seems to be more compatible with the causal account of self-ascription than with the constitutional account.

Self-intimation account says that if a person has a mental state, she necessarily believes or judges that she does have the state. Brentano holds that a consciousness and its representation occur concomitantly. The higher order theorists hold that the representation of the consciousness is distinct from the consciousness whereas the same order theorists hold that the target mental state represents itself with no need for a distinct higher-order state.

Sydney Shoemaker (1968) argues that self-knowledge of certain psychological facts is immune to error through misidentification relative to the first-person pronoun. One may not know that he is waving his hand (due to amputation of certain nerve fiber), but he cannot be wrong due to mistakenly identifying the person who is waving hand as *himself*, when actually the hand-waving-person is someone else. This immunity is due to the fact that identification is not needed there, and there is no opportunity of mis-identification. Moreover, Shoemaker holds that introspective self-blindness is conceptually impossible. No one can have a belief and at the same time hold that he does not have that belief, because that will result in a Moore-paradoxical sentence like, 'it is raining but I do not believe that it is raining'. If self-blindness is true then such paradoxical sentences will cease to be paradoxical.

Sydney Shoemaker is a mitigated reflexivist who thinks that to have a cognitive state is to be introspectively aware of it when introspection is not a separate optional inner perception. One

may be mistaken or self-deceived about one's own mental state but one cannot be ignorant of them, because cognitive states are self-intimating. The irreflexivists on the other hand hold that one is aware of his own cognitive states perceptually, optionally and fallibly. Even the irreflexivists concede that apperception may happen effortlessly unless the cognizer is too absorbed in the first order cognition to attend to him about what he is doing. Shoemaker's argument is like the following:

P1: If mental states were not self-intimating then self-blindness would be possible.

P2: Self-blindness is not possible.

C: Therefore, mental states are self-intimating.

Arindam Chakrabarti (2003) refutes this argument and questions the first premise. He says that there is a modal problem. 'To be self-intimating' is 'to be necessarily self-aware' and 'to be self-blind' is 'to be necessarily un-self-aware'. These two are not logically contradictories. To be not necessarily self-aware is to be possibly un-self-aware. The fallibilist Naiyāyikas admit such a consequence. They say that one may be too busy or too sleepy to apperceive although he has capacity to apperceive. He is not self-blind. Against reflexivism The Nyāya argues that anything that figures in an awareness as object must have a causal role to that awareness. Now, no awareness can cause itself. Hence no awareness can be aware of itself.<sup>183</sup>

Dretske (1995, 2004) holds that we are infallible about the content of our attitudes but may be wrong about the relevant type of attitude we take towards that content. When I think that I desire raining the content is infallibly the raining, but I may not actually 'desire' so – instead 'hope' so.

D.M. Armstrong (1963) argues that introspective reports are neither incorrigible nor indubitable. And if this contention is proved, automatically it will be proved that we do not have a privileged access to our mental existence. The possibility that one may mistake about a thing entails the possibility of other's being correct. Armstrong holds with Smart that introspection and its object both are the states of brain; and introspection is a self-scanning process in the brain. So, it is logically possible that such a process might yield a wrong result.

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<sup>183</sup>Chakrabarti, Arindam, 'Perception, Apperception and Non-Conceptual Content', *Perspectives on Consciousness*, ed. Amita Chatterjee, New Delhi, Kolkata, Munshiram Manoharlal Publishers Pvt. Ltd. in association with Jadavpur University, 2003, pp.89-107.

And it is unlikely that such a process could yield a logically privileged access. Incorrigeability or indubitability holds good only in the present ongoing mental states, because past states are recovered from memory which can be dubious. But when I report that I am in pain now, to what period of time does the word ‘now’ refer? Does it refer to the whole duration of my reporting, or the starting instance of my sentence, or the finishing instance of my sentence? One may introduce here the notion of ‘introspective instant’, which is the smallest unit of time discernible with respect of inner experience, and that is a ‘present’ moment and not a ‘past’ one – so that memory is not needed for the report. But the audio-visual sketchpad of short-term memory remains operative in that instant also. Moreover, within such an introspective instant no one can finish the relevant sentence. Hence, the statement always refers to past events and therefore it is dubitable. The Naiyāyikas addressed this problem in their moment-examinations presupposing that a cognition may exist at most for two moments. Bina Gupta (2003)<sup>184</sup> holds that within Nyāya framework introspection or retrospection needs memory. She presupposes that at the moment of origination a cognition cannot manifest its object. A cognition manifests its object only at the second or its persisting moment. If so, then at the persisting moment of the *anuvyavasāya*, *vyavasāya* is destroyed.<sup>185</sup> If introspection is a kind of scanning and if it is memory-dependent, then it is fallible because memory is fallible. Hence, theoretically Nyāya cannot claim infallibility, and Nyāya indeed does admit fallibilism. If introspective mistakes are ruled out by logical necessity then the notion of ‘gaining knowledge by introspection’ becomes meaningless because truth is meaningful only on the background of the possibility of error.

Furthermore, the introspection and the target mental state are two distinct things, and hence we can always conceive of the one existing in the absence of the other (following Hume’s law). So, there may be a target mental state unreported; on the contrary, even in the absence of the target mental state, we may report it.

Armstrong explains the reason behind supposing introspection indubitable or rendering privileged access. The sentences like ‘I am in pain now’ or ‘it looks green now’, or ‘I want an apple now’ normally have non-cognitive uses those are irrelevant to cognitive error. This feature has been put in a misleading way by saying that it is logically impossible to be

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<sup>184</sup> Gupta, Bina, *Cit Consciousness*, New Delhi, Oxford University Press, 2003, Chapter 3, Section-V, pp. 57-60.

<sup>185</sup> We shall try to examine the moments of *anuvyavasāya* and discuss this problem in the 7<sup>th</sup> chapter.



mistaken about such utterances implying a peculiar certainty. So far is because of ambiguity. There is a psychological root also behind this supposition of introspective infallibility. We have a deep emotional attachment towards ourselves. Hence we think that we know ourselves better than any other person does.

The aforesaid reasons do not seem to be convincing. Introspection indeed has a somewhat special access to our own mental state. And neuroscience provides a clear picture of this privileged access showing how our brains can *internally* access the whereabouts of its own activation-status through within-skull neuronal connections (which is not possible for any other person having a separated neuronal network or a different brain), and monitor those activations consciously or unconsciously.

Apart from the speculative accounts we find some empirical evidences, especially from the experiments on the commissurotomy patients (whose corpus callosum is severed), those disprove the infallibility of self-ascription and privileged access to one's own mind. Gazzaniga (1995) conducted several experiments with split-brain patients whose left hemisphere is detached from right hemisphere impairing cross-hemispheric communication. To such a patient different visual stimuli are presented to two hemispheres. We know that the left hemisphere controls speech and the right hemisphere controls movement in the left part of the body. In the experiment when the right hemisphere was fed with ridiculous visual stimuli in order to make the patient laugh, the patient laughed. But when the patient was asked why he had laughed, his left hemisphere fluently confabulated an arbitrary explanation. It proves that the left hemisphere does not know the actual cause of his own laughing. In another experiment a chicken claw was shown to the left hemisphere and a snow-scene was presented to the right hemisphere. When the patient was asked to select an appropriate (relevant) picture from an array, his right hand pointed to a chicken and left hand pointed to a snow shovel. And the confabulated reason was, 'chicken claw goes with the chicken and you need a shovel to clean the chicken-shed'. Similar result is found in the patients with anosognosia or hemineglect, blindness denial and also in the cases of post-hypnotic suggestion. Peter Carruthers (2011) argues that those patients not only confabulate the causes of their attitudes, but also confabulate in reporting the attitudes themselves.

Such experimental data disprove the infallibility, indubitability, incorrigibility of self-ascriptions in certitude. *Generally* self-ascriptions are correct, but we can not claim that they are *always* so.

Implicit or unconscious attitudes like racism are found to be non-introspectable while their presence is clearly seen in brain images in the form of amygdala activation (Cunningham et al., 2004). It suggests that in some cases it is possible to know other's mind better than the other person himself with the help of psychophysics. Although the rules of psychophysics are derived on the basis of introspective reports but that does not prove the supremacy of introspection in all cases. However, in the case of self-ascriptions of *attitudes* or *phenomenal consciousnesses*, it is difficult to quantify mental occurrences. It may be said that although one can be mistaken or unconscious about a propositional attitude but phenomenal consciousnesses are self-evident. No behavioural or physiological measure of *phenomenal consciousnesses* like pain can override the self-report of current pain. When physiological markers of pain and self-report dissociate, the marker is questioned whether it is a good index of pain or not. Kurt Bair (1962) argues that the sufferer cannot mistake about his pain because such mistake is inconceivable. But Richard Rorty (1965) says that the mistake of sufferer is inconceivable *only if the sufferer knows how to use the word 'pain' correctly*. But in that case we shall not be able to discriminate 'misjudging' from 'misnaming'. And consequently our claim that introspective self-ascriptions are infallible will be empty. Naming a thing is a convention and depends on public criteria, which may or may not be followed in a particular case. If 'misjudging' becomes equivalent with 'misnaming' then the possibility of infallibility evaporates. However Rorty's clause makes his theory akin to Wittgenstein. Here one may say that language is not omnipresent. 'Suffering pain' and 'expressing pain in language' are two distinct events where the later logically presupposes the existence of the former – not the other way round. Without saying even a word a person may 'feel' the suffering. In that situation whether the person possesses an overriding authority to believe about the existence of the feeling? We are discussing that problem. Introduction of language seems to be a forced insertion here.<sup>186</sup>

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<sup>186</sup> Schwitzgebel, Eric, 'Introspection', *The Stanford Encyclopedia of Philosophy*, Summer 2014 Edition, ed. Edward N. Zalta, URL = <http://plato.stanford.edu/archives/sum2014/entries/introspection/>. Retrieved on 18.04.15 at 5:26 pm.

We can find the Indian counterpart of this thesis in Prābhākara Mīmāṃsā and in Mādhva or Dvaita Vedānta. The Prābhākaras propound self-luminosity theory which says that all mental states are self-luminous. There cannot be any erroneous cognition even about external world. The Mādhvas give a higher order account of perception about inner self. They admit a metacognition which is the report of the witness consciousness or *Sākṣī*. And that report cannot be wrong, because if a *Sākṣī* requires another *Sākṣī* as an evaluator then an infinite regress will set in. Hence, CMS cannot be wrong.

Now let us come to the Nyāya theory. They say that after a cognition (*vyavasāya*) is produced in our Self an introspective awareness is produced in the Self about the previous cognition (if all the necessary conditions for such an introspection is accumulated). This is *mānasa pratyakṣa* of that previous cognition. This second order perceptual cognition is called *anuvyavasāya*. And this *anuvyavasāya* reveals the type of the cognition whether the *vyavasāya* is perceptual or inferential or an analogy or verbal or a memory. Normally we do not do mistake about detecting the type of a cognition. So after a cognition is produced in the form ‘this is a jar’ (*ayaṁ ghaṭaḥ*) if we have an *anuvyavasāya* in the form ‘I perceive a jar’ (*ghaṭamaham pratyakṣāmi*) then it becomes evident that the previous *vyavasāya* was a perception and not an inference or memory etc. other type of cognitions. If the *anuvyavasāya* were produced in the form ‘I infer a jar’ (*ghaṭamaham anumini*) then it would be evident that the previous cognition of jar was an inference.

However, the Naiyāyikas are not infallibilists. They are, on the contrary, fallibilists. In the context of denying the possibility of simultaneous cognition Gaṅgeśa admits in *Tattvacintāmaṇi* (in *Mano’nutvavāda*) that an afterperception or introspection (*anuvyavasāya*) is not always unerring.<sup>187</sup> The objection against Gaṅgeśa was that after eating a long pastry we have an introspection about the experience of eating long pastry in the form, ‘I am simultaneously cognizing a smell, taste, colour, touch and sound’. If the five cognitions were serial then there could be no simultaneous sensory connection between *manas* and the five cognitions. And there could not be any introspection of the said form. The introspection proves that mind was simultaneously connected with five cognitions. This proves that the cognitions were produced simultaneously otherwise if they were serial then when the fifth one

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<sup>187</sup> *anuvyavasāyasya ekatvāsiddheḥ anuvyavasāyāḥ pañca eva, samayasaukṣmyāt teṣāṁ kramo na gṛhyate. – Tattvacintāmaṇi (Mano’nutvavāda), Gaṅgeśa, TCMP., p.567.*

is produced the first one will be destroyed since cognition exists only for two moments. Gaṅgeśa answers to this objection in two ways. Firstly he says that such a synthesized introspection does not occur at all. Actually there occur five different introspections one by one in the form, ‘I am cognizing a smell’, ‘I am cognizing a taste’ and so on. But because of the subtlety or indistinctness of separate afterperceptive occasions, the series or order among them sometimes is not grasped. Secondly Gaṅgeśa offers an alternative explanation. The five serial experiences or the five serial introspections of the five experiences leave five different memory traces behind. Afterwards these traces may be energized simultaneously and as a result a synthetic memory cognition is produced. This synthetic memory should have been afterperceived in the form, ‘I am memorizing (*smarāmi*) five sensory presentations simultaneously’. But due to false superimposition of experiencehood on memory the pseudo introspection occurs in the form, ‘I am perceiving (*pratyakṣāmi*) five sensory presentations simultaneously’. But if the possibility of pseudo afterperception is admitted then what happens to the thesis of afterperceptive infallibility? Philips and Tatacharya comment that the infallibility is restricted to the objecthood of the afterperceived.<sup>188</sup> But regarding the type of the afterperceived cognition the introspection may be a mistake. It is possible to mistake a remembering for a perceiving. But that the object of the introspection is a cognition of five qualities such as smell, taste etc. is always true, although whether that cognition is a memory cognition or perception cannot be ascertained by the introspection without doubt. So, Gaṅgeśa holds that a cognition of cognition need not be veridical in every way. While *anuvyavasāya* may be an infallible guide to *what* has been cognized, it is not unerring about *when* or *how* it has been cognized. So, according to Philips and Tatacharya an introspection is fallible regarding the phenomenal aspect of the afterperceived cognition. An introspection can not tell us beyond doubt what the type of the afterperceived cognition is. It may happen that the cognition is produced due to the revival of memory-trace, but due to the excessive vividness of the cognized content the felt aspect of perception is attached to it. So, the causal condition of a cognition and felt aspect of that cognition may not go hand in hand. However, the

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<sup>188</sup> “The answer is that infallibility is restricted to the objecthood of the afterperceived; an apparent afterperception can be in error about duration and other factors. These include, we might stress, whether a target is in fact a perception, an inferential awareness, etc., or only a pseudo-perception, pseudo-inferential awareness, etc., seeming to be veridical and the result of one of the ‘knowledge sources’ but in fact not. Thus it is possible to mistake a remembering for a perceiving and to think we are having an afterperception of simultaneous content but be wrong. Clearly Gaṅgeśa does not accept the position that a cognition of cognition need be in every way veridical. And, as mentioned, while afterperception may be an infallible guide to *what* has been cognized, it is not unerring about *when* it has been cognized.” – From Comments of Stephen H. Philips and N.S. Ramanuja Tatacharya on the aforesaid part of *Tattvacintāmaṇi*, TCMP., p.568.

introspection is infallible in saying what is being afterperceived – whether it is a cognition of jar or a cognition of cloth or a pleasure or a pain etc.

Now, if this is admitted then the Naiyāyikas are in grave danger. They unconditionally depended on the report of introspection about the type of an afterperceived cognition – or more specifically about the type of illusion. After an illusory experience we afterperceive that we have *perceived* such and such. So it is a perceptual experience which needs a relevant sensory connection to explain its perceptuality. Hence, they introduced *jñānalakṣaṇa sannikarṣa*. But if *anuvyavasāya* is fallible in informing the type of cognition then the Prābhākaras would say that in the case of shell-silver illusion silver actually is memorized although the introspection says that it is perceived. The causal aspect of a cognition and the phenomenal aspects of the cognition may not go hand in hand. So Kisor Kumar Chakraborti is right here.

In order to come out of this predicament the Naiyāyikas may say two things. First, they may subscribe to the minimal fallibilism regarding the report of introspection and say that error in introspection happens only sometimes and it happens only during spontaneous look; but a sufficiently deliberate look rectifies the error and gives us correct knowledge at the end. In the case of the eating of long pastry if the cognizer observe his own mental states minutely he will realize what things are happening in his cognitive field one after another. Second, the Naiyāyikas may add that error is a specific phenomenon which cannot happen to all the people in all the different cognitional situations. Illusion is felt as perceptual by invariably all the cognizer without an exception. So, there is nearly no chance that all people were wrong.

We can conjecture that there is an unfailing correspondence between a particular type of a cognition and the phenomenal feeling of its type. A visual perception is always recognized as visual perception; an inference is always recognized as inference and so on. The admission of the existence of a proximal causal level explains this correspondence successfully as an out and out causal phenomenon. We can say that whatever be the distal stimulus, olfactory perception or something, if somehow it energizes the proximal cause of vision, the result is a visual perception. Even an out and out ‘internal’ cause like memory also may energize the proximal cause of vision. Now the proximal level (the Neuroscientists call it ‘neuron in the brain’ and the Nyāya calls it ‘intangible sense-organ’) causes two things side-by-side. It causes a particular epistemic type such as vision or inference, and also produces a particular

phenomenal *feeling* of being *in* vision or inference or the like. The later one is a by product and supervenes on the resultant physical state.<sup>189</sup> Since the proximal level is the cause of both epistemic kind and phenomenal feeling, they remain attached together. However, during the cognition of an object we remain engaged in revealing the object so exclusively that the phenomenal feeling is ignored. Afterwards when we introspect on the cognition, the corresponding feelings are discovered. The Nyāya never holds that while having a cognition, its causal process becomes apparent in introspection. Hence we must concede that it is the subjective feel that let us know what the type of the said cognition was. Since the proximal cause is the cause of both type and feeling, from the feeling we can rightly know the type and the proximal cause of a particular cognition.

#### 4.2.13. The Epistemological Question Reloaded: The Nyāya Answer to it

So, the minimally fallibilist Naiyāyikas hold that in illusion we do perceive silver because this fact is revealed in introspection for everyone. In a particular matter everyone cannot do the same mistake. So illusion is wholly perceptual. Illusory silver is not recollected but perceived. Now they have to answer the epistemological question from their perspective. The objection against the Naiyāyikas is as follows. Sense-object-contact has been considered a necessary causal condition for perception. But sense-contact is not possible with distant silver. Hence, silver cannot be *perceived* in illusion. So, Anyathākhyāti is impossible.<sup>190</sup> The Naiyāyikas reply that although there cannot be any ordinary sense-contact with a distant object, but here, the distant silver (which is an object of past experience) enters into our visual field through an extra-ordinary sense-contact. This variety of extra-ordinary (*alaukika*) contact is named as *jñānalakṣaṇa pratyāsatti* or the contact which is of the nature of cognition.

Cognition, according to the Naiyāyikas, exists only for two moments. But before it is destroyed at the third moment, it leaves an impression on our soul (*bhāvanākhyā saṁskāra*) which, being revived at some later time may result into another kind of cognition named recollection. The impression created by past experience of silver is revived during illusion due to some reasons such as the similarity of shell and silver, the person's affection towards silver,

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<sup>189</sup>The Neuroscientists may suppose that the epistemic state also supervenes on physical or neural state but the Nyāya would not admit it. For the Naiyāyikas cognition is an adventitious property of the Self – not of matter.

<sup>190</sup> *na ca anyathākhyāti sambhavati, rajatapratyakṣakāraṇasya rajatendriyasannikarṣabhāvāt raṅge rajatabuddheranupapatteriti cenna. – Siddhāntamuktāvali, Bhāṣā-Pariccheda – Kārikā //136//, Viśvanātha, KV., pp.485-486.*

reflected sunrays etc. The Naiyāyikas say that this recollection of silver (*pramuṣṭatattāka rajatasmr̥ti*), working as a contact, presents its content to the visual sense-organ and makes the silver the predicate of the perceived subject, *idam*. The relation established between the sense-organ and the silver is a chain-relation (*paramparāsambandha*) naming ‘*svasāmyukta-maṅṅsāmyukta-ātmāsāmyaveta-smr̥tiviṣayātva*’. Silver, which is presented to the sense-organ, is the content (*viṣaya*) of a recollection (*smr̥ti*) which inheres in the Self (*ātmāsāmyaveta*). The Self is in contact with the mind (*maṅṅsāmyukta*) which, in turn, is connected to the sense-organ in question (*sva-sāmyukta*). This *sannikarṣa* is called *alaukika* not because it is something mysterious and out-of-the-world, but because it connects sense-organ with object non-physically. One thing should be noticed that only the predicate part of cognition is obtained non-physically and presented as a qualification of an ordinarily perceived subject. Hence, we may say that *laukika sannikarṣa* is a necessary condition for *alaukika sannikarṣa*.

So, we have seen that the Naiyāyikas explain *anyathākhyāti* admitting a new kind of sensory connection named *jñānalakṣaṇa sannikarṣa* which is an extraordinary sensory connection in the sense that a memory-cognition connects its content to the operating sense-organ non-physically. In the way the perceptuality of the illusory object is maintained. No other Indian philosophical systems have admitted such an extraordinary sensory connection. The Nyāya has to face other’s criticisms and prove the possibility of such a sensory connection either by empirical evidence or showing the fact that such a theoretical; hypothesis has sufficient explanatory power to explain other cognitive phenomenon and that it is not an ad hoc hypothesis admitted solely to explain *anyathākhyāti*.

### 4.3. Selection of the Presuppositions for Empirical Tests

Before we enter into such discourse let us complete our preliminary task of selecting the foundational presuppositions of different Indian philosophical systems for empirical test. We have seen that each system try to build up a logically coherent super-structure on the basis of their own presuppositions. Those presuppositions are foundational in nature and never questioned whether they are true or false. If we can devise empirical tests for those presuppositions then we shall be able to choose among the alternative models of illusion. Going through the discourse of each system we have pointed out those foundational axioms. Let us now summarize that critically.

The ultimate purpose of this enterprise is to make out a plausible explanatory account of illusion with the help of valuable insights found in Indian philosophy. We had realized that in order to screen-out those suggestions from the synthetic disciplines like the Indian schools, it is necessary to present a detailed account of the theories. Accordingly, we have carefully analyzed them with a view to understanding the theoretical connections better and find out the hidden presuppositions. According to our plan of action, the proximal purpose of this particular work is to observe the intra-theoretic consistency in each of the theories, find out the presuppositions (mostly the psychological and the epistemological ones) for empirical tests. So, let us have an all-comprehensive analytic outlook to the theories and list up the suggestions.

Akhyātivādins posit an overarching epistemological presupposition that all cognitions are true. They blocked the possibility of proving cognition false by subscribing to another epistemological presupposition – the truth of a cognition is generated and revealed immediately by the same conditions which are responsible for its generation and revelation. We have mentioned in the introduction that one of the main purposes of subscribing to such an unusual position is to secure the truth of the *Vedās*. However, they have rationalized it by saying that this is the only way to resist skepticism. This contention can easily be supported if the object-content duality is rejected. The Prābhākaras did the same and it is reflected in their semantic presupposition that a cognition's being true means its non-deviation from its object. The underlying philosophical insight was, when we cognize something, if nothing is unusual, we believe it to be true by default. The insight implies that truth does not consist in the (content's) correspondence with reality (object). In that case they had to explain the differences between veridical and non-veridical situation which is often explained by the presence or absence of object-content correspondence. So, they took resort to two psychological presuppositions – one is that while in illusion two different incomplete but true cognitions occur, and the other one is that the cause of volition or behaviour is absence of knowledge (of difference). In the cases of successful volition, that absence does not remain associated with defect but when defect remains associated with that absence, unsuccessful volition results. In course of their exposition, they had to accept a causal presupposition that defects can not produce novel effect, but this presupposition is inconsistent with their other beliefs. We have discussed about this theoretical incoherence. It can not explain the perceived character of illusion either. However, among all the aforesaid presuppositions, the crucial one is the psychological claim that during shell-silver-illusion, two different cognitions occur –



one is the perception of shell and the other is the recollection of silver, which we can select for empirical test. If it passes the test then the whole epistemological structure of the Akhyātivādins will receive evidential support.

We may select another important psychological claim – whether the linguistic expression of a cognition can move a conscious person into action. Recent psychological researches have proved that unconscious mind can command and guide us in an irresistible way, even when we are fully awake and conscious about our actions. That a conscious person always moves due to a determinate and explicable cognition is not that much evident as it seems. A different group of psychologists and linguists are in favour of the thesis that all our actions are preceded by an unconscious mental utterance about what we are going to do. Without formulating it in language we can not do anything. This thesis supports the Prābhākara contention that the cause of our behavior is linguistic expression and that similar expression results similar behavior. However, there is a difference. These psychologists claim it to be a necessary condition for our movement, but the Prābhākaras are more radical, and take it to be the sufficient cause of movement.

The Nyāya and the Bhāṭṭa philosophers hold that illusion is a single qualified false cognition, and the principal cause of a conscious person's behavior is a qualified cognition (*viśiṣṭajñāna*). And both of them agree that illusory silver is not present in front of the perceiver's eye. It is a distant one. The Bhāṭṭas say that it is previously perceived silver and the memory of it is revived in illusion. Illusion is partly perceptual and partly mnemonic. It is an important psychological presupposition of the Bhāṭṭas that such blend cognitions are possible. Now no one denies the role of previous effect of silver in shell-silver illusion. Those who did not perceive silver in a previous occasion cannot misperceive a thing for silver. But there is a debate whether all cognition which are generated through previous traces (*samskāra*) are mnemonic or not. Eventually all the non-perceptual cognitions depend on prior traces. And we have seen that determinate perceptions also are dependent on previous effects. But whether illusion is partly mnemonic can not be ascertained from these facts. We have to decide two things for that – first, in virtue of what a cognition becomes perceptual? Second, how could we know that a cognition is perceptual?

The Naiyāyikas had set these 'criterion of being perceptual' and 'criteria for knowing which cognition is perceptual'. The Nyāya account of perception is a causal; hence they say that a

cognition becomes perceptual in virtue of its being caused by sense-contact (and not by its phenomenal properties like vividness); and we can know a cognition to be perceptual through its after-perception (*anuvyavasāya*).<sup>191</sup> They say that after illusion we reflect on it saying that we have seen silver. Hence, silver is not recollected but perceived in illusion. To explain the causal criteria of being perceptual, the Naiyāyikas had to posit a new sense-object contact named *jñānalakṣaṇa sannikarṣa*.

However, there is a theoretical problem. *Jñānalakṣaṇa sannikarṣa* does not meet the requirement of the criteria for being perceptual. If the causal criterion is accepted then somehow the *object* should have to be connected to the sense-organ. But *jñānalakṣaṇa sannikarṣa* connects the *content* of memory with sense-organ and not the *object* of memory, since the object may already be destroyed at the time of afterwards extraordinary perception. Someone may say that *jñānalakṣaṇa sannikarṣa* establishes an extra-ordinary *atemporal* and *a-spatial* connection between the sense-organ and the original *object*.<sup>192</sup> But this contention is psychologically unintelligible. No empirical evidence can be provided in support of such thesis. So, the causal criteria will fail here. Moreover, the epistemological criterion for knowing can be accepted only if the Naiyāyikas can prove their psychological presupposition that *anuvyavasāya* is infallible in determining the nature of *vyavasāya*. If it is rejected in empirical test, we have to subscribe to the phenomenological criteria and depend only on the felt aspect of a cognition in order to know its nature. In that case, we have to prove whether felt aspects can ever mislead us or not. However, while discussing taker's mistake we have mentioned that the Naiyāyikas are minimally fallibilists regarding one's own cognitive states.

We have seen that the root of the Nyāya-Bhāṭṭa conflict is the metaphysical presupposition about the existence of *jāti*. The possibility for blend cognition is opened up if there is no *jāti*. But the Naiyāyikas are very rigid about this particular metaphysical presupposition. A story behind such rigidity is as follows. The Naiyāyikas are the preserver and supporter of *Brāhmanya*-system which endowed certain privileges to the people of higher caste or the *Brāhmaṇas*. As a reaction against the predominance of the priests, Buddhism and Jainism came up. They tried to mitigate the discrimination between higher caste and lower caste,

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<sup>191</sup> Generally, the psychologists and the phenomenologists derive the perceptuality of a cognition from its content's vividness. But the Naiyāyikas do not hold this phenomenal criterion for determining the nature of cognition.

<sup>192</sup> And only such consideration can save the Nyāya account from the objection that the cognition – '*surabhi chandanam*' is erroneous (see the relevant objection in the next chapter '*Jñānalakṣaṇa Sannikarṣa*').

which was the root cause of the oppression of the *Brāhmaṇas* on the others. So, the Buddhists tried to prove that *jāti* is not an ontological entity. If there is no *jāti*, the property of being a priest (*Brāhmaṇatva*) will lose its ontological status and the priest-system will have no significant value. The Naiyāyikas are not ready to accept such consequences; hence they tried heart and soul to save *jāti* as a metaphysical principle. We should not allow such unphilosophical motivation in our account of illusion. Moreover, we have seen that the theory of *sāṅkhyā jātibādhaka* is not at all sound. If *pramātva* and *apramātva* can cohabit in a single cognition, then what is the problem with *pratyakṣatva* and *apratyakṣatva*? So, if in this way the Nyāya account becomes unacceptable, then the possibility of blend cognition will increase.

Regarding the metaphysical status of illusory silver the Naiyāyikas said that it is real. Hence, they are the Satkhyātivādins. In opposition to the contention, the Asatkhyātivādins said that illusory silver is unreal and the Anirvacanīyakhyaativādins said that it is neither real nor unreal, but indescribable. However, these three schools took the term ‘real’ in different senses. The difference in their semantic presuppositions is the root of their conflict. For the Naiyāyikas, only that thing is real, which is the locus of the universal of existence (*sattā-jāti*). That, which is existent at any point of time, is real. According to the Buddhists, only that thing is real which has causal efficacy and the Vedāntins say that only the never-sublatable entity is real. So, we can see that the crucial difference between the khyātivādas has boiled down to the differences between their semantic presuppositions, and each different semantic actually represents different philosophical systems. *Sattājātimattā* represents predominance of *jāti* in the whole system, *arthakriyākāritva* represents predominance of causal principle and *abādhitatva* represents predominance of absolute existence. Now, these features are inseparable characteristics of three different systems – the Nyāya, the Buddhist and the Vedānta, and until we come to a consensus among the systems, we shall not be able to arrive at a semantic-consensus.

Ātmakhyāti and Asatkhyāti are wholly dependent on Buddhist metaphysics. And in some important cases they have attempted to establish their metaphysical doctrine with the help of the instances of illusion. The Vijñānavādins are the proponents of All Error theory. They have an over-arching metaphysical presupposition that there is no extra-mental reality like atoms etc. The only existent thing is momentary consciousness that have their forms (either intrinsic or borrowed from other consciousnesses). Those forms are the results of the maturation of a vestige from the beginningless chain of momentary consciousnesses. The Vijñānavādins posit

a mysterious power called *avidyā* which is a cosmic defect and is the cause of a sense of externality about those forms. Since, in all cases of cognition, internal momentary forms are projected as external durable object, all cognition is illusory in the part of its content.

The Vijñānavādins have taken the instances of such mental states like dream, pain, pleasure etc., which are phenomenally non-distinguishable from the so called veridical perception but do not have any corresponding external objective substratum. On the platform of 'phenomenal similarity', they have ascribed all cognitions the same status – 'having no external substratum', and pressed this logical possibility for actuality, for the sake of parsimony. So, the underlying presupposition is – 'experience is fallible, logic is not, hence don't believe in what your experience tells you'. This punch-line represents an *a priori view-point* rather than a *presupposition*. We shall not be able to deal with it on the ground of experience, since experience itself has been called into question. The Nyāya argument from parasitism may help us to reject such an *a priori* stance.

The Nyāya account has one drawback. The atomic approach they took in order to keep their Satkhyātivāda intact has not become successful. It could not prove that the relation manifested in illusion is real entity. We have seen that the only possible implication of such an attempt is Saduparakta-asatkhyātivāda, where the relation is supposed to be unreal. However, we may suppose that this failure is solely due to their rigid metaphysical principles. But their insight in the field of psychology is marvelous.

The Satkhyātivāda and almost all the scientific accounts of perception (and illusion) suffer from one common theoretical problem. They have suggested that during perception fragmentary bits of sensations are received by us and unified as a whole through an internal process. Although intervention of top-down processing was necessary, otherwise we could not explain erroneous perceptions. But for that, the theory had to pay a lot. It had to sacrifice the traits of direct acquaintance from perception, and became a constructivist account. The Mīmāṃsaka did not face the problem because they did not have the responsibility to prove that illusory objects are 'perceived' by us. But the Naiyāyikas had that problem. We have seen how they tried to keep that trait intact. They said that though in the cases of *savikalpaka* perception memory-traces operate from the top, sense-organs do not cease to function; hence it is direct acquaintance. But since they also admit that two different data, coming through two

different kinds of *sannikarṣa* are unified or fused ‘internally’, they have to admit that it is a process of construction which becomes vulnerable to skeptic attacks.

However, if they adopt different explanatory models for perception and illusion, then the skeptics will not be able to do any harm. But, generally such disjunction theory is thought to be derogatory in most philosophical systems. Perhaps, the question of parsimony is the principal obstruction against accepting alternative explanatory model or disjunctive model. The argument is that if one single explanatory model can explain both the phenomenon, why accept the other? Secondly, perception and illusion are phenomenally similar. Hence, they must have a single explanation. However, we have sufficiently strong answer to these objections. First, when adopting disjunction is fruitful, the harm of overload might be overlooked. Secondly, the Nyāya account of perception and illusion are causal accounts – not a phenomenal one. There is no harm in holding that through different causal chains, the same felt aspect is charged up. Hence, a disjunctive causal account does not necessitate a disjunction at the phenomenal level. We have discussed why Nyāya Misplacement Theory is not an Epistemic Disjunctivism and it is more akin to Anti-Individualism since it is an out and out causal theory.

The Advaidins’ account of perception and illusion had shown promise in coming out of this problem, in a different way. They took a holistic approach instead of an atomistic one. Although their mechanism of perception and illusion are fully coloured by their metaphysics, the insight was very good. We have described in a great detail how they had tried to explain illusion without resorting to a representative account. With the help of *vṛtti*-centered epistemology and admission of the instant-production of ephemeral object they tried to solve the problem. But although they did not admit internal fusion at the level of cognition, they did adopt some kind of fusion at the objective level. Now this might be consistent with the Advaita metaphysics about the tripartite level of existence, but it would not be acceptable to other realists. However, we may adopt their valuable insights about the necessity of a holistic approach in this domain of explanation. Recent researches on brain sciences have confirmed the fact that the processes of human-cognition is not a digital one but analogue. It is not that we fix-up the received data subsequently, but there happen simultaneous occurrences of nerve-firings from which one kind of understanding emerges. It is quite similar to the Advaita mechanism of illusion where *antaḥkaraṇavṛtti* and *avidyāvṛtti* are illuminated by *Sākṣīcaitanya*.

Nyāya arguments from parasitism establish Realism against Yogācāra Idealism which says that this world is nothing but a figment of illusion like dream objects since there is no phenomenal difference between the experiences of waking state and that of dream state. Argument from parasitism says that falsity is parasitical on truth, hence presupposes truth. The object of illusion is existent although in some different time and place. The Advaitins, on the other hand, say that object of illusion is present on the spot of illusion – not in some different time and place. However, it has a different level of existence – ephemeral reality. But during illusion the practical existence of the ground of illusion is metaphysically imposed or induced (*upacarita*) onto the ephemeral object. Just as the red colour of hibiscus is imposed on a nearby colourless crystal, the practical existence (*vyavahārika sattā*) of the ground of illusion (rope) is induced to the ephemeral snake. So, what we perceive in illusion is an ephemeral-practical object (*satyānr̥te mithunīkr̥tya*). The same induction happens at the level of absolute and practical reality. Existence is the essence of Absolute Reality or Brahman, which is induced to or imposed on the practically real objects. So, the existence of ephemeral object actually is the existence of practical object which in turn is the existence of Brahman which is ‘Existence in essence’. So, it is the Absolute Existence which is revealed through practical and ephemeral objects. In this way Brahman or Absolute Existence expresses itself through all levels of experiences – either waking or dream or deep sleep. That is why it is called ‘*nitya anuvartamāna*’. It runs through (*anusyūta*) all the levels of existence. We can say that according to the Advaitins ephemerality is parasitical on practicality; and practicality is parasitical on absolute in the sense that the locus of ephemeral object is practical object and the locus of practical object is Absolute Brahman. That is why the Advaitins admit only *sādhiṣṭhāna bhrama* – they always say that illusion has a locus. They do not admit *niradhiṣṭhāna bhrama* or hallucination. For them the locus of dream or so-called hallucination is *antaḥkaraṇa*. And the locus of this world-illusion is Ātman or Brahman. So, we can say that where the Naiyāyikas admit epistemic, causal and semantic parasitism, the Advaitins admit metaphysical parasitism.

However, Advaita and Nyāya metaphysics are totally different. Advaitins propound monism and explain plurality of the world of experience with the help of illusory Māyā whereas the Naiyāyikas take this world of plurality as real. For the Vedāntins reality has three levels – ephemeral, practical and transcendental, whereas Nyāya does not admit such levels of existence. So, there are differences in semantic presupposition between Nyāya and Advaita

Vedānta regarding the meaning of the term ‘Reality’ or ‘Existence’ (*sattā*). The Advaitins do not admit the existence of *jāti* or universal as a category of the world like the Naiyāyikas. This difference makes their epistemology different. For the Naiyāyikas perceptuality or *pratyakṣatva* is a *jāti* but the Advaitins do not take immediacy and mediacy (*parokṣatva* and *aparokṣatva*) as *jāti*. The Naiyāyikas define perception as the cognition produced out of sense-organ (*indriyajanyam jñānam pratyakṣam*) whereas the Advaitins define perception as consciousness (*pratyakṣa pramā cātra caitanyameva*). They define perceptuality of cognition (*jñānagata pratyakṣatva*) as non-difference (*abheda*) between the consciousness delimited by the instrument of cognition i.e. *antaḥkaraṇa* (*pramāṇacaitanya*) and the consciousness delimited by the object (*viśayacaitanya*). Nyāya holds *antaḥkaraṇa* as an atomic internal sense-organ whereas according to the Advaitins it is neither atomic nor a sense-organ (*anindriya*). The Advaitins say that wherever such criterion of *abheda* is fulfilled there occur perceptual cognition. Even words may produce perceptual cognition. And a cognition like inference of fire on hill from smoke is partially perceptual and partially inferential. The cognition ‘fragrant sandalwood’ is partially perceptual and partially mnemonic. Such things are not admitted by Nyāya since for them perceptuality is a *jāti* which does not allow cross-category overlapping (*sāṅkaryā*). Another difference in epistemological presupposition is that Nyāya holds that cognition is existent for two moments whereas Advaita says that cognition persists as long as *antaḥkaraṇavṛtti* persists.

Unlike the Advaitins the Nyāya admit *jñānalakṣaṇa alaukika sannikarṣa* for explaining the cognitive situations like ‘fragrant sandalwood’. Against it the Advaitins may argue that we never say that we *perceive* fragrant sandalwood – rather say that we *perceive* sandalwood and *infer* its fragrance. In reply the Naiyāyikas would say that we are bound to admit extraordinary sensory connection at least in the case of illusion, because we never say that we *infer* snake in a rope – rather say that we *perceive* snake. The Advaitins would reply that in the cases of illusion ephemeral objects (such as an ephemeral snake) are produced on the spot. According to Nyāya the criterion of perceptuality is connection with sense-organ. Since we reflect in after-perception that snake has been *perceived* in illusion, we are bound to admit a sensory connection between eye and snake – if not ordinary then extraordinary connection. However, the Advaitins do not say that in illusion ephemeral snake is connected to the eyes resulting the *prātibhāṣika sarpākāra antaḥkaraṇavṛtti* and hence snake is perceived. They do not hold that sense-object connection is the criterion of perception. They hold that the criterion of perceptuality is a kind of lower-level immediacy between subject-consciousness and object-

consciousness. In the cases of true perception this immediacy is established by *antaḥkaraṇavṛtti*. During perception, the light of the witness consciousness is reflected on *vṛtti* and the form of the object is manifested. In this way the veil of individual nescience or personal ignorance about the object, which was suspending between the empirical object and the Witness-consciousness (or the *vṛtti*-consciousness), is lifted by the *vṛtti*. As a result, the object (as well as the *vṛtti*) is illuminated by Witness-consciousness or *Sākṣīcaitanya*. The illuminated or revealed object is called percept and the illuminated *vṛtti* is called perception. However, this normal course of perception is not followed in illusory cases; because, firstly, the ephemeral snake and practical eye or *antaḥkaraṇavṛtti* are not at the same existential level; secondly, in that case the ephemeral object would be perceivable by other persons as well. Advaitins say that the *vṛtti* in the cases of illusion is not *antaḥkaraṇavṛtti* – but *avidyāvṛtti*. Avidyā residing in *idam* is the material of ephemeral snake and Avidyā residing in *antaḥkaraṇa* is the material of *sarpākāra avidyāvṛtti*. Now the question is, how are these two – *prātibhāṣika sarpa* and *sarpākāra avidyāvṛtti* – connected? What kind of immediacy prevails there? The Advaitins answer that in the cases of illusion there remains no need of lower-level immediacy – promoted by *antaḥkaraṇavṛtti*. Unknown existence of a practical object is possible, but unknown existence of an ephemeral object is not possible. From the very moment of production the ephemeral objects remain connected with or illuminated by the Witness-consciousness. A practical object is illuminated by Witness-consciousness only when the lower-level immediacy is established by between *antaḥkaraṇavṛtti*. But since an ephemeral object remains ever-illuminated by Witness-consciousness, it does not need the lower-level immediacy – promoted by *antaḥkaraṇavṛtti*. Snake-form-*avidyāvṛtti*, illuminated by Witness-consciousness, is (perceptual) illusion.

This complicated and metaphysics-dependent Advaita process of illusion is criticized by the Naiyāyikas by a simple question: Why does an ephemeral snake make us afraid while we know that ephemeral objects have no causal effect of practical objects? The obvious answer is while illusion, we take it to be a practical snake. Hence, illusion is perception of *x* as *y*. So, the object of illusion is not pure and simple ephemeral snake – but an ephemeral snake as practical snake. This interpretation promotes some form of Anyathākhyāti.

From the above discussions, it has become evident that it is almost impossible to arrive at a semantic consensus without affecting the whole nexus because the whole system is reflected in its terminology. And the metaphysical presuppositions were accepted as the foundation of the



respective systems just like the axioms. And none of the systems are ready to alter them. We have discussed about the motivations playing behind such rigidity. In order to preserve the metaphysical commitments the philosophers arranged their arguments. But we have undertaken the present enterprise in order to know what actually happens when we are in illusion. Here, we are not guided by any such metaphysical commitments. Therefore, it is better for us to ignore for the time being the metaphysical and semantic presuppositions. However, it was interesting to see how each Indian system formed a consistent unity of their metaphysics and the other issues. So, let us now list up only the epistemological and psychological presuppositions which are the empirically testable suggestions.

Before we make the list for the test, one thing should be admitted that in spite of the diversities of metaphysical, epistemological and semantic commitments, all Indian schools have shown considerable agreement in some basic psychological phenomena in case of illusion.<sup>193</sup> First, all of them have admitted the crucial role of memory or prior trace in illusion. Different schools have described it differently, but no one denied the fact. Only, in some special cases of peripherally excited illusions (*anubhūyamānāropa viparyaya*) the role of *saṁskāra* has not been admitted. Second, in some way or other, the immediacy of the illusory apprehension has been admitted by all. The immediacy is established either by sense-contact or in some other way. Third, everyone has admitted that at some level or other a ‘fusion’ happens. Although this contention is theoretically problematic, no one could avoid it. Fourth, everyone has accepted the role of defect in illusion. So, these facts are accepted directly. Here, we have taken only the conflicting views for our tests.

The presuppositions selected for empirical test are as follows:

1. Illusion is a single qualified false cognition.
2. Illusion is a pair of two distinct incomplete but true cognitions.
3. Blend cognitions are possible. Illusion is partly perceptual and partly mnemonic.

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<sup>193</sup> “Stripped of all epistemological and metaphysical implications, the Sāṁkarite’s analysis of an illusion is exactly the same as that of the Nyāya-Vaiśeṣika from the psychological point of view. According to both, an illusion is a simple psychosis of a presentative character; it is produced by a sense-organ vitiated by a certain derangement in co-operation with a subconscious impression revived by the perception of similarity. They do not differ in their psychological analysis of an illusion, although they differ in their epistemological and metaphysical doctrines of illusion, ...” – J.N. Sinha, *Indian Psychology*, Vol. I, IP I., p.284.

4. Memory-intervened distant perception is possible. The corresponding sense-object contact is of the nature of memory cognition (*jñānalakṣaṇa sannikarṣa*).
5. The nature of cognition is revealed in the subsequent after-perception. *Anuvyavasāya* is infallible in determining the nature of *vyavasāya*.
6. The felt aspects of a cognition can (minimally) infallibly report us about the nature of cognition.
7. There is a recollection-perception-transformation at the *phenomenal* and also at the proximal *causal* level in terms of passing the *threshold* of the increasing degree of vividness of the content.
8. The principal cause of a conscious person's behavior is qualified cognition (*viśiṣṭajñāna*).
9. Cause of volition or behaviour is absence of the knowledge (of difference). Absence of cognition can move a conscious person into action.
10. Cause of our behavior is linguistic expression.
11. Error is possible at the indeterminate level of perception.
12. We do not receive bits of discrete sensation. Our internal organ can grasp the object as a whole, being related to the object in a *special* way.
13. Phenomenally non-distinguishable states are epistemologically non-different.
14. Perceptuality consists of an immediacy or identity between mental mode and object.
15. Perception is produced by sense-object contact.
16. Whether cognition is momentary, or it exists only for two moments, or persists as long as the mental mode persists.

For further research one may devise certain empirical test models by which the above sixteen presuppositions can be tested. In order to do so, he may take the help of modern empirical sciences which can provide with technically sophisticated tools. Here is a scope for objection on the part of the skeptics. The Vijñānavādins may say that empirical investigation cannot give us right knowledge because it is possible that all our cognition is false. Hence, we have to clarify the purpose and justify the attitude that he may take.

We wanted to enquire into the phenomenon of illusion that people come across in daily life. In most of the cases we can formulate empirical causal rules relating a specific factor like defect and a specific illusion. Our empirical investigation starts from here. Since, no metaphysical commitment is guiding us there is no need to make an *a priori* logically coherent system.

Against this empirical enterprise the main block is skepticism. But, the theoretical problem of skepticism is that it has a beginning but has no assignable finishing point and it is very difficult to fix a criterion for the optimization of doubt. The Naiyāyikas had set a criterion for determining where to stop doubting in the context of formulating universal proposition about *vyāpti*-relation. They have suggested – ‘Do not ask further questions where your practical need is fulfilled’.<sup>194</sup> The Sautrantikas took this pragmatic outlook. But, the Vijñānavādins did not. They even could not pursue a whole-hearted skepticism. They admitted the existence of cognition, but could not explain the differences between veridical and non-veridical cognition. The Ānupalambhikas accepted full-fledged skepticism and as a result failed to give *any* positive account of anything. This is not a desirable end of a philosophical enterprise.

We know that Indian schools are very much different from each other in their methodologies. But the specialty of Indian philosophy is that it always was related to life. No one has taken an out-of-the-world attitude. That is why they have tried to explain this empirical world in which we live. They did not throw it overboard. Even the Buddhists and the Vedāntins are not theoretically indifferent to this world of appearance. Both of them have reserved a particular station of existence for this empirical world and declared that it has its own rule. The Buddhists call it *samvṛtisat* and the Vedāntins call it *vyavahārikasat*. The Vedāntins have made explicit comment on the value of it: Until you are one with *Brahman*, this empirical world is very much real for you. It has a pragmatic and practical value. It is true that they have given the most importance to a higher level of existence. But, both of them have said that it is not through our discursive logic – but by an *immediate experience* that we can realize the ultimate reality. So, as a source of cognition, experience has never been disregarded or ignored in Indian tradition. In order to know the rules of this empirical world, empirical means of cognition are necessary. Illusion is an empirical phenomenon where we have noticed that it follows certain rules universally. We want to find these rules out and subsequently form an explanatory structure that will be able to explain all such phenomenon. Empirical tests are sure shots. Logical speculation has no determinable end. And if alternative systems start speculation with their specific motivation and commitment, they will never reach at any consensus. On the other hand, psychological account tries to make out the empirical rules by which we can correlate ephemeral phenomenon with empirical phenomenon. Within this empirical world this seems to be the most reasonable enterprise. And if we have to carry on an

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<sup>194</sup> *vyāghātāvadhiraśaṅkā tarkaḥ śaṅkāvadhirmataḥ//7(Sūtra).3(Stavaka)// – Nyāyakusumāñjaliḥ, Udayana, NKS., pp.249-250.*

empirical investigation then why not take help from those disciplines which have made some progress? Hence, in order to complete this empirical theory, we have to borrow tools from cognitive sciences and brain sciences. We have to devise some test modules in order to verify selected psychological presuppositions. This way we shall be able to give the best possible psychological account of illusion which we intend to corroborate through cognitive modeling. Designing controlled experiments and framework for cognitive modeling are not easy tasks, but are attainable. The whole enterprise is a new outlook to the Indian theories of illusion. If we become successful in formulating a complete account of illusion from the insight of Indian philosophy, it will be a substantial contribution even to the outstanding problems of illusion being explored by mainstream philosophy and sciences.

The most crucial presupposition in the list seems to be the fourth one: whether memory-intervened perception and sensory-connection is possible. Another promising and related presupposition is the seventh one: whether there is a recollection-perception-transformation at the *phenomenal* and also at the proximal *causal* level in terms of passing the *threshold* of the increasing degree of vividness of the content .If we get some empirical or theoretical support in favour of the hypothesis of *jñānalakṣaṇa sannikarṣa* or prove that this epistemological hypothesis has sufficient explanatory power in the field of cognition then the Nyāya theory of illusion or Anyathākhyātivāda will get strength. Actually, Anyathākhyātivāda is often attacked on the issue of the possibility of *jñānalakṣaṇa sannikarṣa*. So, in our next two chapters we shall be discussing about the plausibility of such epistemological phenomenon unveiling its explanatory power with reference to implacability of an empirically tested psychological phenomenon named 'Synaesthesia'.

## CHAPTER – 5

### *Jñānalakṣaṇa Sannikarṣa*

#### **5.1. Introduction: Sensory Connections – Ordinary and Extra-ordinary**

According to the Naiyāyikas perception is the product of sensory connection (*sannikarṣa*) between sense-organ (*indriya*) and corresponding graspable object (*artha*). Sense-organ is the instrumental cause (*karana*) of perception, which is the uncommon condition (*asādhārana kāraṇa*), which in turn is such a cause which produces the result through an intermediate factor (*vyāpāra*). In the case of perception sense-organ produces perception being connected with the object. So the object-organ connection is that intermediate factor or *vyāpāra*. There are six kinds of operative connections (*sannikarṣa*): conjunction (*saiṅyoga*), inherence in the conjoined (*saiṅyukta samavāya*), inherence in the inherent in the conjoined (*saiṅyukta samaveta samavāya*), inherence (*samavāya*), inherence in the inherent (*samaveta samavāya*) and the connection between characterizer and characterized (*viśeṣaṇatā* or *viśeṣaṇaviśeṣyabhāva*).

#### **5.1.1. Ordinary Sensory Connections**

Different kinds of *sannikarṣa* are capable of grasping different kinds of the stuffs of the world. Substances are perceivable through the operative connection conjunction (*saiṅyoga*). The things which inhere in substance, like *rūpa*, are perceived through inherence in the conjoined (*saiṅyukta samavāya*). The things which inhere in what is inherent in substance, like *rūpatva*, are perceived through the relation inherence in the inherent in the conjoined (*saiṅyukta samaveta samavāya*). However, there is a problem. Smell quality inheres in substance like sandalwood (*candana*) which can be conjoined to the visual sense-organ. So, visual sense-organ is supposed to be able to be related to the smell quality in relation of *saiṅyukta samavāya*. But normally visual sense organ cannot grasp smell, taste and touch qualities. In the similar way, tactual organ cannot grasp colour, in spite of establishing the relation of *saiṅyukta samavāya*. Hence, we have to set individual rules for such sense-organs stating which objects are graspable by which organs. A representative example will be sufficient to express all the other rules; and it goes like the following: ‘Visible substances are graspable by visual sense-organ through *caḅṣusaiṅyoga sannikarṣa*; visible qualities etc., those inhere in substance, are graspable by visual organ through *caḅṣusaiṅyukta samavāya sannikarṣa*; visible

universals of the qualities are graspable by visual organ through *cakṣusaiṅyukta samaveta samavāya sannikarṣa*.’

Smell quality inheres in substance like sandal (*candanam*), Champak flower etc. the olfactory organ is conjoined with the substance and thus is connected to the smell in the relation of inherence in the conjoined (*saiṅyukta samavāya sannikarṣa*). Likewise olfactory organ is connected to the universal smellness (*gandhatvajāti*) in the relation of *saiṅyukta samaveta samavāya*. The same connections are established in the perception of taste quality (*rasa*) and tasteness universal (*rasatvajāti*) with the gustatory organ. The relevant operative connection in the case of the perception of sound quality is inherence (*samavāya*), since sound is the quality of our auditory sense-organ which is nothing but the outer ear-delimited-ether (*śrotrāvacchinna ākāśa*). We can hear also the universal soundness (*śabdatvajāti*) and ‘ka-tva’ or ‘kha-tva’ etc. universal those inhere in the sound ‘ka’ or ‘kha’. The relevant operative connection is inherence in the inherent (*samaveta samavāya*) since those universals inhere in the sound quality. All of these operative connections and the corresponding perceptions are ordinary (*laukika*). Extraordinary perceptions (*alaukika pratyakṣa*) may occur without conjunction etc. aforementioned five types of organ-object connection.

The cause of the perception of Self is mind-contact (*manaḥsaiṅyoga*). Self-inhering qualities like pleasure (*sukha*), pain (*duḥkha*), cognition (*jñāna*) etc. are perceived through the connection of inherence in the conjoined (*manaḥsaiṅyukta samavāya*). The universal painness (*sukhatva*), pleasureness (*duḥkhatva*), cognitionhood (*jñānatva*) etc. are perceived through the connection of inherence in the inherent in what is conjoined (*manaḥsaiṅyukta samaveta samavāya sannikarṣa*).

According to the Naiyāyikas, absence (*abhāva*) and inherence (*samavāya*) are perceived through the operative connection of characterizerness (*viśeṣaṇatā sannikarṣa*). In the case of the visual perception of the absence of pot in ground our visual sense-organ is conjoined with the ground, of which the absence of pot is a characterization (*viśeṣaṇa*). The property of being a characterization (*viśeṣaṇatā*) resides in the absence. So, our visual sense-organ is connected to the absence in the operative connection of characterization in the conjoined (*saiṅyukta viśeṣaṇatā*). In the case of the perception of the inherence of colour in a pot (*ghaṭe*

*rūpasamavāya*) the inherence becomes a characterization (*viśeṣaṇa*) of pot, to which our visual sense-organ is conjoined.

However, the Vaiśeṣikas hold that that *samavāya* is imperceptible. They say that the perception of all the relata (*sambandhikulapratyakṣa*) existing in the universe is the cause of the perception of their relation (*sambandhapratyakṣa*). All the relata cannot be perceived by anyone except God (*Īśvara*); hence, relation cannot be perceived. The Naiyāyikas say that, in a particular case, perception of inherence relation (*samavāyasambandhapratyakṣa*) depends only on the perception of two relata – the negatum (*pratiyogīlādheya*) and the locus (*anuyogīlādhāra*) of that particular relation of inherence. The perception all relata of inherence, existing in the universe, is not necessary here.

There are different kinds of *viśeṣaṇatā sannikarṣa*. The absence of colour in number is perceived through the connection of *svasaṁyukta samavāya viśeṣaṇatā*, where ‘*sva*’ or the sense-organ is conjoined (*saṁyukta*) with the pot wherein number inheres (*samaveta*), of which absence of colour (*rupābhavā*) is a characterisation (*viśeṣaṇa*). Likewise, ‘the absence of colour etc. in the numberness’ or ‘the absence of pot in colourness’ is perceived through *svasaṁyukta samaveta samaveta viśeṣaṇatā*. The absence of sound in the ear is perceived through *śrotrāvacchinna viśeṣaṇatā sannikarṣa*, where the said absence of sound is a characterisation of the auditory sense-organ, which is nothing but the ear-delimited ether (*śrotrāvacchinna ākāśa*). Absence of ‘*kha-tva*’ in ‘*ka*’ sound is perceived through *śrotrāvacchinna samaveta viśeṣaṇatā*, where the said absence is a characterization (*viśeṣaṇa*) of ‘*ka*’ sound, which inheres in the ear-delimited ether (*śrotrāvacchinna ākāśa*). Absence of ‘*ga-tva*’ in the absence of ‘*ka*’ sound is perceived through *śrotrāvacchinna viśeṣaṇa viśeṣaṇatā sannikarṣa*, where the relevant sense-organ is the ear-delimited-ether of which the absence of ‘*ka*’ sound is a characterization (*viśeṣaṇa*). And the absence of ‘*ga-tva*’ is the characterization (*viśeṣaṇa*) of that aforesaid characterization (*viśeṣaṇa*).

All these aforesaid types of operative relations through which absence and inherence are perceived are brought under the heading ‘*viśeṣaṇatā sannikarṣa*’. Hence, we have six types of ordinary sensory connections.<sup>195</sup>

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<sup>195</sup> *viśayendriyasambandho vyāpārah so’pi śaḍavidhaḥ/  
dravyagrahastu saṁyogātsaṁyuktasamavāyataḥ/59//  
dravyeṣu samavetanām, tathā tatsamavāyataḥ/*

### 5.1.2. Extraordinary Sensory Connections

The Neo Naiyāyikas mentions three types of extraordinary sensory connections (*alaukika sannikarṣa*) named *sāmānyalakṣaṇa*, *jñānalakṣaṇa* and *yogaja sannikarṣa* which are the intermediate causes (*vyāpāra*) of corresponding extraordinary perceptions (*alaukika pratyakṣa*).<sup>196</sup> The sensory connections and the corresponding perceptions are termed as ‘*alaukika*’ not because they are some kind of mysterious relation, but because these relations are non-physical in nature. Let us discuss them briefly.

#### (A) Sāmānyalakṣaṇa Pratyāsatti

When we visually perceive an instance of smoke our visual sense-organ is connected with smoke in relation of conjunction (*saṁyoga*). The universal smokeness (*dhūmatva*) inheres in smoke. So, our visual organ is connected with smokeness in the operative relation of inherence in the conjoined (*saṁyukta samavāya*). Thus we have ordinary visual perception of smoke and smokeness. But after that we perceive all the instances of smoke – near or far, from past, present and future. Otherwise we would not be able to recognize a new instance of smoke as an instance of smoke. Suppose a cow is shown to a boy and he is told that it is a ‘cow’. Afterwards, any cow is shown to the boy, he recognizes it to be a cow. How is it possible if all the cows are not presented to the boy on the very first account? Now, this kind of perception requires a suitable kind of sensory connection. We know that no ordinary connection can do such a job. The Naiyāyikas say that an extraordinary sensory connection of universal of smokeness (*sāmānyalakṣaṇa pratyāsatti*) connects all the locus of the universal smokeness, i.e., all instances of smoke, to the visual sense-organ.

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*tatrāpi samavetānān, śabdasya samavāyataḥ//60//  
tadvrttinān samaveta-samavāyena tu grahaḥ/  
viśeṣaṇatayā tadvadabhāvānān graho bhavet//61//  
yadi syādupalabhyetetyevaṁ yatra prasajyate/  
pratyakṣaṁ samavāyasya viśeṣaṇatayā bhavet//62//* – *Bhāṣāpariccheda (Sannikarṣaparīkṣā)*,  
*Viśvanātha*, KV., pp.256-271. (See also the corresponding *Siddhāntamuktāvalī*, *Dinakarī* and  
*Rāmarūdrī*)

<sup>196</sup> *alaukikastu vyāpārastrividhaḥ parikīrtitaḥ/  
sāmānyalakṣaṇo jñānalakṣaṇo yogajastathā//63//* – *Bhāṣāpariccheda (Sannikarṣaparīkṣā)*,  
*Viśvanātha*, KV., p.272.



Moreover while *vyāpti-pratyakṣa* we need to perceive all instances of probans and all instances of probandum in order to perceive their universal collocation. The Nyāya says that we can perceive all those instances extraordinarily through *sāmānyalakṣaṇa pratyāsatti*.

The opponent may raise a question that if perception of a single instance of smoke always leads to the perception of all the instances of smoke then why do not we have an afterperception (*anuvyavasāya*) in the form ‘I know all the instances of smoke’? The answer is that *anuvyavasāya* occurs generally after ordinary perception.

Viśvanātha examines the term ‘*sāmānyalakṣaṇa*’ in order to unfold its status. If *lakṣaṇa* means nature (*svarūpa*) then the sensory connection becomes identical with universal (*sāmānya*). But universal is eternal entity. If the connection is considered to be eternal then we would always and sequentially (*dhārāvāhika*) experience such extraordinary perception which is not the case. Only when our sense-organ is ordinarily connected to the smokeness, the perception of all smokes occurs. So, let us say that *sāmānyalakṣaṇa pratyāsatti* is that universal which has been connected ordinarily to a sense-organ. But here is a problem. Often we misperceive a collection of dust (*dhūlīpatala*) as smoke (*dhūma*). In such case also we perceive all the instances of smoke extraordinarily. But since there is no smoke in the situation our sense-organ cannot be connected to smoke or smokeness. So, *sāmānyalakṣaṇa pratyāsatti* is not sense-connected universal. Hence, let us say that it is such a universal which has become a qualifier (*prakāra*) in a cognition (*jñāna*) such that the qualificandum (*viśeṣya*) of that cognition is sense-connected. So, *sāmānyalakṣaṇa pratyāsatti* is *indriyasambaddhaviśeṣyakajñānaprakārībhūta sāmānya*. In the previous misperception, visual sense-organ is connected to the qualificandum dust-collection. But the qualifier of the produced cognition is smokeness. Hence, smokeness is such a universal which has become a qualifier of such a cognition whose qualificandum is sense-connected. Here this sense-connection must be ordinary in the cases of external perception. And to which sense-organ the qualificandum is ordinarily connected, things are extraordinarily connected to the same sense-organ. If visual sense-organ is ordinarily connected to the qualificandum, there occurs a visual extraordinary perception of all the locus of the qualifier. In the cases of internal perception the condition of ordinary sense-connection with the qualificandum (*indriyasambaddhaviśeṣyaka*) is obliterated. In those cases *sāmānyalakṣaṇa* is *jñānaprakārībhūta sāmānya*.

Viśvanātha again says that here actually *sāmānya* does not mean the category universal or *jāti*. It is nothing but a sense of equality or a common trait (*samānānām bhāva*). It might be eternal, such as smokeness (*dhūmatva*), or non-eternal, such as pot (*ghaṭa*) etc. A pot resides on the ground (*bhūta*) in the relation of conjunction and it resides in the half of the pot (*kapāla*) in the relation of inherence. Now, perceiving a pot we can extraordinarily perceive all the loci – all the grounds (*bhūta*) or all the halves of pot (*kapāla*). But if it is so, then a problem arises. An *indriyasambaddhaviśeṣyakajñānaprakāribhūta sāmānya* may be a non-eternal object like pot. Then, after the pot is destroyed we should not have any extraordinary perception of all the loci of pot. But even after the pot is destroyed we do have extraordinary perception of all the loci of that pot from the memory of the destroyed pot. Hence, the pot cannot be the connection. Moreover, suppose that we have the cognition of the pot in the previous day and have an extraordinary perception of all the loci of pot. Now the pot, which was an *indriyasambaddhaviśeṣyakajñānaprakāribhūta sāmānya* in the previous day, exists today also. Then we should have the cognition of all the loci of pot today also. But that does not happen until and unless we have another cognition of that pot today also. Furthermore, Devadatta may have an ordinary perception of which the qualificand is connected to his sense-organ and the qualifier is that common trait like the pot. Since such a pot exists, Jajñadatta may have an extraordinary perception based on that pot. But that does not happen. One may solve the problem inserting the same individual as an agent of the ordinary and the extraordinary perception. But then we have to admit infinite number of causal relations which would invite theoretical overload (*mahāgurava*). Hence, pot or *sāmānya* is not the sensory connection – but the cognition of *indriyasambaddhaviśeṣyakajñānaprakāribhūta sāmānya*. So, the true meaning of *lakṣaṇa* is the object (*viśeṣya*). *Sāmānyalakṣaṇa pratyāsatti* is such a cognition whose object is *sāmānya*.

A necessary condition for *sāmānyalakṣaṇa alaukika pratyakṣa* is that at least one locus of that *sāmānya* must be connected to the sense-organ ordinarily. Then all the loci of that *sāmānya* will be connected only to that sense-organ extraordinarily. If smokeness is connected to visual sense-organ, we will have visual extraordinary perception of all the instances of smoke. For such perception, light-contact, largeness, manifest colour etc. are necessary. That is why we do not have such extraordinary visual perception in darkness. But it is not necessary for tactual extraordinary perception.

Now the opponent may object that why should we admit such a counterintuitive sensory connection as *sāmānyalakṣaṇa*. The Naiyāyikas answer that if we do not admit it we shall not be able to explain the fact that we have a perceptual cognition of all the instances of smoke those are even of different space and time. No ordinary sensory connection can explain that, hence it must be an extraordinary connection. But the opponent may deny that we have such a perception. The Naiyāyikas say that if that were so then how else could we know that all instances of smoke are also instances of fire? Without such extraordinary sensory connection we would not have an ascertainment that smoke is pervaded by fire (*dhūme vahnivyāpyatvaniścaya*). The opponent may object that actually we do not have such ascertainment (*niścaya*). We always remain in a spell of doubt whether the instances of unperceived smoke is also an instance of fire or not. For the Naiyāyikas, such a position of the opponent is a favourable one (*iṣṭāpatti*). They say that in order to have a doubt (*saṁśaya*) in the form ‘whether smoke is fire-pervaded or not’ (*dhūmo vahnivyāpyo na vā*), two things are required: (i) ascertainment (*niścaya*) of the qualificand (*dharmī*) and (ii) absence of the ascertainment of the qualifier (*dharma*). Here, *dharmī* is smoke (*dhūma*) and *dharma* is fire-pervadedness (*vahnivyāpyatva*). If only ordinary sensory connection is admitted then in a particular (ordinarily perceived) instance we perceive both smoke and its fire-pervadedness through conjunction (*saṁyoga*) and inherence-in-‘the conjoined’ (*saṁyukta samavāya*) respectively. So, we cannot doubt whether the perceived smoke has fire-pervadedness or not in the perceived case. And in the unperceived cases, the *dharmī* smoke is not ascertained. So, due to the absence of the first condition doubt cannot occur. Hence, there is no scope of doubt whether smoke has fire-pervadedness or not in any case. But we do have such kind of doubt. Hence, we have to admit that we have the cognition of all instances of smoke – even of different spatio-temporal locations. According to the Naiyāyikas, doubt is perceptual. Hence the cognition of all instances of smoke must be perceptual, and for this a suitable sensory connection is required. That connection is *sāmānyalakṣaṇa pratyāsatti*. Through such connection we have perceptual ascertainment (*niścaya*) of all instances of smoke. But due to the absence of suitable sensory connection we cannot perceive the fire-pervadedness inhering in the smokes existing in different spatio-temporal location. So, we have the absence of ascertainment of the fire-pervadedness of those smokes. Hence the occurrence of doubt is explained by admitting *sāmānyalakṣaṇa pratyāsatti*. The opponent may say that if there were such a sensory connection that makes us aware of all things (all the loci of common trait), then we all would become omniscient – which is not the case. The Naiyāyikas answer that through

such connection, only general properties are revealed – not the specific properties. Hence, we do not become omniscient.<sup>197</sup>

(B) *Jñānalaksana Pratyāsatti*

Another kind of extraordinary sensory connection is *jñānalakṣaṇa pratyāsatti*. Without admitting such an extraordinary sensory connection we cannot explain the generation of cognition in the form ‘fragrant sandalwood’ (*surabhi candanam*), perceiving sandalwood from distance. From sufficient distance fragrance of an object cannot be grasped by olfactory sense-organ. But seeing sandalwood from distance and without smelling it we obtain a visual perception in the form ‘fragrant sandalwood’.

One may say that our visual sense-organ is connected to the sandalwood in relation of conjunction. Since fragrance (*saurabha*) and fragrancehood (*saurabhatva*) are connected to the same visual organ in relation of inherence in the conjoined (*sāmyukta samavāya sannikarṣa*) and inherence in the inherent in the conjoined (*sāmyukta samaveta samavāya sannikarṣa*) respectively, they are also visually perceived in ordinary way. But the Naiyāyikas say that fragrance and fragrancehood are graspable only by the olfactory sense-organ in ordinary way. There are rules (*viśayavyavasthā*) regarding this. According to the Naiyāyikas, five external sense-organs are made of five elements (*pañcabhūta*) having five special qualities respectively. Auditory sense-organ is the product of ether, having the special quality sound; hence auditory organ can grasp only sound quality. Tactual sense-organ is the product of air having the special quality touch; hence it can grasp only touch quality. Visual sense-organ is the product of fire having two qualities – colour and touch, among which colour is predominant. Colour is the special quality of fire; hence visual sense-organ can grasp only colour. Gustatory sense-organ is a product of water which has three qualities – taste, colour and touch. But here taste is predominant and is the special quality of water; hence tactual sense-organ can grasp taste only. Olfactory sense-organ is a product of earth which has four qualities – smell, taste, colour and touch, among which smell is predominant and is the special quality of earth. Hence olfactory sense-organ can grasp smell only. So, in ordinary way, visual sense-organ can never grasp fragrance and fragrancehood.

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<sup>197</sup> *āsattirāśrayānām tu sāmānyajñānamīṣyate/  
tadindriyataddharmabodhasāmagryapekṣate//64// – Bhāṣāpariccheda (Sannikarṣaparīkṣā),  
Viśvanātha, KV., p.276.*

But the afterperception of such cognition in the form ‘I see fragrant sandalwood’ (*surabhi candanamahaṃ paśyāmi*) proves that it is a visual perception. Now the question is how can fragrance be perceived through visual sense-organ? The Naiyāyikas resolve that it can happen through an extraordinary sensory connection – *jñānalakṣaṇa pratyāsatti*. We had visually perceived sandalwood and taken its fragrance through olfactory sense-organ in the previous occasion – which produced a single determinate cognition in the form ‘fragrant sandalwood’. That perception was destroyed after two consecutive moments creating associative impressions (*samskāra*) of sandalwood and fragrance in the Self. Afterwards, the cognition of one associate evokes the impression of the other associate. Vision of sandalwood in the present situation evokes the impression of the particular fragrance of sandalwood and a remembrance of that particular fragrance is produced. This memory of fragrance, working as a sensory connection, connects its content (*viśaya*), i.e., fragrance, with the operating sense-organ, i.e., visual sense-organ.

It has to be kept in mind that only a thing figuring as the qualifier in a piece of cognition can be perceived through *jñānalakṣaṇa pratyāsatti*. In the case of the perception of fragrant sandalwood, alternative two cognitions are produced having two different forms: (i) ‘the sandalwood is fragrant’ (*surabhi candanam*) and (ii) this fragrance belongs to sandalwood’ (*candanasya saurabha*). In the first case, the sandalwood is the qualificand and it is perceived through the visual organ ordinarily. And fragrance, which is the qualifier, is connected to the same sense-organ, the visual one, through the extraordinary sensory connection *jñānalakṣaṇa pratyāsatti*. In the second case, the fragrance, which is the qualificand, is connected to the olfactory sense-organ through the ordinary sensory connection of inherence in the conjoined (*sāmyukta samavāya*). And the sandalwood (*candanam*) or the property of being inhered in sandalwood (*candananiṣṭhatva*) is the qualifier, which is connected to the same olfactory organ through the extraordinary sensory connection *jñānalakṣaṇa pratyāsatti*. *Jñānalakṣaṇa sannikarṣa* always connects the qualifier to the sense-organ; and the qualificand is connected to the sense-organ ordinarily. Such perceptions are the joint product of ordinary (*laukika*) and extraordinary (*alaukika*) sensory connection. The aforesaid two perceptions are ordinary in the part of qualificands and extraordinary in the part of qualifiers. This is because the qualificand becomes the object of cognition through ordinary sensory connection and the qualifier becomes the object of cognition through extraordinary sensory connection.

But, however, that does not mean that in such cases two different cognitions are produced – one of the qualificand and the other of the qualifier. As long as there operates one single sense-organ, one single determinate cognition is produced as a result. In the case of the ordinary perception of a pot also similar thing happens. Our visual sense-organ is connected to the substance pot in relation of *saṁyoga* and the same visual organ is related to the potness (*ghaṭatva*) in relation of *saṁyukta samavāya*. But as long as there operates a single sense-organ we get a single determinate cognition of pot as being characterized by potness (*ayam ghaṭatvaviśiṣṭa ghaṭa*).

The Naiyāyikas never claimed that sensoriness (*laukikatva*) and extrasensoriness (*alaukikatva*) are universals (*jāti*). So, they should not be worried about the objection of cross-sectioning (*sāṅkaryā*) which the opponent might bring against the thesis that some perceptions, like ‘*surabhi candanam*’, are partly ordinary and partly extraordinary.

Now both these extraordinary sensory connections – *jñānalakṣaṇa* and *sāmānyalakṣaṇa* – are of the nature of cognition. But there is a difference. Through *sāmānyalakṣaṇa* all the loci of the *sāmānya* are known, whereas, through *jñānalakṣaṇa* only that object is known of which it (*jñānalakṣaṇa*) is a cognition. When we misperceive dust-collection as smoke then the memory cognition of smoke (and smokeness), working as *jñānalakṣaṇa sannikarṣa*, produces the extraordinary visual perception of smoke (and smokeness) as situated in front of us. But this extraordinary perceptual cognition of smokeness (which has been produced through *jñānalakṣaṇa sannikarṣa*), working as *sāmānyalakṣaṇa sannikarṣa*, produces another extraordinary visual perception of all the instances of smoke, those are the loci of smokeness.

Without admitting *jñānalakṣaṇa sannikarṣa* we would not be able to explain the cognition ‘fragrant sandalwood’. Even if we posit that the cognition of fragrance is availed through *sāmānyalakṣaṇa sannikarṣa*, which is the cognition of fragrancehood, then also the question would arise as to wherefrom did the cognition of fragrance come? It must have come through *jñānalakṣaṇa sannikarṣa*. So, the admission of *jñānalakṣaṇa sannikarṣa* is inevitable in anyway.

The essence of *jñānalakṣaṇa pratyāsatti* is described as ‘*svasaṁyukta manaḥsaṁyukta ātmasamaveta jñānaviśayatvarūpa*’. Here ‘*sva*’ means the ordinarily operating sense-organ itself, such as the visual sense-organ in the present case which is connected to sandalwood in

relation of conjunction and also connected to sandalwoodhood etc. properties in relation of inherence in the conjoined. However, such a sense-organ remains connected to the mind, which in turn remains connected to the Self, wherein the relevant memory-cognition (*pramuṣṭatattāka smṛti*) produced in relation of inherence (*svasaṁyukta manaḥsaṁyukta ātmasamaveta jñāna*). Now, so far it has been clarified that how sense-organ is related to the memory cognition. But the memory-cognition should also be somehow related to the external (or internal) object (*viśaya*) fragrance. We know that a piece of cognition is produced in the Self in relation of inherence. At the same time, it also is produced in the external (or internal) object of the cognition in relation of objecthood (*viśayatā*). So, the relation of *jñānaviśayatva* resides in the object. So, the chain relation goes in the following way. Sense-organ is conjoined with mind. Mind is conjoined with Self. Self holds the cognition in relation of inherence. The cognition resides in the object in relation of *viśayatā*. In this way the relation between the sense-organ and the object becomes *svasaṁyukta manaḥsaṁyukta ātmasamaveta jñānaviśayatvarūpa*. However, Viśvanātha in *Siddhāntamuktāvalī* says that *jñānalakṣaṇa sannikarṣa* is of the nature of cognition (*jñānarūpā*).<sup>198</sup>

Nyāyakoṣakāra Bhīmācārya Jhalakīkara says that according to Viśvanātha, *jñānalakṣaṇa sannikarṣa* is a particular (mnemonic) cognition which is the producer of such a perception whose object is the object of that particular cognition (*svaviśayaviśayaka pratyakṣajanako jñānaviśeṣaḥ*), such as the cognition of fragrancehood (*surabhitvajñānam*). According to Tarkakaumudīkāra, this sensory connection is of the nature of a memory cognition which becomes the cause of extraordinary perception. Due to such *jñānalakṣaṇa sannikarṣa* the object of the memory cognition is perceived by the mental sense-organ (*manasā janyate*). If we do not admit *jñānalakṣaṇa sannikarṣa* then we shall not be able to explain how we (mentally) perceive the objects described in the poetry of a poet.

Here one may say that in order to explain the perceptual cognition ‘fragrant sandalwood’ we need not posit *jñānalakṣaṇa sannikarṣa*. When the universal ‘fragrancehood’ (*saurabhatva*) is presented to us then the cognition of fragrancehood, working as another extraordinary sensory connection named *sāmānyalakṣaṇa sannikarṣa*, which is of the nature of (the cognition of) a universal, connects all the loci of that universal (fragrancehood), i.e. fragrance, to the operating (visual) sense-organ. In this way we perceive fragrance in the perception ‘fragrant

<sup>198</sup> *viśayī yasya tasyaiva vyāpāro jñānalakṣaṇaḥ//65// – Bhāṣāpariccheda (Sannikarṣaparīkṣā), Viśvanātha, KV., p.279.*

sandalwood’ or ‘sandalwood as being qualified by fragrance’ through *sāmānyalakṣaṇa sannikarṣa*. If an already accepted form of extraordinary sensory connection can explain the situation, then why admit another sensory connection in the place? The cognition ‘fragrance sandalwood’ is just like the cognition ‘fragrant smell’ or ‘*surabhi gandha*’. Presentation of fragrancehood or *saurabhatva*, working as *sāmānyalakṣaṇa sannikarṣa*, connects all the loci of fragrancehood, i.e. smell (*saurabha*), to the operating sense-organ. As a result we perceive smell as being qualified by fragrancehood. The only difference is that in the case of the cognition, ‘fragrance sandalwood’ we wrongly perceive (see) sandalwood as being qualified by fragrancehood (*surabhi candanam ityākārakaṁ saurabhatvaprakāreṇa candanasya bhramātmakaṁ cāksusam*).

Against such an opposition Jagadish Bhattacharya in *Jāgadīśī* and Tārānātha Bhaṭṭacārya in *Vācaspatyam* argue that the opponent can not explain how we come to know ‘fragrancehood’ (*saurabhatva*) in the situations like ‘*surabhi gandha*’ or ‘*surabhi candanam*’, without admitting *jñānalakṣaṇa sannikarṣa*. Although the cognition of *saurabhatva*, which is *sāmānyalakṣaṇa pratyāsatti*, is the cause of the perception of the locus of *saurabhatva*, i.e. *saurabha*, as being qualified by *saurabhatva* (*sāmānyalakṣaṇāyāstaddharmaprakārakatadāśrayapratyakṣaṁ prati eva hetutayā*), but the cognition of *saurabhatva* is not possible without admitting *jñānalakṣaṇa sannikarṣa*, because universals are not classifiable under another universal. There is no universal of universal like ‘fragrancehoodhood’ or ‘*saurabhatvatva*’, the cognition of which could be the relevant *sāmānyalakṣaṇa sannikarṣa* for *sāmānyalakṣaṇa pratyakṣa* of fragrancehood (*saurabhatva*).

In *Nyāyasiddhāntamañjarīprakāśa* it is said that the sensory connection is the producer of such a direct or perceptual cognition the object of which is the object of a memory cognition. In the case of the visual perception ‘fragrant sandalwood’, the ‘fragrance’ or ‘fragrancehood’ is cognised through the *jñāna pratyāsatti* or *jñānalakṣaṇa pratyāsatti*. So, Raghunātha Bhaṭṭacārya says in *Dīdhitī* that what is the object of the produced cognition (not the universal of what is the object of the produced cognition) is the *jñānalakṣaṇa pratyāsatti*. That means it is not the cognition of fragrancehood but the cognition of fragrance which is the relevant sensory connection. Hence, in the case of fragrant sandalwood, the fragrancehood also is known through *jñānalakṣaṇa pratyāsatti*.



In *Vācaspatyam*, Tārānātha Tarkavācaspati says that through *jñānalakṣaṇa sannikarṣa* or through the sensory connection, which is of the nature of a memory cognition, an extraordinary perception of a previously cognized object is produced. In the case of the visual perception of fragrant sandalwood, the fragrance is not graspable by visual sense-organ although sandalwood is graspable by the visual sense-organ. In such case we have to concede that there an extraordinary perception of previously cognized fragrance is produced. Such cognition as ‘fragrant sandalwood’ is extraordinary in the part of fragrance and ordinary in the part of sandalwood.

Śrīkrṣṇadhūrjatidīkṣit says in *Siddhāntacandrodaya* that it is known that the memory cognition of fragrancehood produces the cognition of the form, ‘fragrant sandalwood’ which is the cognition of visually presented object. The cognition in the form, ‘this piece of sandalwood is fragrant’ is a visual perception which is extraordinary in the part of fragrance and ordinary in the part of the piece of sandalwood. It is visual perception since the cognition is produced by the causal assemblage of a visual perception (along with the memory cognition of fragrance as one of the member of that causal assemblage). There the memory cognition of fragrance produces the perception of fragrance and hence the memory cognition of fragrance itself is considered to be the relevant sensory connection, because in other way the visual sense-organ cannot be connected to the part of fragrance.

In *Tattvāvalī* it is said by Candrakānta Tarkālaṅkāra that in the case of snake-rope illusion also the snakehood is presented through *jñānalakṣaṇa sannikarṣa*, because snakehood etc. are not connected to the visual sense-organ in other way.

In *Tarkakaumudī* it is said by Laugākṣī Bhāskara that although fragrance inheres in sandalwood which is in contact with the visual sense-organ, but fragrance is not perceived through *saṁyukta samavaya laukika sannikarṣa*, because fragrance is incapable of being perceived by the eyes ordinarily. According to Tarkakaumudīkāra, the object of *vyavasāya* is perceived in *anuvyavasāya* through *jñānalakṣaṇa sannikarṣa*. When we misperceive a cloud of dust as being qualified by smokeness then smokeness is presented to us through *jñānalakṣaṇa sannikarṣa*. But when in a later occasion we have a true determinate perception of the dust-cloud as being qualified by dust-cloudness, then the previous illusion is sublated. Now, after this determinate perception of dust-cloud occurs in our Self, we introspect about that perception and mentally perceive that determinate perception. The determinate perception

is called *vyavasāya* and the mental perception of *vyavasāya* is called *anuvyavasāya* or afterperception in which the dust-cloud also is perceived through the mind (*manas*). Laugākṣī Bhāskara says that in such case dust-cloud is connected to the *manas* through *jñānalakṣaṇa sannikarṣa*. Here the determinate perception or *vyavasāyajñāna* works as *jñānalakṣaṇa sannikarṣa* and makes its own object the percept of *anuvyavasāya*. The thinkers of the Nyāya school hold that this *jñānalakṣaṇa sannikarṣa* works as the associate of all the six sense-organs. But the Nyāya teachers like Śūlapāṇi Mīśra etc. do not admit that in such cases the internal sense-organ *manas* works as an associate cause.<sup>199</sup>

(C) *Yogaja pratyāsatti*

The third kind of extraordinary sensory connection is *yogaja pratyāsatti*. We, the ordinary human beings, are capable of perceiving only coarse objects (*sthūlavastu*) which are present in front of us existing in present time. But an ascetic or the practitioner of meditation (*yogī*) can perceive all the objects – subtle or coarse, near or far, in front or behind, of past, present or future. In order to explain yogic perceptual phenomenon we have to accept a suitable sensory connection which can relate those objects to the yogi’s sense-organ. The Naiyāyikas say that if a person ardently practices yoga for a long time, then a special quality is produced in his Self. It is called *yogaja dharma* or the property produced due to meditative practice. This property, working as an extraordinary sensory connection, relates the objects of all form, time and place with the yogi’s sense-organ. Here an objection may arise. One may say that the special quality of the yogi inheres in the yogi’s Self. Then how can it be related to the external object? The answer is that all those objects are related to the Self in relation of ‘*svāśrayasamānakālikatva*’, where ‘*sva*’ means the yogic special property (*yogaja dharma*) – the locus (*āśraya*) of which is the Self. Now, those objects temporally co-exist (*samānakālika*) with the eternal and ubiquitous Self. In this way those objects are related to the Self in the relation of temporal co-existence (with the locus of the yogic special quality). But here is a problem. The account does not clarify which sense-organ becomes operative. Supposedly, it should be the internal sense-organ or *manas*. But then what should be the relation of the objects with the *manas*? The answer is *manas* remains conjoined with the Self in which the special quality resides in the relation of inherence; and this Self is related to those objects in the relation of temporal co-existence.

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<sup>199</sup> NK., pp.303-304.

Following Viśvanātha's *Siddhāntamuktāvalī*, Pañcānana Tarkavāgīśa gives an exposition of the mechanism of *yogaja* perception.<sup>200</sup> He says that *yogaja dharma* is produced in a *yogī* who has an ardent desire for liberation and whose nescience (*avidyā saṁskāra*) has been destroyed. By the force of such special quality, the internal organ or *manas* travels out of the body and is conjoined with the Absolute Self (*Paramātmā* or *Īśvara*), ether, Time etc. substances. Through such relation of conjunction, *manas* is related with the qualities in relation of inherent in the conjoined (*saṁyukta samavāya*). It is related to the universals of the qualities in relation of inherence in the inherent in the conjoined (*saṁyukta samaveta samavāya*). It is related to the absences (*abhāva*) and inherence (*samavāya*) in relation of characterizationness in the conjoined (*saṁyukta viśeṣaṇatā*). However, without the force of *yogaja dharma*, *manas* alone cannot have such connections. Hence, *yogaja dharma* is considered to be the extraordinary connection.

There are two kinds of ascetic (*yogī*) – *yuktayogī* and *yuñjānayogī*. The former one has attained realization and can always perceive atom, ether etc. all objects – from all time and place. He can perceive these objects according to his wish even without doing any meditative effort. The later kind of *yogī* has not become successful in attaining the ultimate goal of realization, although has progressed enough along the path of realization. He also can perceive all objects – but only when he meditate on them. A *yuñjānayogī* may also become *yuktayogī* (the ascetic who always remains conjoined with the Absolute Soul – *Īśvara*) by the course of time. The extent to which an ascetic has restrained sex, anger etc. six inherent vices (*ṣaḍaripu*), his mind becomes clear to that extent and the quality of his yogic perception is increased accordingly. When the ascetic gets complete control over his passions, he becomes a *yuktayogī*.<sup>201</sup>

Yogic perception has been admitted by all the systems of Indian philosophy except the Cārvākas and the Mīmāṁsakas. Yogic perception is a kind of supernormal perception in which subtle objects, atoms, minds of others, air, space, time, hidden, remote, past and future objects are perceived. The yogins perceive all objects in all places through cognition simultaneously.

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<sup>200</sup> *Muktāvalīsaṁgraha of Pañcānana Tarkavāgīśa on Siddhāntamuktāvalī on Kārikā 65 and 66 of Viśvanātha*, BP., pp.263-264.

<sup>201</sup> *yogajo dvividhaḥ prokto yuktayūñjānabhedataḥ//65//*

*yuktasya sarvadā bhānaṁ cintāsaḥakṛto'paraḥ//66// – Bhāṣāpariccheda (Sannikarṣaparīkṣā), Viśvanātha, KV., pp.281-282.*

In *Nyāyamañjarī*, Jayanta Bhaṭṭa has discussed the topic of the perceptibility of merit (*dharma*), where he rejects the theory of the Mīmāṃsakas.<sup>202</sup> According to the Mīmāṃsakas, merit (*dharma*) is an imperceptible quality. The Naiyāyikas also admit this. But they say that an ascetic is capable of perceiving such intangible entities with the help of a special power (*yogaja dharma*) generated out of meditative practice.

The Mīmāṃsaka Kumāṛila says that there may be refinement or betterment (*utkarṣa*) in perceptual capability through meditative practice, but a sense-organ cannot cross the limit of its own graspability (of a certain kind of object). It cannot grasp those objects which are graspable by other organs. Auditory organ cannot grasp colour. If the visual organ of a *yogī* can capture merit, then it should capture taste etc. qualities also.<sup>203</sup> Kumāṛila admits that an ascetic may be omniscient but he does not admit that in order to be omniscient one has to know everything through one instrument of cognition.

But Kumāṛila's objection is not a valid one. It is not based on facts either. The other sense-organs of the sage also have super excellent powers like the eyes.

The Mīmāṃsakas say that the knowledge of eternal *dharma* is only derived from the Vedic injunction such as 'should sacrifice' (*yajet*) etc. *Dharma* is the eternal fulfillment of duty. It has no limitation in past, present and future. *Dharma* is always knowable through testimony. But the Naiyāyikas say that even if it is not perceived through our mortal eyes, it is perceived by the omniscient *yogī* with his internal organ through intuition (*pratibhā*). The translation of *prātibhajñāna* is intuitive cognition, where *pratibhā* is the faculty of intuition. *Pratibhā* is like a flash of light which reveals the objects. The light is the wisdom characterized by immediacy and freshness. Besides, it has been described as supersensuous and suprarational apperception. This knowledge has no spatio-temporal limit. It is considered as transcendental having the capacity of revealing past, present and future by a single flash. *Ṛṣi*, or *Kavi* are the seer of all objects existing in the past, present and future. This poetic intuition is different from normal

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<sup>202</sup> *atha brūyuh kimanena parikleśena na lakṣaṇavarṇanamasmākamabhīmatam, anuvādapakṣanikṣiptatvāt, api tu ..... taditthamapi jaiminīya sūtramaṣṅgatārtham, lakṣaṇaparavāṇi tvasya nirastameva. – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS I., pp.94-100; BP., pp.453-474.*

<sup>203</sup> *ekena tu pramāṇena sarvajño yena kalpyate/ nūnāṇi sa cakṣusā sarvān rasādinpratipadyate//Sutra-2, Sloka-112 (Codanasutra)// – Mīmāṃsāślokaṅkārikā, Kumāṛila Bhaṭṭa, SVNR., p.80.*

intuition in which we can have the perceptual cognition of a future happening, such as that brother will come tomorrow. This difference may be in kinds or (at least) in degrees.

Jayanta Bhaṭṭa says that the ordinary people also are capable to have cognitions about future objects (*anāgataviṣayaka*). He may have a cognition in the form ‘my brother will come tomorrow’.<sup>204</sup> This kind of cognition is called *prātibhāpamāṇa*. Such cognitions are neither produced due to non-positive entity (*nānarthajam*), nor dubious (*sandigdha*), nor weak due to the presence of sublating cognition and nor produced due to any fallacious cause (*duṣṭakaraṇajanya*). Hence, we should admit it as a true cognition (*pramāṇa*). The opponent may say that if his brother does not come in the next day then the said *prātibhājñāna* is sublated. Jayanta Bhaṭṭa admits it; but what about if the brother does come in the next day? The opponent may call it a coincidence (*kākatālyam*). But that also is unacceptable. Because, that which is ascertained by true cognition, is not a disputed (*visainvādī*) cognition. And what is not disputed cannot be coincidence. Where the brother’s future arrival is settled, the cognizer does not remain in undulation. And when brother comes in the next day the truth of the cognition is proved.

Now the opponent may object that the cognition has no positive entity as its object. It is *anarthajanya*, because the object of cognition, i.e., his brother, is not present at that time. In reply, Jayanta Bhaṭṭa says that the opponent objection would be proper if brother were cognized as a present object. But here the person cognizes his brother as a future object. That the brother will come in future, or not-yet-arrivedness (*anāgatabhāva*) of the brother, is present in the brother even now. Hence, *prātibhājñāna* is a *pramāṇa*.

Here the opponent may object that the not-yet-arrivedness (*anāgatatva*) of the brother is nothing but prior absence (*prāgabhāva*) of the brother – which cannot coexist with the brother. In reply, Jayanta Bhaṭṭa says that of course it is a prior absence – but not the prior absence of the brother, but the prior absence of the brother’s contact with the house of the cognizer (*nijagrhasaṁyoga-prāgabhāva*). This absence may coexist with the brother without any contradiction. So such a brother, having such a prior absence becomes the object of

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<sup>204</sup> *api cānāgataiṁ jñānamasmadāderapi kvacit/*  
*pramāṇaṁ pratibhā svo me bhrātāganteti dṛśyate// – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS I., p.98.*  
*pratibhā sā mānasī darśitaiva – ‘svo me bhrātā ganteti’ – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS II.,*  
*p.69.*

*prātibhajñāna*, being an object of the memory of the cogniser, occurred due to the causes like anxiety for taking food (*bhojanotkanṭhā*). So it is a true cognition.

Now Jayanta Bhaṭṭa says that *prātibhajñāna* is a perceptual cognition. The cause of such cognition is neither a word (*śabda*), nor a probans (*liṅga*), nor similarity (*sādrśya*). Hence, *prātibhajñāna* is neither testimony, nor inference, nor analogy. It is perceptual cognition. According to Jayanta Bhaṭṭa, it is a mental perception. Here previously perceived brother is memorised and through the internal organ he is presented to the Self.

The opponent may ask that if mind can grasp anything that is graspable by external sense-organs then there is no use of external sense-organ and there is no difference between a normal person and a blind one. Both should be equally capable of perceiving colour through *manas*. But that is not the case. *Manas* cannot take the job of external organ. The answer to this objection is that whatever external object has been previously perceived through external sense-organ like the eyes are perceivable by the internal sense-organ through memory (*smaraṇapadavīmupārūḍa*). Hence, a person who is blind by birth can never have internal perception of colour. Hence, if the cognition ‘brother will come tomorrow’ is not generated by some other shortcut way, like word, probans or analogy, and if it is generated without any vice (*anavadyamjñānam*), then it is a true mental perception. It is a true mental cognition like ‘fragrant Ketaki’ (*‘sugandi ketakī’*) or ‘sweet sugar’ (*‘madhura śarkarā’*). This kind of cognition is always perceptual just as the cognition of a *yogī* is always perceptual. Even if someone says that the sages only have testimonial cognition – not perceptual, but we are no sages and we do have *prātibhajñāna*, which is always perceptual.

The opponent now may argue that perception always occurs taking a present object (*vartamānaikaviśayakam*). Kumārila says that the object, which is connected to the visual etc. sense-organ and which is present here and now, is an object of perception. Jayanta Bhaṭṭa counter-argues that previously in some other place the opponent had conceded that we have a perception of future object or property. When we perceive silver, it is perceived as an object which will last for many days. Hence, *prātibhajñāna* is a perceptual cognition which can take future thing as its object. And if, we, the ordinary people, can have perceptual cognition of future object, it is of no surprise that the *yogī* may have perceptual cognition of everything – even of *dharma*.

## 5.2. An Analysis of ‘*Jñānalakṣaṇa Sannikarṣa*’

### 5.2.1. ‘*Jñānalakṣaṇa Sannikarṣa*’: A Theoretical Overload?

Here in this chapter we are concerned with *jñānalakṣaṇa sannikarṣa*. Now, one may object that the Naiyāyikas are forcefully imposing this counter-intuitive and far-fetched theory of memory-intervened non-physical sense-object contact in order to explain the perceptual character of illusion. But the Naiyāyikas say there are several other cognitive situations which cannot be explained without positing such an *alaukika sannikarṣa*.

#### (A) ‘*surabhi candanam*’:

The perception that sandalwood is fragrant is the paradigmatic example of memory-induced extraordinary perception (*jñānalakṣaṇa alaukika pratyakṣa*). Seeing a piece of sandal-wood from a distance, we may obtain a single qualified cognition of the form ‘Here is a piece of fragrant sandal-wood’ (*surabhi candanam*) even if we do not smell its fragrance directly by our olfactory sense-organ. The fragrance is not recollected here, since it is immediately felt. The resulted cognition is wholly perceptual since no cognition is partly perceptual. It is a visual perception since the only operative sense-organ, here, is the visual one. But fragrance cannot be perceived by visual sense-organ. There is a rule (*vyavasthā*) that different sense-organs are meant for grasping different kind of objects. Cross-connection is not generally allowed in this respect. The Naiyāyikas say that only touch and vision can have the same object, others have their unique objects. Olfactory sense-organ can grasp only smell; gustatory sense-organ grasps only taste and the auditory sense-organ can grasp sound. Then how can fragrance be seen? The only explanation is, through memory-intervened non-physical contact since the rule does not hold in the cases of non-physical contact. Vision of sandalwood vividly revives the memory of previously smelt fragrance which presents its content to the visual sense-organ.

In the case of the cognition ‘*surabhi candanam*’, sandalwood is perceived through the eyes. But fragrance is not amenable to the eyes in normal way. It is amenable to the olfactory organ. But in the present case fragrance has not been connected to the olfactory organ due to distance. Hence we have to admit that it has been connected to the visual organ – if not in ordinary way, then in some extraordinary way. Cause should be imagined according to the result. Here sandalwood is perceived visually no doubt. And fragrance has become a characterization or qualifier of visualized sandalwood. And the fragrance which has been revealed in the cognition as a qualification is not there in the sandalwood, which is connected

to the visual organ. Since, the token fragrance, which is in the visually perceived sandalwood, has not been grasped at all in the present case. So, we have to imagine that the fragrance of a different piece of sandalwood was experienced in some previous occasion. That experience left an impression or memory-trace in the Self. Present perception of sandalwood has evoked that impression resulting in a memory cognition of sandalwood-fragrance. This memory cognition connects its content fragrance to the visual sense-organ making it the qualifier (*viśeṣaṇa*) of the visually perceived sandalwood. Hence the cognition is normal or ordinary in the part of sandalwood but extraordinary in the part of fragrance.

One thing has to be clarified here. In Nyāya philosophy, *alaukika pratyakṣa* of fragrant sandalwood is considered to be a veridical (*pramā*) one. Now, the perception of a thing as having *x* is veridical when the thing actually has *x*. In the case of the said cognition the fragrance which is presented through *jñānalakṣaṇa sannikarṣa* actually is a content of memory. It was smelt previously in some other piece of sandal. That token fragrance is a past entity and is not present here in front of me. In Nyāya philosophy, qualities are considered to be the particular entities. They are not the general and abstract entities. It is not the case that the same unique fragrance is present in all pieces of sandal-wood. Hence, the past token fragrance is different from the present one. But in the present instance of perception the present piece of sandal is perceived as having the past token fragrance – which is absent ‘here and now’. So, it is a *tadabhāvavati tatprakāra anubhava* or a false cognition (*apramā*). Even if someone do not admit any particular (token) existence of quality (fragrance) and say that qualities are always general and abstract, they must admit that fragrance has an infinite number of shades or degrees of intensity. And it is almost impossible that the past and the present fragrance will be of the same shade.

The probable answer on behalf of the Naiyāyikas is that memory-intervened connection presents only a general fragrance (*sauravatvāvacchinna saurava*) – particular details are not supposed to be presented through it. However, this answer is to be phenomenally tested whether the person feels a general fragrance or a particular one. Percepts are not supposed to be general. We shall see later that during the perception of the absence of a particular object, *jñānalakṣaṇa sannikarṣa* is bound to present that particular object as the *pratiyogī* of that *abhāva*. The relevant question here is whether the revived memory content is abstract or particular. There might be another answer that all the *savikalpaka* cognitions are memory-induced since they are conceptual. Concepts are gross categorization of subtly different



sensations. While conceptualizing, perceptual cognitions also become gross, loosing sensational (*nirvikalpaka*) details.<sup>205</sup> Since truth and falsity is considered only at this gross (*savikalpaka*) level, and not at that fine grained (*nirvikalpaka*) level, detail-matching is ignored there. We need not take the correspondence theory of truth at that subtle level.

In Western Psychology, the perceptions like ‘*surabhi candanam*’ are regarded as acquired perceptions. Different schools of Indian Philosophy have discussed it in different ways. According to the Jainas, it is a complex psychosis made up of presentative and representative processes mechanically associated with each other involving judgment and inference. They say that visual organ alone cannot produce the perception of fragrant sandal since fragrance is not graspable by visual organ. Neither it can produce the perception of fragrant sandal in cooperation with the memory of fragrance because then odour will be apprehended by visual organ which is impossible.<sup>206</sup>

‘*Surabhi candanam*’ is a complex psychosis of a presentative and representative processes mixed up together. It is a mixed mode of consciousness – sum of optic sensation of sandal and idea of fragrance freely reproduced in memory. Not only so. It involves a judgment and inference which say that sandal is qualified by fragrance. The Jainas say that it is rather an act of inference than perception, though it depends on both perception and recollection.<sup>207</sup>

According to the Samkarites, ‘*surabhi candanam*’ is a psychic compound of presentative and representative element – a mixed mode of consciousness made up of a perceptual consciousness and non-perceptual consciousness. Those two elements do not lose their identities in their mixed mode.<sup>208</sup>

The Vedāntins may say so since the Nyāya prejudice of *sāñkarya* does not find place in Vedāntins’ Monism. The Samkarites hold that the apprehension of fragrance must be non-

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<sup>205</sup> Kalikrishna Bandyopadhyaya has described this mechanism in his *Nyāyatattva Parikramā*. We shall discuss it later.

<sup>206</sup> *na hi parimalasmarāṇasavyapekṣaṁ locanaṁ ‘surabhi candanam’ iti pratyaṃamutpādayati. tatsavyapekṣalocanavyāpārānantaramete kāryakāraṇabhūtā ityavabhāsanāttadbhāvaḥ savikalpaka-pratyakṣaprasiddhaḥ; ityapyasamīcīnam; gandhasyāpi locanajñānaviśayatvaprasaṅgāt, – Prameyakamalamārtanḍa, Śrī Prabhā Chandra, PKM., p.512.*

<sup>207</sup> *gandhasmarāṇasahakārīlocanavyāpārānāntaram surabhi candanamitipratyaṃapratīteḥ. tanna pratyakṣeṇāsau pratīyate – Prameyakamalamārtanḍa, Śrī Prabhā Chandra, PKM., p.512.*

<sup>208</sup> *surabhicandanamityādijñānamapi candanakhaṇḍānīṣe aparokṣaṁ saurabhānīṣe parokṣam – Vedānta Paribhāṣā, Dharmarāja Adhvarīndra, VP., p.42.*

presentative. If fragrance of this piece of sandalwood were already perceived then it is recollection and if it is not already perceived, then it is inferential (*Śikhāmaṇi*). Similarly, the visual perception of mango as ‘sweet’ may also be explained (*Śikhāmaṇi*). However, the Saṃkarite does not take it as an inference because inference involves elements of perception as a constituent factor and the cognition of fragrance is never perceptual for them (*Śikhāmaṇi, Maṇiprabhā*).<sup>209</sup>

The Naiyāyikas hold that ‘fragrant sandal’ is a simple perceptual cognition – not a psychic compound. There cannot be psychic compound of simultaneous psychoses, because mind (*manas*), without which no psychosis is possible, is atomic. It cannot produce more than one cognition at a given moment. Hence, simultaneous cognition is not possible in the Nyāya theoretical framework.

Śrīdhara refutes the theory of psychic fusion. In the cognition, ‘fragrant sandal’, sandal is the qualificandum (*viśeṣya*) and fragrance is the qualifier (*viśeṣaṇa*). He says that some thinkers hold that fragrance and sandal are apprehended in a single compound psychosis. They explain that visual organ cannot grasp fragrance and the olfactory organ cannot grasp sandal. Hence, neither of them can grasp the relationship between fragrance and sandal, because perception of relationship depends upon perception of both the relata. They say that just as the single psychosis of recognition, which is a kind of perception, is produced by a sense-organ in cooperation with the subconscious impression of past experience, and thus apprehends both past and the present, so the visual perception of fragrant sandal is produced jointly by visual and olfactory organ (recollection of fragrance ultimately depends on olfactory perception of fragrance), and apprehends both sandal and fragrance.

Śrīdhara does not accept this view. He says that a cognition is not made up of parts. If the said cognition is produced jointly by visual and olfactory sense-organ, then let the fragrance be apprehended by visual organ and sandal by olfactory organ. But since the internal organ (*manas*) is atomic, it cannot operate upon the two sense-organs at the same time. Hence, it must be admitted that in the visual perception of ‘fragrant sandal’, at first the fragrance is

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<sup>209</sup> *Śikhāmaṇi* is Rāmakṛṣṇa Adhvarīndra’s commentary on Dharmarāja Adhvarīndra’s *Vedānta Paribhāṣā*. Rāmakṛṣṇa is the son of Dharmarāja. Amardāsa’s *Maṇiprabhā* is a gloss on *Śikhāmaṇi*; IP I., pp.89-93.

perceived by olfactory organ, and then the visual organ produces the visual perception of sandal alone in cooperation with the previous olfactory perception of fragrance.<sup>210</sup>

According to Jayanta Bhaṭṭa, there cannot be a visual perception of fragrant flower, since fragrance is not an object of visual perception. What happens in this case is that the present visual perception of the flower is qualified by the previous cognition of the fragrance produced by the olfactory organ on a previous occasion. And now flower is perceived as fragrant not by visual organ, because visual organ cannot apprehend odour, but by internal organ (*manas*). Though there is a visual perception of flower, there is not a visual perception of fragrant flower. Jayanta Bhaṭṭa explains *pratyabhijñā* or recognition also in similar way.<sup>211</sup>

It may be objected that the flower is qualified by present qualifications. But here the fragrance was apprehended by olfactory organ in the past. How can it qualify the present object? Jayanta Bhaṭṭa replies that just as after eating ninety nine fruits we come to the *hundredth* one and recognize it in terms of non-existent ninety nine fruits and thus qualify the perception of hundredth fruit by the past perceptions of ninety nine fruits, so in the perception of a fragrant flower, the present perception of the flower is qualified by the previous olfactory perception of fragrance.<sup>212</sup>

In *Nyāyakusumāñjaliprakāśa*, Vardhamāna differentiates visual perception of fragrant sandal from olfactory perception of fragrant sandal. Sometimes we see a piece of sandal and at once perceive that it is fragrant. And sometimes we smell an odour and at once perceive that it is the fragrance of sandal. The former perception is produced by the visual sense-organ in cooperation with the recollection of fragrance perceived by the olfactory organ on a previous occasion. And the latter perception is produced by the olfactory organ in cooperation with the recollection of sandal perceived by visual organ in some previous occasion.<sup>213</sup>

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<sup>210</sup> *ghrāṇena gandhe grhite paścāttadgrahaṇasahakāriṇā cakṣuṣā kevalaviśeṣyalamvanamevedarṇi viśeṣyajñānam janyate ityakāmenāpyabhyupagantavyam . – Nyāyakandalī, Śrīdhara Bhaṭṭa, PBNK., pp.276-279.*

<sup>211</sup> *locanagocare'pi kundakusume tadaviśayagandhaviśeṣite bāhyendriyadvārakagrahaṇama-ghaṭamānamiti mānasameva surabhi kusumamitijñānam. – Nyāyamañjarī (Pratyabhijñāyām Bhūtakālasya Viśayatvam), Jayanta Bhaṭṭa, NMS II., p.33.*

<sup>212</sup> *nanu kundāderiśeṣaṇam vartamānamasti saurabham iha tvatīta pūrvavijñānamiti katham viśeṣaṇamātra, kim tena satā kariṣyasi śatādibuddhiśvatikrāntasyāpi kapitthādeḥ kāraṇatvadarśanāditi tadevamantaḥkaraṇajanmanā'pi pratyabhijñānena sthairyamavasthāpyata eva bhāvānām. – Nyāyamañjarī (Pratyabhijñāyām Bhūtakālasya Viśayatvam), Jayanta Bhaṭṭa, NMS II., p.33.*

<sup>213</sup> IP I., pp.92-93.

Udayana clearly points out in *Nyāyakusumāñjalī* that there cannot be any compound of presentative and representative elements. It is a presentation qualified by a representative process which is its immediate antecedent. There are no simultaneous cognitions owing to the atomic nature of *manas* and there cannot be any intermixture of two heterogeneous cognitions.<sup>214</sup>

*(B) Pratyabhijñā:*

Recognition is a complex cognition which depends upon the stimulation of sense-organ and the evocation of previous effect. Now, is it a single cognition or a combination of two different cognitions? If it is a single cognition, is it perceptual or is an altogether different kind of cognition?

According to the Buddhists, it is not a single unitary cognition, but a mechanical composition of two cognitions – presentative and representative. The Nyāya-Vaiśeṣikas, the Mīmāṃsakas and the Vedāntins hold that it is a single qualified perception. According to the Jainas, it is neither perceptual nor mnemonic, but a unique cognition. It is a chemical composition creating a new kind.

The Buddhists ask, what is the cause of recognition? The cause cannot be the sense-organ, because ‘thatness’ is not grasped by sense-organ; hence recognition is not perceptual. Neither the cause is previous effect because it cannot account for ‘thisness’; hence recognition is not memory. Nor the recognition is produced by the cooperation of both – sense-organ and previous effect. Those causes are found to operate separately producing different effects. Due to the unavailability of a single unitary cause, it is concluded that recognition is a mechanical combination of perception and memory. Moreover, even if it were a single unitary cognition, what is the nature of its object? If it is a past object, then the cognition is recollection. If it is a future object, the cognition is constructive imagination. If recognition apprehends a present object then it cannot relate its identity to the past. It is self-contradictory to hold that recognition can apprehend an object existing in the past, present and future. Neither recognition can apprehend an object as qualified by previous cognition, because the qualifier does not exist in the present time. Hence recognition is not a qualified cognition.

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<sup>214</sup> NKS., pp.218-225.

The Naiyāyika Jayanta Bhaṭṭa severely criticizes this view. The Buddhists say that there is no single cognition named recognition since there is no single cause of it. But this way of thinking is reverse and faulty. We may infer a cause of a given effect, but we cannot deny the existence of the effect, even if we cannot account for it. However, in this case, we can account for the recognition. When sense-organ and previous effect cooperate with each other, they can produce a qualified cognition – *pratyabhijñā* or recognition. Regarding the object of recognition the Buddhists hold that since the past and present cannot coexist, the past and present character cannot simultaneously qualify an object. Jayanta Bhaṭṭa replies that here past is apprehended as past and present is apprehended as present by recognition, where the object of recognition (Devadatta) is one and the same – being qualified by the past and the present both.<sup>215</sup> There is no contradiction in holding that the same object may exist throughout past, present and future following a single timeline. Hence there is no contradiction in holding that recognition apprehends an object qualified by the past and the present both. An object which is presented to the peripheral organ can also be apprehended as being qualified by the past (with the help of previous effect). Suppose that we are eating a number of fruits, say one *hundred* fruits. After eating ninety nine fruits we come to the hundredth one. Here the cognition of the *hundredth* fruit is qualified by the fruits which existed in the past; otherwise we would not be able to recognize the last fruit as the hundredth one. Even though the previous ninety nine fruits are not present at this moment, but the relation, which the object had with the past objects, is still present in this object and that is why it is still called as the hundredth one.<sup>216</sup>

According to the Naiyāyikas, whatever mental state is produced by peripheral stimulation is perception. Recognition is also like that, though with the help of previous effect; hence it is perceptual. Jayanta Bhaṭṭa defines recognition as the perception of the present object qualified by the past time or past cognition, due to the contact of a sense-organ with the present object. Just as the visual perception of a flower is modified by the previous olfactory perception of its fragrance and thus brings about an indirect perception of a fragrant flower through the internal

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<sup>215</sup> *bhūtaḥ kālo bhūtatayā gr̥hyate vartamāno vartamānatayaivārthastūbhayānugata eka eva tathā grahaṇāt. – Nyāyamañjarī (Pratyabhijñāyāni Bhūtakālasya Viśayatvam), Jayanta Bhaṭṭa, NMS II., p.32.*

<sup>216</sup> *na ca navanavatāvanupayukteṣu kapittheṣvatraiva śatatame śatamiti bhavati yathā tatrātikrāntānyapi navanavatiḥ kapitthāni śatapratītihetutāmupayānti pratibhāsopārūḍhatvādevamatītakālayogo’pi pratibhāsamānaḥ pratyabhijñāmādhāsyatīti, – Nyāyamañjarī (Pratyabhijñāyāni Bhūtakālasya Viśayatvam), Jayanta Bhaṭṭa, NMS II., p.32.*

organ, *manas*, in the same way, in recognition, the perception of a present object is modified by a past cognition reproduced in imagination. Recognition is produced by the cooperation of both – sense-organ and previous effect. And the object of recognition is perceived through *manas*. So according to Jayanta Bhaṭṭa, both ‘*surabhi candanam*’ and ‘*sa ayam Devadatta*’ are mental perception (*mānasa pratyakṣa*).<sup>217</sup>

Recognition is not an admixture of presentation and representation – produced simultaneously. According to the Naiyāyikas, the internal organ, *manas* is atomic. That is why two cognitions can not be produced simultaneously. The Vedāntins hold that recognition is a single complex psychosis which is a fusion of presentative and representative elements. The Naiyāyikas reject this thesis for two reasons: 1. *Manas* is atomic hence there cannot be simultaneous two cognitions. 2. The admixture would invite the fallacy of cross-sectioning (*sāṅkarya*). The Vedāntins do not have such presuppositions; hence they believe in simultaneous occurrences of two distinct kinds of psychosis and their fusion into a unitary composite psychosis.

According to the Jainas recognition is a single unitary cognition produced by perception and recollection both. It is neither perception, nor recollection, nor a mechanical association of perception and recollection, nor a composite psychosis containing twofold element – perception and recollection. It is *sui generis*. It is a chemical compound generated from perception and recollection which differs in quality from its constituent elements. It is a new psychosis which apprehends the identity of an object in the past and the future.

Against the Naiyāyikas, the Jainas say that recognition is not a kind of perception. For, wherever there is peripheral stimulation, there is perception; and wherever peripheral stimulation is absent, perception is absent. But even if there is peripheral stimulation, there may not be recognition; and even if there is no peripheral stimulation, there may be recognition. Hence, recognition is not a kind of perception.<sup>218</sup> However, the Naiyāyikas may reply that recognition is a product of peripheral stimulation associated with previous effect. Hence, recognition is not produced where peripheral stimulation alone is present. But it is not true that recognition may be present even if there is no peripheral stimulation. Without peripheral stimulation there cannot be recognition. Hence, recognition is a kind of perception.

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<sup>217</sup> NMS II., pp.31-33.

<sup>218</sup> IP I., pp.100-103.

Often we cognize a person or a thing as that was cognized before. It is called recognition or *pratyabhijñā*. It is of the form like ‘This is that Devadatta’ (Devadatta, whom I saw at different place or time is now being perceived by me). *Pratyabhijñā* involves a conscious reference of ‘thisness’ as well as ‘thatness’, both of which are ascribed to the single object of cognition – Devadatta. The Naiyāyikas say that since the cognition refers only to one thing, it is a single perceptual cognition, not a complex of perception and memory. Its *karana* is visual sense-organ as being modified by previous effect. Now, Devadatta and his ‘thisness’ (*akhaṇḍa upādhi idantā*) are perceived through *samyoga sannikarṣa*. But the qualification ‘thatness’ or the property of being present in different time and place (*deśāntarīyatva, kālāntarīyatva*) cannot be connected to the present sense-organ in ordinary way. The Naiyāyikas say that the memory of Devadatta’s ‘thatness’, as *jñānalakṣaṇa sannikarṣa*, connects ‘thatness’ to the visual sense-organ and presents it as a qualification of perceived Devadatta.

Following Madhva tradition, S. Varakhedi says that although Devadatta does not presently possess the qualifications ‘existence in the past time, say, in the year 1947’ (*atītakālīnatva*) and ‘existence in some other place, say, in Vārānasī’ (*deśāntaratva* or *Vārānasivṛttitva*), but of course he possesses the qualification ‘existence in Vārānasī in 1947’ (*atītakālīnatvāvacchinna Vārānasivṛttitva*) even in the present time. Hence this conjoined qualification is visually perceived in ordinary way. So, recognition is an ordinary perception. Varakheri would say that even the single qualification *atītakālīnatva* is existent even in present Devadatta. That Devadatta was existent in past time is true for the present Devadatta. But this account is not satisfactory. Whatever be the property – individual (simple) or conjoined (delimited) – everyone should concede that it cannot be availed without the reference of memory. If the relevant memory-trace is not revived no one can perceive Devadatta as the person who was present in Vārānasī in 1947. Nevertheless, recognition is not a combination of perception and memory. If that were so, then we would not be able to explain the cognizer’s or agent’s behaviour (*pravṛtti*) towards the object. So, recognition is a single determinate perceptual cognition which is partially ordinary and partially extraordinary.

(C) Anuvyavasāya:

According to the Naiyāyikas, determinate cognition (*vyavasāya*) reveals its object but it cannot reveal itself. A subsequent mental perception (*anuvyavasāya*) reveals the determinate cognition. *Jñāna* is a quality (*guṇa*), which inheres in the Self (*atmā*). The internal sense-organ, mind (*manas*), can perceive the Self-inhering qualities like cognition. Mind is related to

the Self in relation of contact. Now suppose, there is a determinate cognition of pot (*ghaṭajñāna*). When mind is connected to this cognition through *saṁyukta-samavāya sannikarṣa*, the mental perception is produced in the form – ‘*ghaṭajñānavān aham*’. In this *anuvyavasāya*, three things are cognized – the cognizer (*aham*), the determinate cognition of pot (*ghaṭajñāna*) and the pot (*ghaṭa*). Since, it is a single perceptual cognition, all these three things are supposed to be connected to the operating sense-organ *manas*. The first two things are connected through *saṁyoga* and *saṁyukta-samavāya sannikarṣa* respectively. But what might be the possible relation between the pot and the *manas*? In that internal perception (*anuvyavasāya*), *vyavasāya* has become the object. But the *vyavasāya* cannot become an object of perception renouncing its own object. Hence pot also has become the object of the internal perception. Cognition is characterized by its object. So, the pot is related to its cognition in the relation of characterization (*viśeṣaṇatā*). Such cognition is related to the *manas* through *saṁyukta-samavāya* relation. Therefore, the pot is connected to the mind in relation of *saṁyukta-samaveta-viśeṣaṇatā*. But mind cannot grasp external object (*bāhya-viśaya*) like pot independently of any external sense-organ (*paratantraṁ vahirmanah*). So, the Naiyāyikas say that it is through the *vyavasāya* that the *viśaya* is connected to the *manas*. The *vyavasāya* itself helps the operating *sannikarṣa* (*saṁyukta-samaveta-viśeṣaṇatā*) in establishing a connection between the pot and the mind.<sup>219</sup> The later Naiyāyikas called this *vyavasāya*, ‘*jñānalakṣaṇa sannikarṣa*’.

**(D) *Abhāva-pratīyogī-jñāna*:**

According to the Naiyāyikas, absence or *abhāva* is a perceptible entity. A particular *abhāva* is determined by its locus (*anuyogī*) and its negatum (*pratīyogī*). The locus is that where the absence is perceived and the negatum is that whose absence is perceived in the locus. In the perception of the absence of pot on the ground, the locus (ground) and the negatum (pot) also become the content of the perception along with the absence in question. Otherwise, the perception would be of an indefinite absence. Here, the ground is perceived as being characterized by the absence, which, in turn, is perceived as being characterized by the pot. The relation between the ground and the absence is *viśeṣaṇatā-sambandha*, since the latter is the qualification of the former. And the relation between the absence and the pot is *pratīyogitā-sambandha* or the relation of antagonism, since they cannot reside in the same locus together. Since the cognition in question is wholly perceptual, all these three contents

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<sup>219</sup> NKS., pp.369-372.



should be presented to the sense-organ. The ground is perceived through *saiṃyoga sannikarṣa*. The absence is perceived through *saiṃyukta-viśeṣaṇatā sannikarṣa*. But the pot cannot be there where the absence of pot resides. Therefore the pot is not before the eyes and cannot be perceived in ordinary way. But in the case of the perception of absence of pot, the cognition of the negatum as being qualified by potness, which is the determinant of the property of being negatum (*pratiyogitāvachedaka ghaṭatvādi dharma puraskāre*), is required as a condition. Hence we have to admit the perception of pot. And as a cause of such perception, there must be a relevant sensory connection between the pot (and potness) and the eyes. Then how can it be perceived? The Naiyāyikas say that the recollection of the negatum, at the previous moment, is a necessary condition of the perception of absence. There are hundred other things which are absent on the perceived ground. But, in the present case we have perceived only the absence of pot because at the previous moment only pot (as being qualified by potness) was recollected.<sup>220</sup> The recollection of the pot, working as *jñānalakṣaṇa alaukika sannikarṣa* presents its content (pot) to the visual sense-organ.

The Naiyāyikas hold that in order to explain those aforesaid four cognitive phenomena along with the cases of perceptual illusion, we have to posit the theory of *jñānalakṣaṇa sannikarṣa*. It is not a fruitless theoretical overload, but a fruitful one (*phalamukha gaurava*) having sufficient explanatory power.

### 5.2.2. Some Objections:

#### (A) Alternative Better Explanations Are Possible

Against the theory of *jñānalakṣaṇa*, the opponents have showered several objections. The Advaitins claim that they can explain those five cognitive cases without positing such *alaukika sannikarṣa*, so in respect of their system, this counter-intuitive theory, of course, is a theoretical overload. The Advaidins, in support of the Bhāṭṭas, say that the cognition ‘*surabhi candanam*’ is perceptual in respect of *chandan* and mnemonic in respect of *surabhi*. The Naiyāyikas’ contention that cognition cannot be partly perceptual and partly non-perceptual is based on their theory of *sāṅkarya jātibādhaka*. But the Nyāya theory of universal (*jāti*) itself is a biased one. In the same way, *pratyabhijñā* is also partly perceptual and partly mnemonic. The Buddhists also hold this. In *Advaitasiddhi*, Madhusūdana Sarasvatī says that on seeing a

<sup>220</sup> *grhītyā vastusadbhāvaṃ smṛtvā ca pratiyoginam/ mānasam nāstītājñānam jāyate 'kṣā' napekṣanāt//27.5// – Ślokavārtika (Abhāvaparicchedah), Kumārīla Bhaṭṭa, SVNR., p.482.*

piece of sandal-wood, we infer its fragrance. So, the cognition in question actually comes under *anumāna* category.<sup>221</sup> Thirdly, cognition does not depend on other cognition for revelation. It is self-revealed (*svaprakāśa*). So, the supposition of mental perception, called *anuvyavasāya*, is unnecessary. Fourthly, *abhāva* and its *pratiyogī* is not cognized through perception. The Vedantins accept a separate instrument of veridical cognition naming *anupalabdhi* through which *abhāva* and its *pratiyogī* are known. The Naiyāyikas advocate an adjectival theory of *abhāva*, and consider it to be an attribute (*viśeṣaṇa*) of the locus, which is in conjunction with the eyes. So, *abhāva* is perceived through *sāmyukta-viśeṣaṇatā sannikarṣa*. The Advaitins say that *viśeṣaṇatā* cannot be a mode of sense-object-contact, because then it will be possible for us to know whether there is *ghaṭābhāva* on a ground which is partially hidden by a wall, perceiving only its non-hidden part, since *ghaṭābhāva* is a qualification of the non-hidden part also. But, in such cases, we do not have any certain knowledge whether there is *ghaṭābhāva* or *ghaṭa* behind the wall.

In reply to this objection the Naiyāyikas may say that the said *viśeṣaṇa* should be fit (*yogyā*) for being perceived. *Ghaṭābhāva* or *ghaṭa* which is hidden behind the wall is not fit for being perceived. That is why we cannot have any certain knowledge regarding this.

### (B) Indirect Perception of Substance is not Possible

Madhusūdana Sarasvatī has offered an objection against the theory of *jñānalakṣaṇa*. According to the old Naiyāyikas, there is a rule that a substance is perceived only through its direct contact (*sāmyoga sannikarṣa*) with sense-organ. So, a *paramparāsambandha* like *jñānalakṣaṇa* is not supposed to produce the perception of silver anyway. The Navya Naiyāyikas might reply that no such rule holds for the cases of extra-ordinary perception. The aforesaid rule is applicable in the domain of ordinary perception only. We may recall that the *vyavasthā* theory also does not apply to the cases of *alaukika pratyakṣa*.

### (C) Redundancy of 'Pratyakṣa-pakṣa-anumāna'

There is another serious objection against the thesis. The Advaitins say that if the theory of *jñānalakṣaṇa sannikarṣa* is admitted then such inferences will be redundant whose locus is

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<sup>221</sup> AS., pp.342-343.

perceived *pratyakṣa-pakṣa-anumāna-ucchedapatti*).<sup>222</sup> That which is inferred in an inference is called *sādhya* or probandum. And that which is characterized by an uncertain probandum is called locus or *pakṣa*. In an inference the inherence of *sādhya* is ascertained in *pakṣa* by the mark of inference (*hetu*). *Pratyakṣa-pakṣa-anumāna* is that inference where we infer *sādhya* by perceiving *pakṣa* (and also the inherence of *hetu* in *pakṣa*). Most of the inferences are like that. Now, if the theory of *jñānalakṣaṇa sannikarṣa* is admitted then there will be no need for such inference. Because by perceiving the *pakṣa*, we shall be able to perceive all the qualifications of it including the inherence of *sādhya*. So, each case of such inference will come out to be a case of perception by *samyukta-viśeṣaṇatā sannikarṣa* and there will be no *pratyakṣa-pakṣa-anumāna*. While inferring fire on hill from smoke we perceive the hill (*pakṣa*) as being characterized by a continuous smoke line (*hetu*) coming out of it. This perception of smoke reminds us of a rule of concomitance (*vyāpti-smarana*) that wherever there is smoke there is fire. The Naiyāyikas say that this cognition of probandum characterized by the property of being in the locus (*pakṣadharmatājñāna*) along with the memory of the universal rule of concomitance (*vyāpti-smarana*) generates inference of fire on hill through a suggestive cognition (*parāmarśajñāna*). But here we can see that the locus (*pakṣa*), hill, is perceived by visual sense-organ and the memory of previously experienced fire is triggered. So, all the necessary conditions for cognition-induced perception (*jñānalakṣaṇa pratyakṣa*) of fire on hill are present along with the necessary conditions of the inference of fire on hill. Now, there is a rule that if the conditions of perception (*pratyakṣa-kāraṇa-sāmagrī*) and the conditions of inference (*anumāna-kāraṇa-sāmagrī*) both remain present regarding the same object, the former overpowers the latter and becomes operative, inhibiting the other. Hence, all cases of *pratyakṣa-pakṣa-anumāna* should be the cases of *jñānalakṣaṇa pratyakṣa* thus undermining the necessity of inference.

#### (D) Objection of Omniscience

Bhāṭṭa Mīmāṃsaka Sucarita Mīśra objects against the Nyāya theory of extraordinary perception saying that if distant objects could be perceived by an extra-normal contact,

<sup>222</sup> *na ca jñānam tatra pratyāsattiḥ, jñānasya pratyāsattitve tata eva vahnyādeḥ pratyakṣatvāpattāvanumānādyucchedāpatteḥ. – Vedānta Paribhāṣā, Dharmarāja Adhvarīndra, VP., p.92.*

*etena – ‘surabhi candana’ mityādiviśiṣṭajñānāya kalpitā jñānalakṣaṇa pratyāsattirapi – nirastāḥ candanatvena surabhivānumānopapatteḥ, anyathā sādhyaviśiṣṭapakṣapratyakṣopapatteranumānamātrocchedaprasaṅgāt. – Advaitasiddhiḥ, Madhusūdana Sarasvatī, AS., pp.342-343.*

everyone would become omniscient.<sup>223</sup> The Nyāya answer to this objection should be that *jñānalakṣaṇa pratyakṣa* is memory-mediated. Hence only the memory content is capable of being perceived extra-normal way. Moreover it is not a mysterious kind of faculty like that of the yogis. We can give a neurophysiological explanation of such perception saying that sometimes (when all the relevant conditions are present) memory-content is energized to the degree of perceptual vividness. It blocks the criticism of omniscience of all or *sarvasarvajñāpatti*.

### 5.2.3. *The Possibility of Jñānalakṣaṇa: An Analysis of its Mechanism*

In reply to these objections, we must say that the theory cannot be undermined so easily. The mechanism of illusion is a psychological issue. Whether an extraordinary perception of distant object is possible should be tested empirically. It cannot be determined through logical arguments that are offered from within a rigid system of metaphysical presuppositions. The theory of *jñānalakṣaṇa sannikarṣa* received support from some modern psychologists who have independently propounded their thesis. So, there might be some truth in it. Wundt<sup>224</sup> says about the cognitive process of ‘assimilation’ where, on hearing an incomplete word we seem to think that we have heard the whole of it. Or, on seeing a misprinted word, missing one or two letters, we take it to be the right one. Of course the missing link is supplied from our store of memory but we never recognize them as memory cognition. Instead, we ‘hear’ or ‘see’ the right letter which actually is not there. Stout<sup>225</sup> and Ward<sup>226</sup> referred to another cognitive phenomenon, named ‘complication’, where we experience that things *look* ‘hard’ or ‘soft’, ‘smooth’ or ‘rough’, ‘cold’ or ‘hot’ etc. Now, these phenomena are not merely a revival of past ideas, but a consequent perception of the unrepresented elements. Stout says, “... its cold look is not a suggested idea; it is something which is presented as if included in the visual appearance, as an integral part of it. It belongs to the impression in such a way that any attempt to separate it destroys its specific character”.<sup>227</sup> Take the simple example that seeing delicious dishes our mouth waters. To say that here a rapid inference has set in is not a

<sup>223</sup> *evam hi na kaścidsarvajñō bhavet, sarvasya tathāvidhasannikarṣāvvyabhicārāt. – Kāśikā Ṭīkā (114) of Sucarita Miśra on Ślokavārttika (Śloka: 114) of Kumārila Bhaṭṭa on Mīmāṃsāsūtra (2: Codanāsūtram) of Jaimini, SVK I., p.121.*

<sup>224</sup> *Outlines of Psychology – Wilhelm Max Wundt, pp.257-264; SWK., p.108.*

<sup>225</sup> *Analytical Psychology (Vol.2) – George Frederick Stout, pp.26-27; SWK., p.108.*

<sup>226</sup> Ward, J., ‘Psychology’, In *Encyclopaedia Britannica*, Vol.20, 9<sup>th</sup> edition, Adam & Charles Black, Edinburgh, pp.37-85; SWK., p.108.

<sup>227</sup> *Analytical Psychology (Vol.2) – George Frederick Stout, pp.26; SWK., p.109.*

sufficient explanation since, a mere inference of the taste (or the memory of it) is not supposed to have such an immediate effect on our physiology.

The illustrations, given by Wundt and Stout, remind us of the importance of top-down processing in the cognitive field. There is a debate among philosophers regarding the process of perception. Some say that it is a fully bottom-up process where information comes from the outer world to our brain through sensation. Our conceptual storage does not and cannot affect it. These philosophers are called non-conceptualists. On the other hand, the conceptualists say that perception is a combination of bottom-up as well as top-down processing. The bottom-level *sensations* (which are not *perceptions* in anyway) are arranged, moulded, and even guided by our conceptual repertoire. The philosophically most organized form of such a thesis is found in Kant. There are several reasons to support the non-conceptualist camp. It is said that conceptualism cannot reflect the informational richness and fine-grainedness of perceptual experience. But the conceptualists would say that without conceptual imposition, perception is impossible. To perceive a shell *as a shell*, we need to have the concept of *shell* beforehand. Employing this concept on the received sensation we can have such a perception. In the camp of the Indian schools, the Buddhists do not rely on such determinate (*savikalpaka*) perception. They say that in order to be true, cognition has to remain unaffected by any imposition on our part. All the determinate cognitions are affected by our conceptual storage. They are our construction, hence erroneous. The Buddhists hold that the *svalakṣaṇas* or the unique particulars are the only existent things in the world. They are the ultimate realities. Therefore, only the indeterminate (*nirvikalpaka*) perception of *svalakṣaṇa* is worthy of being named as perception. The Naiyāyikas, on the other hand, say that true perceptual cognitions are always determinate in nature since indeterminate cognitions are neither true nor false. This contention of the Naiyāyikas brings them closer to the conceptualists. But there is an important difference between them. The Naiyāyikas are staunch realists, so they might not admit the top-down processing. They would say that the abstract qualities, such as the property of being shell (*śuktitva*), are also perceived by visual sense-organ, through a direct sense-contact – *saṁyukta-samavāya sannikarṣa*. So, in order to have a determinate cognition of shell *as a shell*, we need not appeal to the previously stored conceptual repertoire. Even when we perceive a shell as silver, then also the relevant abstract quality silverhood (*rajatatva*) is perceived by the same visual sense-organ through *jñānalakṣaṇa sannikarṣa*. The prevailing differences between a true and an illusory perception are as follows:

- A.* In the former case, the perceived quality is present before the perceiver but in the latter case, it is present elsewhere.
- B.* In the former case, the operating sense-contact cannot present something existing elsewhere, while in the latter case it is possible.
- C.* In the former case, the operating sense-contact does not take the help of previous effect (*saṁskāra*) but the latter one does.

*Śuktitva* stimulates our sense-organ directly, while *rajatatva* stimulates our sense-organ through *saṁskāra* being *svasaṁyukta-manasaṁyukta-ātmāsamaveta-smṛtiviśaya*. According to the Naiyāyikas, the causal process of cognition is not manifested in the cognition itself. That is why we cannot differentiate those cases, depending on the differences (B and C) of their causal processes during illusion. But when the situational difference (A) is known through other cognitions, we can understand the difference. But this account also begs questions. The Naiyāyikas have applied this mechanism of memory-induced sense-contact in the veridical perceptual cases also (*surabhi candanam*), where only causal differences exist but no situational difference. In that case confusion arises that how can the relevant property present here and now, become *smṛtiviśaya*. If it is not, then how can a memory-induced contact be relevant here? And if the gap between the content of memory and the present quality is not bridged, then we have to admit that the produced cognition is non-veridical.

In *Nyāyatattva-Parikramā*, Kalikrishna Bandyopadhyaya has given an exposition of perceptual process – veridical as well as non-veridical, where he says that in all the cases of *savikalpaka* cognition, past impressions (*saṁskāra*) are evoked. When the perceiver's eyes are connected to the shell in front of him, he perceives an unqualified point of reference (shell) by *saṁyoga sannikarṣa*. Shellhood, glitter, white colour, thisness etc. and their relations with the shell are perceived through *saṁyukta-samavāya sannikarṣa* or the like. But at this indeterminate level of perception those elements remain separate, discrete and untied. This *nirvikalpaka pratyakṣa* of each element evokes the past impression of its object (shell, shellhood, glitter, white colour, thisness etc.) and is destroyed at the third moment. With the help of those past impressions there occurs another perceptual cognition at the next moment which ties those contents in an organized order, i.e., as being tied in the relation of *viśiṣṭa* (qualified) and *vaiśiṣṭa* (qualifier). It is the determinate perceptual cognition (*savikalpaka*

*pratyakṣa*). Although *saṁskāra* plays a causal role in producing any *savikalpaka* perception, it is not the principal operator, but works under the supervision of the sense-organ. Even after producing the *nirvikalpaka pratyakṣa*, the sense-organs do not cease to act or become non-operative (*upaṁsīyamāna*). Hence, the resulted cognition is not a recollection but perception. Now, if the sense-organs are defective then glitter etc. appearing in *nirvikalpaka pratyakṣa* (being enforced by an ardent desire for silver) trigger (or misfire) the past impression of silver or silverhood, inhibiting that of shellhood. As a result, at the next moment, such a determinate cognition occurs, whose *viśeṣya* is *idam* and *prakāra* is *rajatatva*. It is a perceptual cognition and not recollection, since previous effect is not the only cause of it, although one of the necessary conditions of it. The cognition is produced by the previous effect, hence it is *saṁskārajanya*. But it is not produced by the previous effect alone, hence it is not *saṁskāramātrajanya*. Memory-trace has worked here as an (wicked) associate of *indriyārtha sannikarṣa*. This way, previously perceived silver (or silverhood), which is present at different time and place, is presented to us through memory-trace.<sup>228</sup>

This exposition contains an important suggestion. It says that *deśāntarīya* and *kālāntarīya rajata* is presented to the sense-organ not through its full-fledged recollection (*pramuṣṭatattāka rajatasmṛti*), but through *rajatasamskāra*. In that case, the *sannikarṣa* will not be of the nature of cognition (*jñānalakṣaṇa*). We have to remember in this connection that the theory of *jñānalakṣaṇa* is an innovation of the Navya Naiyāyikas. The old masters did not say anything about this. They had propounded six kinds of (ordinary) *sannikarṣa*. Gaṅgeśa, in his *Tattvacintāmaṇi*, has supported this view. Vardhamāna Upādhyāya (in *Parīśuddhiprakāśa*) and Śaṅkara Mīśra (in *Kaṇādarahasya*) have included it in the sixth kind of *sannikarṣa* – *viśeṣaṇatā*. Even Udayana did not accept ‘*jñānalakṣaṇa*’ as a variety of *sannikarṣa*. He said that the object of *vyavasāya* is presented to the *manas* through *saiṅyukta-samaveta-viśeṣaṇatā sannikarṣa*.<sup>229</sup> But he said that this operating contact takes the help of a cognition (i.e., the *vyavasāya*).<sup>230</sup> The later Naiyāyikas interpreted it to be an independent *alaukika sannikarṣa*. Now, in this case it is evident that the *vyavasāya* had been produced at the previous moment of *anuvyavasāya*. But, in other cases like illusion, *pratiyogī-pratyakṣa* and *pratyabhijñā*, it is not that a full-fledged recollection is produced. *Smṛti* is not to be supposed to have any extra

<sup>228</sup> Kalikrishna Bandyopadhyaya, *Nyāyatattva Parikramā*, Papyrus, Kolkata, 1986, pp.105-109.

<sup>229</sup> *atha kaḥ sannikarṣaḥ? jñānena saiṅyukta-samavāyaḥ, tadarthena saiṅyukta-samaveta-viśeṣaṇatvam iti* – *Nyāyakusumāñjaliḥ* (4 / 4<sup>th</sup> Stavaka), Udayana, NKS., p.369.

<sup>230</sup> *tasyaiva jñānasya apekṣaṇāt* – *Nyāyakusumāñjaliḥ* (4 / 4<sup>th</sup> Stavaka), Udayana, NKS., p.369.

caliber in transporting a past object to the present sense-organ than *saṃskāra*. If *smṛti* can do it, *saṃskāra* also can do it. Rather, we can say, in virtue of being *saṃskārajanaya*, *smṛti* is credited for the said job. It is unanimously held that in all those cases the *saṃskāras* were energized. Now, if *saṃskāra* itself can do this job, why invite an extra causal step in the mechanism? It will cause the fallacy of overload. Hence, it is redundant. Moreover, it is counter-intuitive.

However, the other Naiyāyikas may not subscribe to such a charitable interpretation of *jñānalakṣaṇa sannikarṣa*. In most of the Nyāya texts this sensory connection has been described as ‘*upanītabhāna*’ or ‘*smṛtijñāna*’ or ‘*svasaṃyukta manaḥsaṃyukta ātmasamaveta jñānaviśayatvarūpa*’. Hence, it is *cognition* – mainly memory-cognition, not *memory-trace*, which connects its content to the operating sense-organ extraordinarily. Whatever may be the interpretation, the Nyāya theory of *jñānalakṣaṇa* does not seem to be so counter-intuitive. Some recent researches on synaesthesia also support this view, where the subjects feel one kind of sensation being other sense-organ stimulated. My mother had an aversion in bus journey. On those days, she would feel sick even on hearing the sound of bus or seeing the bus from distance. She told me that it is not the memory of the traumatic past experience of bus-journey, but a bad smell of diesel that would make her sick. So, it is something more than a quick inferential process or memory by association. In the case of inferential process there always remains a conscious guidance on our part. But here the whole process is unconscious; the sensation suddenly pops up. The memory-contents are not so forceful that can immediately make a person sick. It is evident that the perception of a bus and the memory of journey are not sufficient conditions for such experience. If so, then everyone would experience similar things. It must be an immediate experience of bad smell that makes one sick. And there must be some other reasons such as intense aversion, special physiological conditions, habits etc. those trigger that immediate experience. But since the process is unconscious, all conditions cannot be traced without psychological experiment. Speculation is not sufficient. Moreover, they may vary from person to person.

#### 5.2.4. Answer to the Advaita Objection of *pratyksapakṣa-anumāna-uccheda*

The Advaita Vedantins hold that the cognition ‘the sandalwood is fragrant’ exemplifies two acts of knowledge – it is perception in respect of sandalwood and inference in respect of fragrance. The Nyāya theory of *jñānalakṣaṇa* ignores the distinction between perception and



inference. Perception is an immediate knowledge of the objects given. And inference is an indirect knowledge of something through the medium of some sign, which is always related to it. Inference involves a transition of consciousness from one to other which is absent in perception. Perception is the integral immediate consciousness of an object whereas inference is a multiple, mediated consciousness of an object which may be expressed as ‘this-therefore-that’.

Now the Naiyāyikas say that in the case of the cognition ‘*surabhi candanam*’ we do not have the cognition in the form ‘it is sandal, therefore it is fragrant’ (*ayam surabhi candanatvat*). There is no transition of thought from sandalhood to fragrance, as it is present in the case of the inference of fire from smoke in a hill. Hence, to admit *jñānalakṣaṇa* as a form of perception is not to obliterate the distinction between perception and inference. In perception datum is *given*, in inference it is *suggested*. In perception there is a synthesis of some sensuous elements and some non-sensuous elements – but those are not kept distinct. They are fused into one whole; whereas in inference the suggestive fact and the suggested fact remain distinct and we are conscious of a transition of thought from the one to the other. During the cognition like ‘ice looks cold’ or ‘the sandal looks fragrant’, we do not experience such a transition of thought. Hence, it is not inference.

The instance of *jñānalakṣaṇa* is similar to what Ward, Stout and Wudnt calls ‘complication’. ‘Complication’ is a variety of perception involving cross-modal integration, such as, ‘ice looks cold’, ‘the armour looks hard, smooth and cold’, etc. We may go further and say that *jñānalakṣaṇa* is similar to the visual perception of distance. Eyes have no independent means of apprehending the relations of surfaces and lines which presuppose the third dimension. Hence the question: can there be a visual perception of (i) distance, (ii) coldness or hardness and (iii) fragrance? J. S. Mill says that cognition of distance is an inference grounded on experience. But it happens so rapidly that it appears as perception. However, modern psychology takes it as perception. Regarding the other two cases, the Advaitins hold that they are cases of inference but the Naiyāyikas, Stout, Wudnt and Ward take them to be perception.

They hold that in such perceptions, there is a fusion of certain sensuous elements with non-sensuous presentations into one whole. Here sensuous elements are given and the non-sensuous elements are presented by the given through natural and habitual association. Natural association is the mental association of one sense quality with other that is by nature

connected. And habitual association is the association between two sense qualities those are not naturally connected. So such association is established through habit. An object which has smell also has other sense qualities like taste, colour, touch and sound. This is natural association. But an object which has colour may not have a smell. So, the association 'smell → taste' is natural but the association 'colour → smell' is habitual. Natural association does not imply that it is congenital. The association is made in the mind of a person when he grows up. The plus point of natural association is that it has a basis in the constitution of things and it is experienced very often. Habitual association is looser than natural association. However, both associations need repeated experience of those sense qualities as connected.

It implies that – 1. Under the same objective condition, the knowledge of a same object may be a matter of perception or inference for different individuals, according to whether there *is* or *is not* a natural or habitual association as the basis of their knowledge. 2. Under the same objective condition, the knowledge of the same object may at first be a matter of inference and subsequently of perception or *vice versa* according to when the association is established in or withers away from one and the same individuals.<sup>231</sup>

So, the fragrance of sandalwood may be directly known visually by those who are closely familiar with it but for others its visual appearance may only be a sign from which its fragrance is inferred. It implies that there is no absolute line of demarcation between perception and inference. The same thing can be perceived by someone and inferred by other. We cannot say that under the same objective condition the knowledge of an object must always be perceptual (or inferential) for every individual and that it can never be otherwise. When the association is sufficiently established perception of sandalwood may present fragrance to a person through the memory of that association resulting into an integral perceptual cognition '*surabhi candanam*'. In other cases, sight of sandalwood only works as a sign for fragrance evoking the memory of a universal concomitance of sandalwood and fragrance (*vyāptismaraṇa*). Although *vyāptipratyakṣa* is based on repeated experience (*bhūyodarśana*), but that much is not (still) sufficient to ingrain the association in the constitution of the cognizer so that he can perceive fragrance. When the strength of the association crosses a certain threshold, the memory of fragrance attains the vividness of perception which is the phenomenological property of perception. Then we conjecture that the memory must have brought its content to the sense-organ through *jñānalakṣaṇa sannikarṣa*.

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<sup>231</sup> NTK., pp.218-227.

*Prima facie* the Naiyāyikas did not go for such a theory which presupposes the *shades* of the strength of association. Normally, they are the proponent of clear-cut causal theory of cognition where the causal assemblage for perception is clearly different from that of an inference. However, such a *shaded* theory is compatible with the Nyāya system if we include the subjective conditions in the causal assemblage of cognitions along with the objective conditions. The existence of different subjective conditions will make the causal assemblage for perception different from that of inference. And the difference in causal assemblage will be reflected truly in the phenomenology of the cognition in *anuvyavasāya*. We can say that the presence of that ‘different’ subjective condition is termed by the Naiyāyikas as ‘*jñānalakṣaṇa sannikarṣa*’, the nature of which has been epistemologically described as ‘*svasaṁyukta manaḥsaṁyukta ātmāsamaveta jñānaviśayatvarūpa*’. But if we try to unveil the psychological steps for attaining such a cognitive phenomenon, we shall arrive at such a thesis.

So, in reply to the Advaitins objection against the thesis of *jñānalakṣaṇa*, we can say that *pakṣadharmatājñāna* and *vyāpti-smaraṇa* may be sufficient condition for inference, but not sufficient for such special experience. So, the objection of obliteration of *pratyakṣa-pakṣa-anumāna* does not arise, since generally in those cases *alaukika-pratyakṣa-sāmagrī* does not remain present. And even when it remains present, we may infer if we wish (*anumitsā*), although it is unnecessary in that situation. Thus we may defend the theory of *jñānalakṣaṇa sannikarṣa*; and as consequence the Nyāya theory of illusion is defended.

One thing should be added to this account. Generally memory-cognition works as *jñānalakṣaṇa sannikarṣa* and connects its content to the operating sense-organ. But Harirāma Tarkavāgīśa and Raghunātha Śīromaṇi hold that all the internal states or qualities those have contents (*saviśayaka*) may work as *jñānalakṣaṇa sannikarṣa*. Such things are psychical trace (*saṁskāra*), desire (*icchā*), aversion (*dveṣa*) and volition (*prayatna*). Hence there are two views regarding the causality of *jñānalakṣaṇa sannikarṣa (upanaya)*: (i) the causality in the form of knowledgehood (*jñānatvarūpenakāraṇatā*), according to which cognition alone is the precondition or *upanaya*. (ii) the causality in the form of something having its content (*saviśayakatvarūpenakāraṇatā*), according to which, besides cognition, desire, aversion, volition and psychical trace are also precondition (*upanaya*) for *jñānalakṣaṇa pratyakṣa (upanītabhāna)*. This second view seems to include the first view and is able to explain other instances like the following. After a desire for a pot is produced in the Self in relation of

inherence (*samavāya*), we may have an internal perception (*mānasapratyakṣa*) in the form, ‘I desire a pot’ (*ghaṭamaham icchāmi*). The desire is perceived internally through *saiṅyukta samavāya sannikarṣa*. But the content of the desire, i.e., the pot is connected to the operating sense-organ *manas* through the prior desire of the pot. Hence, desire works here as *jñānalakṣaṇa sannikarṣa*. Similarly, we can work out how the other states having contents may work as *jñānalakṣaṇa sannikarṣa*. Here one may argue that in all those aforesaid cases one thing is common. It is evocation of the previous effect (*saiṅskārod bodha*). How can we desire a pot if it (and its association with pleasure) does not come to the mind first? Hence, let *saiṅskāra* be the said extraordinary sensory connection. But the objector would here say that *saiṅskāra* of pot may be a precondition of the desire itself. But it is not the immediate cause of the perception of desire. It will be discarded in the moment-examination. Moreover, in some cases when we desire a newly perceived object just immediately after perceiving it, the *saiṅskāra* do not become precondition.

Harirāma argues that the second theory has an advantage of logical parsimony (*lāghava*) over the first theory. In the case of the production of the mental perception of an effort or volition (*prayatna* or *kṛti*) in the form ‘I have an effort (*kṛtimān aham*), at the first moment (M1) a cognition is produced. At the next moment (M2) desire or *icchā* is produced resorting to the object of that cognition. At the third moment (M3) the effort or volition is produced in order to have the object of desire. At the fourth moment (M4) we may have an after-perception of that volition or *kṛti*. Now the question is which element in the process connects the object of *kṛti* to the *manas*? Cognition of the object, which was produced at the first moment, cannot do the job because it has been destroyed at M3 since cognition dies at the third moment of its production. So, we have to admit that at M4 again the cognition of the object of *kṛti* is produced. And as a result the after-perception of *kṛti* will be delayed by one moment. It will be produced at M5. Harirāma says that we can avoid this delay or logical excess if we hold that *kṛti* itself can officiate as supernormal contact.<sup>232</sup>

However, there is another problem. The mechanism of *jñānalakṣaṇa pratyakṣa* described earlier involves top down processing where the object (if Nyāya admits representative realism then we can call it ‘content’ rather than ‘object’) of memory becomes the object (content) of

<sup>232</sup> *etanmate tu ghaṭajñānasattve’pi tādrśecchākāle tasyā eva ghaṭādiviṣayakatvena tadupanāyakatayā tadupanābhānasyotpatyā ghaṭajñānādyaniveśena lāghavam. – Jñānalakṣaṇavicārahāsyā, Pandit Harirāma Tarkavāgīśa, JVR, p.66.*

perception. Now the Buddhists suggest that true perception should never involve top-down processing. They say that even what the Naiyāyikas call determinate perception also is adulterated by figments of our imagination, i.e., by name, category etc. Hence that cognition is not worthy of the name perception. The Naiyāyikas have to answer this question. Secondly and more importantly, we see that both *savikalpaka* and *jñānalakṣaṇa pratyakṣa* have involved top-down processing. In this respect, they might be bracketed together. So, the question is inevitable – are all the instances of *savikalpaka pratyakṣa* actually instances of *jñānalakṣaṇa pratyakṣa*?

The Naiyāyikas would say that what is cognized in an ordinary determinate perception remains present in front of the perceiver and connected to the operating sense-organ ordinarily. Hence determinate perception is the result of bottom-up processing. During ordinary determinate perception, ordinary sensory connections remain operative, which overpowers all possible extraordinary sensory connections to the same object. Only names come through memory which is not the constitutive element of the object present in front. And when the object does not remain present in front, in spite of that we perceive it, we say that the remote object is connected to the operating sense-organ through extraordinary *jñānalakṣaṇa sannikarṣa*, i.e., through memory-cognition. Although memory of name works as an associate cause under the principal cause sense-object contact in the case of *savikalpaka pratyakṣa* but that is a memory-mediated perception, whereas *jñānalakṣaṇa pratyakṣa* is memory-induced perception where memory works as sensory connection and its content is revived at the degree of perceptual vividness through the excitation of the ‘inner, intangible and real’ sense-organ, what the neuroscientists call the proximal neural sensory level.

### 5.3. A Relevant Problem in *Jñānalakṣaṇa*

#### 5.3.1. The First Acquaintance of ‘surabhi candanam’

Generally, it is told that in the cognition ‘*surabhi candanam*’ sandalwood is perceived ordinarily and fragrance is perceived extraordinarily through the memory-cognition. Now the problem is what happens in the case of the first acquaintance of fragrant sandalwood? In such situation there should not be any memory-trace of the fragrance of sandalwood created in any prior occasion. So, *prima facie* there cannot be any memory-induced extraordinary perception of fragrance. It cannot be inference because such an inference would depend on *vyāpti* relation between fragrance and sandalwood which is supposed to be acquired through *anvayasahacāradarśana* or prior perception of collocation of sandalwood or *candanatva* and

fragrance or *surabhi* (in a piece of sandalwood or *candanakhaṇḍa*). The first acquaintance of fragrant sandalwood will not give us such a scope of any prior acquaintance.

### 5.3.2. The Advaita Answer

The Advaitins would say that the first acquaintance is partly visual and partly olfactory perception. Firstly they do not admit the existence of *jāti* like the Naiyāyikas; secondly, they define perceptuality not in terms of sense-object contact (as the Nyāya does) but in terms of immediacy or non-difference (*abheda*) of the consciousness conditioned by the means of cognition (*pramāṇacaitanya* or *vṛtyavacchinna caitanya*) from the consciousness conditioned by the object (*viśayacaitanya*). Such immediacy is established when translucent *antahkaraṇa* moves out through the sense-organ and be equipositioned with object assuming the form of the object. The *abheda* is established in the sense that due to that equipositioning of those two conditioned consciousness there remains no *viśayacaitanya* over and above the *pramāṇacaitanya*; or *viśaya* has no independent and separate existence over and above *pramāṇacaitanya*. Sense-organ may or may not help in such immediacy and theoretically even more than one sense-organ may conjointly help in producing one mental mode or *vṛtti*. Nevertheless the immediacy settled by that *vṛtti* will be numerically one. Moreover, *manas* is not atomic for the Vedāntins. So, conjoint operation of more than one sense-organ is accepted by them. A cognition may be partly mediate and partly immediate or partly visual and partly olfactory. But the Naiyāyikas say that mediacy, immediacy, visuality, olfactoriness etc. are universal or *jāti* those cannot be blended. The Advaitins do not admit *jāti*. They repudiate the existence of *jāti*.

### 5.3.3. Advaita Criticism against Jāti

The Naiyāyikas now object to the Advaitins that if immediacy (*aparokṣatva*) and mediacy (*parokṣatva*) coexist in the same cognition then these two properties cannot be considered to be universals (*jāti*) due to the deterrent of cross-sectioning (*sāṅkarya jātibādhaka*). According to the Advaitins, the property of being a perception (*pratyakṣatva*) and the property of being an inference (*anumititva*) both reside in the inferential cognition ‘the hill is fiery since it has smoke’. And the property of being a perception (*pratyakṣatva*) and the property of being a remembrance (*smṛtitva*) both reside in the cognition ‘the sandalwood is fragrant’. Now, in the perceptual cognition such as ‘this is a pitcher’, there resides only *pratyakṣatva* but no *anumititva* or *smṛtitva*. In the memory cognition such as ‘that pitcher’, there resides only *smṛtitva* but no *pratyakṣatva* or *anumititva*. And in the cases of *asannikṛṣṭa-pakṣaka anumiti*

such as the cognition, ‘the atom of earth has smell since it has the property of being earth’, there resides only *anumititva* but no *pratyakṣatva* or *smṛitva*. So, each of *pratyakṣatva* and *anumititva* resides in the locus of other and also in the locus of the absence of other. The same is true for the other group – *pratyakṣatva* and *smṛitva*. These cross-sectionings prevent those properties from being independent capsulated or insulated categories of universal. So, if we accept Advaita thesis then these properties will not be considered as *jāti*. But according to the Naiyāyikas these properties of course are *jāti*. Hence, Advaita thesis is untenable.

The Advaitins reply that such an objection brings favour for them (*iṣṭāpatti*). *Pratyakṣatva*, *parokṣatva*, *anumititva*, *smṛitva* etc. properties are not *jāti* at all because there is no *jāti* at all. *Jāti*, *upādhi* etc. are mere words (*paribhāṣa*) having no denotation. They cannot be known by means of any true cognition (*pramāṇa*). There is no evidence in favour of their existence. Hence, they are non-evidential (*aprāmāṇika*).<sup>233</sup>

The Naiyāyikas may say that *jāti* or *upādhi* is knowable in determinate perception; hence they are not non-evidential (*aprāmāṇika*). The cognition in which the qualificandum (*viśeṣya*), the qualifier (*viśeṣaṇa*) and their relation (*samsarga*) are revealed, is called determinate cognition (*viśiṣṭabuddhi*). In the cognition, ‘this is a pitcher’ (*ayam ghaṭah*), pitcher or *ghaṭa* is the qualificandum, pitcherness or *ghaṭatva* is the qualifier and inherence or *samavāya* is the relation. All these three things are known in that cognition. If there is no *jātibādhaka*, the cognition reveals the *viśeṣaṇa* ‘pitcherness’ or *ghaṭatva* as *jāti*. In the determinate cognition, ‘this is mediate cognition’ (*idam parokṣam*) or ‘this is immediate cognition’ (*idam aparokṣam*), mediacy (*parokṣatva*) or immediacy (*aparokṣatva*) become the qualifications (*viśeṣaṇa*) of those cognitions as *jāti* or universal. Hence, determinate cognition is the evidence in favour of the existence of *jāti*.

But the Advaitins say that determinate cognition only proves the existence of qualifier in the qualificandum. But it cannot prove that the said qualifier is a *jāti*; because quality, action etc. things, which are other than *jāti*, also become qualifier of a determinate cognition.

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<sup>233</sup> *na caivamekatra jñāne parokṣatvāparokṣatvayorabhyupagame tayorjātitvam na syāditi vācyam, iṣṭatvāt, jātitvopādhitva-paribhāṣāyāḥ sakalapramāṇagocaratayā’ prāmāṇikatvāt. – Vedānta Paribhāṣā, Dharmarāja Adhvarīndra, VP., pp.43-44.*

Now, the Naiyāyikas may say that the existence of *jāti* is proved by inference. When sense-organ is connected with five different fingers, one after another, then five different perceptions are produced of the form, ‘this is finger’, ‘this is finger’ etc. The forms of all those five cognitions are the same. That is why they are called *anugata pratīti*. If the contents of those cognitions were different then the forms also would be different. Since the form is the same, we have to admit that content of those cognitions is the same. There is some common property, existing in all the fingers, which has become the common content (*anugata viṣaya*) of all those cognitions. And it is fingerhood or *aṅgulitva*. The Naiyāyikas say that if there is no *jātibādhaka*, then this common property is considered as *jāti*. *Anugata pratīti* proves that there is a common property. Then we have an inference: Fingerhood etc. property is universal (*jāti*) since it is such a common property that is not an *upādhi* (*aṅgulitvādikam jātiḥ upādhibhinntve sati sāmānyadharmatvāt*). Hence, *anugata pratīti* along with such an inference proves the existence of *jāti*.

In reply, the Advaitins say that common and recurrent cognition (*anugata pratīti*) may prove that there exists a common property in the qualificandum, but the following inference cannot prove that the said property is a *jāti*. The subject (*pakṣa*) of the given inference is fingerhood (*aṅgulitva*). The probans (*hetu*) is the property of being *upādhi*-exceptive-common-property (*upādhibhinntva samānādhikaraṇa sāmānyadharmatva*). And the probandum (*sādhya*) is the property of being a *jāti* (*jātitva*). This inference suffers from the fallacy of unestablished probandum (*sādhyaḥprasiddhi*). According to the Naiyāyikas, *jātitva* is the property of being eternal, co-located with the property of being inhered in many (*nityatva samānādhikaraṇa anekasamavetatva*). *Jāti* is that which is eternal and is inhered in many objects. But according to the Advaitins, there is no eternal object except *Brahman*. Pitcherness (*ghaṭatva*), fingerhood (*aṅgulitva*) etc. properties are also non-eternal with respect to the Absolute Reality. Secondly, in the Advaita ontology, inherence (*samavāya*) has not been accepted as an existent entity. Neither it has any definition, nor any evidence. Now, if there is no relation named inherence, the properties like fingerhood or pitcherness cannot be inhered in many objects. Hence, we can say that there is nothing eternal and nothing inhered in many. So, there is nothing as universal or *jāti*.

Now, in order to be an acceptable probandum, the probandum must be existent and established in at least one place, other than the subject (*pakṣa*). Otherwise there cannot be the cognition of universal concomitance (*vyāptijñāna*) between probans and probandum. *Vyāpti* relation is



established by an instance (*dr̥ṣṭānta*) where probans and probandum are found to coexist in the same locus. And this instance or locus must be different from the subject (*pakṣa*). If the probandum is non-existent, no such instance is found and *vyāpti* relation remains unestablished. As a result there would be the fallacy, named *vyāpyatvāsiddhi*. It happens when the probans is not established (*asiddha*) to be pervaded (*vyāpya*) by the probandum.

In other way we can say that since *ghaṭatva* etc. all properties are non-eternal (according to the Advaitins), *aṅgulitva*, which is the subject of the given inference, has no eternality (*nityatva*). Neither it (*aṅgulitva*) has the property of being inhered in many objects (*anekasamavetatva*), since there is nothing as *samavāya* relation. Hence, it is clear that the *pakṣa* of the inference (*aṅgulitva*) has the absence of *nityatva samānādhikaraṇa anekasamavetatva* or *jāitva*. Now, *jāitva* is the *sādhyā*, the absence of which has been proved in the *pakṣa*, *aṅgulitva*. It amounts to the fallacy named *bādha*. Hence, the existence of *jāti* is not proved even in inference.<sup>234</sup>

Now the question will arise that if the Advaitins do not admit the existence of *jāti*, then how do they explain common and recurrent cognition? In reply, the Advaitins say that a pitcher, which is an evolute of *Māyā*, is superimposed (*adhyasta*) on *Brahman*, the Absolute Existence-Consciousness-Bliss, in relation of non-difference (*abheda*). From the absolute point of view, pitcher is inexistent. So, we should not perceive it as existent. But due to the superimposition (*tādātmyādhyāsa*) the existence part of *Brahman* is partially revealed through pitcher. That is why pitcher appears to be *existent* to us. Now, the part of *Brahman* or Consciousness, in which the pitcher is superimposed in the relation of non-difference, is called consciousness delimited by pitcher (*ghaṭāvachhinna caitanya*). In other words, the relation of non-difference with Existence or Consciousness (*sat-tādātmya* or *cit-tādātmya*) is delimited by pitcher. This *ghaṭāvachhinna sat-tādātmya* or *ghaṭāvachhinna cit-tādātmya* is common in every pitcher. This is pitcherness or *ghaṭatva*. In the same way, the non-difference with Existence or Consciousness, which has been delimited by cloth (*paṭāvachhinna sat-tādātmya* or *cit-tādātmya*), is clothness (*paṭatva*), which is present in each and every clothe, but not in other things. The Advaitins explain common and recurrent cognition in terms of such common *sat-tādātmya* or *cit-tādātmya*.

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<sup>234</sup> *ghaṭo'yamityādi-pratyakṣaṁ hi ghaṭatvādi-sadbhāve mānam, na tu tasya jāitve'pi, jāitvarūpa-sādhyāprasiddhau tat-sādhyakānumānasyāpyanavakāśāt, samavāyāsiddhyā Brahmabhinnākhilaprapañcasyānityatayā ca nityatva-samavetatva-ghaṭita-jāitvasya ghaṭatvādāvasiddheśca evamevopādhitvaṁ nirasaniyam. – Vedānta Paribhāṣā, Dharmarāja Adhvarīndra, VP., pp.44-45.*

#### 5.3.4. Advaita Explanation of Partially Mediate and Immediate Cognition

Now, the Naiyāyikas may raise an objection. Even if it is accepted that mediacy (*parokṣatva*) and immediacy (*aparokṣatva*) are not *jāti*, they are nonetheless contradictory to each other. Then how can they coexist in the same cognition? Hence we should admit that the inferential cognition ‘*parvato vahnimān dhumāt*’ is wholly mediate, and the cognition ‘*surabhi candanam*’ is wholly perceptual.

In reply, Dharmarāja says that in the case of the inferential cognition, ‘hill is fiery’ or ‘*parvato vahnimān*’, there occur two different modifications (*vṛtti*) of the same internal organ (*antaḥkaraṇa*). On one part of *antaḥkaraṇa* there occurs a perceptual mental modification in the form of hill (*parvatākāra pratyakṣavṛtti*) and on the other part of the same *antaḥkaraṇa* there occurs a non-perceptual mental modification in the form of fire (*vahnyākāra parokṣavṛtti*). Since there is only one *antaḥkaraṇa*, there occurs a single cognition. But the cognition has two different delimiters (*avacchedaka*) – those two different *vṛttis*, which are two different parts of the same cognition. Although it is impossible for contradictory properties to coexist in the same part of a substratum, they can happily coexist in different parts of a same substratum. Suppose there is a monkey, sitting on a branch of a tree. Now, on the part of the branch (*śākhāvacchede*) there is the contact with monkey (*kapisaṇiyoga*), but on the part of the root (*mūlāvacchede*) there is the absence of the contact with monkey. In the same way, on the part of *parvatākāra vṛtti*, there is immediacy (*aparokṣatva*) and in the part of *vahnyākāra vṛtti*, there is mediacy (*parokṣatva*).

However, there is a problem in admitting the occurrences of two different modifications (*vṛtti*). When sense-organ is simultaneously connected with both, a pitcher (*ghaṭa*) and a cloth (*paṭa*), then two different modifications are produced – one in the form of pitcher, and the other in the form of cloth. As a result, there occurs a cognition of a group of things (*samūhālabhana jñāna* or *samuccaya jñāna*) in the form ‘pitcher and cloth’ (*ghaṭapaṭau*). Since there occurred two different modifications, the relation between pitcher and clothe is not revealed in that *samuccaya jñāna*. If we admit that during inferential cognition also there occur two different modifications, then the produced cognition will be a *samuccaya jñāna* in the form, ‘fire and hill’ or ‘*vahniparvatau*’. And the relation between hill and fire will not be revealed in that cognition. But it is not the case. The inferential cognition, ‘hill is fiery’ (*parvato vahnimān*) is a qualified cognition (*viśiṣṭajñāna*) where the relation between hill and

fire is revealed. Everyone admits that in an inference the relation between the subject (*pakṣa*) and the probandum (*sādhya*) is revealed. Hence, we have to admit that during inference only one *vṛtti* is produced which has the form of the qualificand as being qualified by the qualification (*viśiṣṭakāra vṛtti*). In the present case, there occurs only one *vṛtti* in the form of hill as being qualified by fire (*vahniviśiṣṭa parvatākāra vṛtti*).

Padmapādācārya also has admitted such thesis in *Pañcapādikā*. Occurrence of a single *vṛtti* during inference explains why the produced cognition is a single qualified cognition. It also explains how mediacy and immediacy can coexist in a same cognition. Cognition is object-delimited consciousness manifested by mental mode. In this case, since the consciousness is delimited by a single qualified object (*vahniviśiṣṭa parvata*) and since the *vṛtti* (*vahniviśiṣṭa parvatākāra vṛtti*) is one, the produced cognition also will be single qualified cognition. In the case of the inference ‘*parvato vahnimān*’, sense-contact along with the previous effect of *vyāpti* relation produces a single *vṛtti* in the form of hill as being qualified by fire. The part of the *vahniviśiṣṭa parvatākāra antaḥkaraṇavṛtti*, which has taken the form of hill (*parvataviśayaka amśa*), moves out through the sense-organ and becomes equipositioned with the hill. Due to the equipositioning of the delimiters of consciousness, i.e., the modification in the form of hill (*parvatākāra vṛtṭyamśa*) and the hill (*parvata*) or *viśaya*, a non-difference (*abheda*) is established between *parvatākāra vṛtṭyāvachhinna caitanya* or *pramāṇacaitanya* and *parvatāvachhinna caitanya* or *viśayacaitanya*, which amounts to the perceptuality or immediacy (*pratyakṣatva* or *aparokṣatva*). However, the part of *vahniviśiṣṭa parvatākāra antaḥkaraṇavṛtti*, which has taken the form of fire (*vahniviśayaka amśa*), is not sense-connected. That is why this part of the *vṛtti* cannot move out in order to be equipositioned with the corresponding part of the object (*viśaya*). So, the delimiters of consciousness, i.e., the modification in the form of fire (*vahnyākāra vṛtṭyamśa*) and the fire (*vahni*) or *viśaya*, do not be equipositioned. As a result, the non-difference (*abheda*) between *vahnyākāra vṛtṭyāvachhinna caitanya* or *pramāṇacaitanya* and *vahnyāvachhinna caitanya* or *viśayacaitanya* is not established. So there remains mediacy or *aparokṣatva* in the fire part of the *vṛtti*. We can imagine that one part of the *antaḥkaraṇa* moves toward the hill taking the form of hill and the other part remains inside our body assuming the form of fire. However, these two parts are not severed from each other and the form as a whole amounts to the single

qualified cognition, one part of which is perceived and the other part inferred. Hence, mediacy and immediacy can happily coexist in the same cognition without negating each other.<sup>235</sup>

### 5.3.5. Advaita Explanation of the Cognition 'surabhi candanam'

The Advaitins explain the cognition, 'the sandalwood is fragrant' ('*surabhi candanam*') in the same way. Sense-connection with sandalwood, along with the energized previous effect of the association between sandalwood and its fragrance (or the previous effect of *vyāpti* relation between sandal and fragrance) produces a single modification of internal organ in the form of sandalwood as being qualified by fragrance (*surabhiviśiṣṭa candanākāra antaḥkaraṇavṛtti*). Only that part of the modification, which has taken the form of sandalwood (*candana viśayaka aiśa*), flows out through the sense-organ to the object and becomes equipositioned with sandal. In this way, due to the equipositioning of the delimiters of consciousness, i.e., the modification in the form of sandalwood (*candanākāravṛtymśa*) and the *viśaya* sandal (*candana*), a non-difference is established between *candanākāravṛtyavacchinna caitanya* or *pramāṇacaitanya* and *candanāvacchinna caitanya* or *viśayacaitanya*. This non-difference amounts to perceptuality or immediacy. On the other hand, the other part of *surabhiviśiṣṭa candanākāra antaḥkaraṇavṛtti* which has taken the form of fragrance (*surabhi viśayaka aiśa*) is not connected with an appropriate sense-organ. That is why this part of the *vṛtti* cannot move out from our body in order to be equipositioned with the object (*viśaya*) fragrance. So the delimiters of the consciousness, i.e., the modification in the form of fragrance (*saurabhākāravṛtymśa*) and the object (*viśaya*) fragrance do not be equipositioned. As a result, the non-difference between *saurabhākāravṛtyavacchinna caitanya* or *pramāṇacaitanya* and *saurabhāvacchinna caitanya* or *viśayacaitanya* is not established. So, there remains mediacy or *aparokṣatva* in the fragrance part of the *vṛtti*. In this way, it is explained how the cognition 'surabhi candanam' becomes partly perceptual (immediate or *aparokṣa*) and partly mnemonic or inferential (mediate or *parokṣa*).

In the case of the first acquaintance of fragrant sandalwood, visual sense-organ is connected with sandalwood and olfactory sense-organ is connected with fragrance. Thus a single modification of internal organ is produced in the form of 'sandalwood as being qualified by fragrance'. Only sandalwood-part of the modification flows out through the visual sense-organ

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<sup>235</sup> *parvato bahnimānityādau parvatāmśe bahnyaiśe cāntaḥkaraṇavṛtti-bhedāṅgikāreṇa tattadavacchedak-bhedena parokṣatvāparokṣatvayorekatra caitanye vṛttau na kaścid virodhaḥ. – Vedānta Paribhāṣā, Dharmarāja Adhvarīndra, VP., pp.45-46.*

to the object sandal and is equipositioned with the piece of sandalwood. And the fragrance comes through the olfactory sense-organ and gets connected with the internal organ so that the fragrance part of the modification is equipositioned with fragrance. Or we can say that one and single internal organ is partially modified in the form of sandal going out through the visual sense-organ and connected with sandal and partially modified in the form of fragrance due to the coming of the fragrance through the olfactory sense-organ and connected with fragrance. In this way the cognition becomes visual on one part and olfactory on the other part. As long as the mental modification is one, the cognition is a single one. Nevertheless, this particular cognition ‘fragrant sandalwood’ is wholly immediate or perceptual.

### 5.3.6. A Common-sense View

However, against this contention the Naiyāyikas may object that this Advaita account is out and out dependent on their metaphysics which is questionable. On the other hand the Nyāya account tries to explore the mechanism of the said cognition psychologically which has more acceptability. Let us now see how this cognitive phenomenon is explained remaining within the Nyaya framework and if we compare these two alternative accounts in terms of common-sense admissibility, obviously the Nyāya will be accepted.

The Nyaya would say that if we look into the mental process going on during the first acquaintance the whole picture will be clear. It is true that we never perceive the collocation of sandalhood and fragrance in sandal during the first acquaintance, but we look into our own Self and mentally perceive the collocation of the ‘vision of sandalhood’ and the ‘smelling of fragrance’. So, here we perceive the collocation of (the presence and absence of) *candanagrahaṇa* and *saurabhagrahaṇa*. We observe that whenever the vision of sandalhood is produced in the Self the smell of fragrance also is produced in the Self harmoniously. And when the vision is absent the smell also is absent. So the perceived collocation is of a level deeper. And if we go at this level the problem of ‘two sense-organs’ disappears, because both of those perceptions are graspable by one sense-organ – *manas*. The collocation of the presence and absence of those two perceptions is grasped in an after-perception (*anuvyavasāya*).

Actually the process is a little bit more complicated, because we may have the vision of sandalhood from distance when there is no smell. Actually we internally calculate the range of our smelling power with respect to the acuteness of the fragrance and observe that whenever a

particular object is seen to be entered into the field of smell, a particular fragrance is grasped; and when it goes beyond the range, the fragrance is not grasped. So, this harmonious presence and absence of two different cognitions needs an explanation. Moreover, there is a linear proportionate relation between the degree or acuteness of fragrance and the distance of the sandalwood from the nose. More near the sandalwood is, more acute is the fragrance. Now, in order to explain this epistemic phenomenon the person constructs a metaphysical hypothesis that fragrance is the quality of the beforehand substance sandalwood. We understand that if the fragrance were not the quality of sandalwood, such epistemic phenomenon (that the vision of sandalwood and the smelling of fragrance occurs together in the Self harmoniously) would not happen.

### 5.3.7. *Is it Arthāpatti or Kevalavyātirekī Anumāna?*

So, the cognition of fragrant sandalwood results from the following form of consideration: ‘If this were not (imagined to be) so then that would not happen’. According to the Mīmāṃsakas and the Vedāntins such cognition is termed as postulation or presumption (*arthāpatti*). If Devadatta does not take food during the daytime but gains weight then we presume that certainly he takes food at night. But the Naiyāyikas do not admit *arthāpatti* as a separate independent means of true cognition (*svatantra pramāṇa*); nevertheless they admit the existence of such epistemic phenomenon. But for the Naiyāyikas such cognitions are inferential (*anumiti*). Such inferences are *kevalavyātirekī anumiti*, i.e. they are dependent on such a *vyāpti* relation which is dependent solely on the perception of the collocation of the absence of *hetu* and the absence of *sādhya*. Only *vyātireka saha-cāra* is experienced in such cases. *Anvaya-saha-cāra* is not experienced during the acquisition of this *vyāpti* relation. So the *vyāpti* is termed as ‘*kevalavyātirekī*’ and the *anumiti* also is termed so. The form of the *vyātireka vyāpti* is, ‘wherever there is the absence of probandum there is the absence of probans’ or ‘*yatra yatra sadhyābhāva tatra tatra hetvabhāva*’. Here in the case of Devadatta the form of the inference would be like this: Devadatta takes food at night since he does not take food at daytime although he is gaining weight such as a fasting ascetic (*Devadatta rātrau bhūṅkte divā abhuñjānatve sati pīnatvāt yathā upavāsarata tapasvī*). Here the subject or *pakṣa* is Devadatta, the probandum or *sādhya* is ‘taking food at night’ or ‘*rātribhojana*’, the probans or *hetu* is ‘fattiness or weightiness as being qualified by the absence of daytime eating’ or ‘*divasabhojanābhāvaviśiṣṭa pīnatva*’. In such cases we do not have the *vyāptijñāna* in the form, ‘*yatra yatra divasabhojanābhāvaviśiṣṭa pīnatva tatra tatra rātribhojana*’, because *rātribhojana* is not perceived in any case. The Mīmāṃsakas say that which is presumed is

entirely our imagination. In order to explain some perceived phenomenon we construct or imagine a possible cause which we do not directly perceive in any case. The same epistemic situation is explained by the Naiyāyikas with the help of *kevalavyātirekī anumāna* without altering the essence of the epistemic situation. Hence they introduced *kevalavyātirekī vyāpti* where *sādhya* is not perceived in any case. So, we cannot supply any example or *dr̥ṣṭānta* in favour of the aforesaid *anvayavyāpti*. No *anvayasahacāra* is perceived while acquiring this *vyāpti* relation. So no *parāmarśajñāna* or suggestive cognition is formed depending on such *vyāpti* relation. Nevertheless the simultaneous absence of probans and probandum is perceived and depending on such examples the *vyātireka vyāpti* is established in the form, ‘wherever there is the absence of probandum, there is the absence of probans. In this present situation the *vyāpti* relation is of the form, ‘wherever there is the absence of night-eating there is the absence of such fattiness that is qualified by the absence of day-eating’ or we can rewrite it in the classical form, ‘*yatra yatra ratribhojanābhava tatra tatra divasabhojanābhāvaviśiṣṭapīnatvābhāva*’. Depending on this *kevalavyātirka vyāpti* we infer that Devadatta takes food at night.

Now, let us apply this consideration in the case of fragrant sandalwood. We introspect that visual perception of sandalwood and sandalhood and olfactory perception of fragrance arise in our Self together (not at the same moment although) harmoniously. And we also mentally perceive their absences reside in the Self together. This is an epistemic phenomenon. Now, with the absence of this epistemic phenomenon (**Y**) we observe a corresponding absence of a metaphysical phenomenon (**X**). Whenever there is the absence of the metaphysical phenomenon **X** (**X** = fragrance is the quality of sandalwood) there is the absence of an epistemic phenomenon **Y** (**Y** = *candanagrahaṇa* and *saurabhagrahaṇa* occur together, and their absences also occur together harmoniously). The crux of the consideration might be expressed in a form of *tarka*, ‘if fragrance were not the quality of sandalwood, the perception (vision) of sandalwood and the perception (smell) of fragrance would not occur in the Self together harmoniously’. However, this *tarka* is dependent on the perception of the collocation (*sāmānādhikarānya*) of the absences of the metaphysical (**X**) and epistemic phenomenon (**Y**). Here **X** is the *sādhya* and **Y** is the *hetu*. It is to be kept in mind that here we have only *vyātireka vyāpti*. We do not have the *vyāpti* relation that wherever there is **Y**, there is **X**, because in that case we require to perceive **X** and **Y** together as an example (*dr̥ṣṭānta*). And if we were able to perceive **X**, i.e. fragrance is the quality of sandalwood directly, we would need not enter into such complexity. Fragrance is perceived olfactorily and sandalwood is

perceived visually. In Nyāya theory no cognition is allowed to have two different instruments. Hence, we cannot perceive the metaphysical phenomenon **X** in any time. We have to infer it in the abovementioned way through *kevalavyātirekī anumāna*.

But here awaits a serious objection. For acquiring the corresponding *vyātireka vyāpti* one has to perceive the collocation of the absence of *hetu* and the absence of *sādhya* in the same locus. Here the *hetu* (**Y**) is the harmonious occurrence of two cognitions in the Self. This harmony is mentally perceivable hence the absence of *hetu* (~**Y**) also is mentally perceivable because we know that an absence and its negatum both are perceivable by the same sense-organ. Here the sense-organ is *manas*. But what about the perception of *sādhyābhāva* (~**X**) and the locus? One may assume that the locus is time. But that is not a satisfactory answer to the opponents. Even if that is accepted, the main problem remains regarding the perception of *sādhyābhāva*. Here the *sādhya* (**X**) is the metaphysical truism that fragrance is the quality of sandalwood. From the abovementioned rule we know that absence of **X** will be perceived by the same sense-organ by which **X** is perceived. But the constituent elements of **X** are perceived by two different sense-organs. This was our main problem and in order to solve it we took a long complicated route of *kevalavyātirekī anumiti*. But here we see the route is a death circle. We have arrived at the spot wherefrom we began our journey.

### 5.3.8. Alternative Nyāya-Vaiśeṣika Solutions: Jayanta Bhaṭṭa and Śrīdhara

Jayanta Bhaṭṭa in *Nyāyamañjarī* mentions that ‘*madhura śarkarā*’ or ‘*sugandhi ketakī*’ are cases of mental perception or *mānasa pratyakṣa*.<sup>236</sup> Such perceptions are not caused by external senses. There occur three cognitions in succession: (i) a visual perception of *ketakī* or rose, (ii) an olfactory perception of the fragrance of *ketakī* or rose, and finally we have (iii) a mental perception of ‘*sugandhi ketakī*’ or fragrant rose. The first two cognitions are external perceptions, where the external sense-organs were the means and the internal sense-organ (*manas*) acted as an aid to the external senses. In the third case, *manas* functions as the means of perception being aided by external senses. *Manas* on its own cannot be related to external object as it is an inner organ. In the previous two moments *manas* was related to the external

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<sup>236</sup> *na ca yugapadindriyadvayadvārakamekamutpadyamānaṁ jñānaṁ kva cid dr̥ṣṭam, tatraitatsyāt, mānasamidaṁ jñānaṁ sugandhibandhukabodhavadbhaviṣyati. – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS I., p.75.*

*śabdādyupāyāntaraviratau ca jāyamānānavadyaṁ jñānaṁ mānasaṁ pratyakṣaṁ bhavati surabhi ketakakusumaṁ madhurā śarkareti jñānavadītyapyuktam. – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS I., p.98.*



senses and through their relations, *manas*, at the third moment, becomes related to the objects of those external senses. These three cognitions occur in such a quick succession that we think that we are having only one perception. Even we do not recognize it as a mental perception.

But what happens where only one of the qualificand and qualifier is given to the senses? When seeing a heap of sugar without tasting it we have a perception, 'sugar is sweet', connecting sugar to its sweet taste. Jayanta would explain it in the following way. At the first moment we visually perceive sugar. At the second moment the remembrance of its sweet taste occurs. At the third moment there occurs a mental perception connecting the objects of two preceding cognitions.

But how does Jayanta explain the thesis that the external objects, those are graspable only by external organ, are grasped by internal organ? Firstly, every perceptible object is graspable by internal organ. Secondly, in another context, Jayanta says that in some cases, perceptions about external objects are the cases of *mānasa pratyakṣa*.<sup>237</sup> Our very first experience of a particular thing as a cause of pleasure (*sukhasādhana*) is a case of mental perception. Suppose I listen to a good music for the first time and have a pleasant feeling. I also know immediately that the music is a source of my pleasure. The awareness of the causal connection between the music and the pleasure must be a perceptual one because no other source of knowledge like inference or testimony has been used. Now, music is graspable by auditory organ only and pleasure is graspable by mental organ only, which by itself cannot grasp music. But a causal relation between the two cannot be perceived by a sense organ unless both the relata are perceived through it. Although *manas* does not have an independent capacity to perceive an external object, still it is an associative cause for producing any external perception. So, *manas* is related to the external object being mediated by an external sense-organ. Hence, the causal connection between the music and the pleasure is grasped through *manas*, otherwise the perceptual character of the awareness cannot be explained. Jayanta holds that we need not mentally perceive the relation each time. It is mental perception for the first time. For the later occasions usually they are inference.

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<sup>237</sup> *nanu kapitthādikāryasya sukhasyedānīn na cakṣurgrāhyatvamīti sambandhigrahaṇābhāvātkathamī cākṣuṣapratyakṣagamyah sambandhaḥ, na cākṣuṣapratyakṣagamyah sambandhaḥ, kiṁ tu mānasapratyakṣagamyah, sukḥādi manasā buddhvā kapitthādi ca cakṣuṣā/ tasya kāraṇatā tatra manasaivāvagamyate// – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS I., p.65.*

So, we have seen that the problem of explaining the first experience of the connection between the qualificand and the qualifier can be solved either by taking it as a mental perception or taking it as inference – if not inference (on the basis of *anuvyavasāya*) then it is an instance of mental perception.

Jayanta Bhaṭṭa's thesis has three serious consequences. 1. One has to accept a major difference between two cases of perception – 'the tree is green' and 'the rose is fragrant'. The former one is regarded as a case of external perception while the latter one is a case of mental perception. 2. 'Surabhi candanam' will be a case of mental perception – not a case of *jñānalakṣaṇa alaukika pratyakṣa*. 3. This thesis of three successive perceptions does not enjoy the merit of economy (*lāghava*).

In one sense this thesis is parsimonious because it excludes *jñānalakṣaṇa alaukika sannikarṣa* altogether. But then we have to apply this theory to other cases where the Naiyāyikas apply *jñānalakṣaṇa alaukika sannikarṣa* to explain the perceived character of cognition. Jayanta Bhaṭṭa explains all the different cognitive situations such as fragrant sandalwood, recognition, illusion etc. with the help of *mānasa pratyakṣa*. For him all those cognitions are mental perceptions. But this actually is explaining away the situations without explicating the intermediate psychological steps occurring during those cognitive situations.

Alternatively, the author of *Nyāyakandalī*, Śrīdharācārya, resolves that in the case of the first acquaintance of fragrant sandalwood at the first step the olfactory sense-organ grasps the fragrance and an olfactory perception of fragrance (*gandhagrahaṇa*) is produced in the Self. After that (*tatpascāt*) the visual sense-organ, taking the Self-inhering fragrance perception (*ātmaniṣṭha* or *ātmāsamaveta gandhagrahaṇa*) as an associate cause (*sahakārī kāraṇa*), produces the visual perception of fragrant sandalwood (*surabhicandanadarśana*). Since *manas* is atomic in size, these two perceptions, i.e. *gandhagrahaṇa* and *surabhicandanadarśana* cannot occur simultaneously. Moreover, *gandhagrahaṇa* plays a causal role towards the production of the visual perception 'fragrant sandalwood'. Hence, it must be temporarily prior to the visual perception 'fragrant sandalwood'. Just as the cognition of *viśeṣaṇa* or *upalakṣaṇa* works as the cause of *viśeṣyajñāna*, *gandhagrahaṇa* works as an associate cause of the determinate cognition 'surabhi candanam'. Nevertheless, the visual sense-organ remains operative as the principal cause. Hence, the produced cognition is a visual perception.

The author of *Tattvacintāmaṇi*, Gaṅgeśa, also supports such view. He argues that the cognition of the qualifier always is a cause for the cognition of the qualified, for there are no counter-considerations prevailing.<sup>238</sup> However, that cognition of the qualifier may itself be determinate. And in most of the cases it is so. Indeterminate perception of the qualifier is to be posited to maintain causal uniformity in a case when nothing else is able to make the qualifier available. In the case of ‘*surabhi candanam*’ the determinate perception of fragrance works as a causal condition for the *viśiṣṭajñāna* – ‘*surabhi candanam*’.<sup>239</sup> Tatacharya says that during the first acquaintance of an object, which is not previously known, the indeterminate perception of the qualifier works as a causal necessary condition for the determinate perception. So, this truism applies for the first acquaintance of fragrant sandalwood also.<sup>240</sup>

So, *Nyāyakandalīkāra* Śrīdhara says that just as sense-organ produces recognition being associated with previous effect (*samskārasahakṛta indriya*), the visual sense-organ, being associated with the perception of fragrance (*gandhagrahaṇasahakṛta cakṣu*) produces the perception of fragrant sandalwood.

Now, we know that chronologically the Navya Naiyāyikas have emerged in the field of the Nyāya philosophy long after Śrīdhara. The concept of *jñānalakṣaṇa sannikarṣa* or *jñānalakṣaṇa pratyakṣa* is an invention of the Navya Naiyāyikas. But we can say that the germ of such a full-fledged cognitive mechanism was already there in the writings in the ancient logicians. Śrīdhara drew a parallel between recognition (*pratyabhijñā*) and the first acquaintance of fragrant sandalwood (*surabhi candanam*). Now, the Navya Naiyāyikas explained recognition with the help of the concept of *jñānalakṣaṇa*. Hence we can derive that in the Neo-Logician framework the first acquaintance of fragrant sandalwood also can be explained with the help of the concept of *jñānalakṣaṇa sannikarṣa*.

However, there is a small difference between the first acquaintance of fragrant sandalwood and the later acquaintance of fragrant sandalwood. In the case of later acquaintance the *memory* of fragrance works as the associate of the visual sense-organ; hence the relevant

<sup>238</sup> *viśiṣṭajñānamātram prati viśeṣaṇajñānatvena kāraṇatā bādhakābhāvāt. – Tattvacintāmaṇi: Pratyakṣakhaṇḍa (Nirvikalpakavādaḥ), Gaṅgeśa Upādhyāya, TCMP., p.614.*

<sup>239</sup> *surabhi candanam ityādāvapi viśeṣaṇajñānārthaṁ tajñānaṁ pratyāsattisthānīyam indriyasahakāri. – Tattvacintāmaṇi: Pratyakṣakhaṇḍa (Nirvikalpakavāda), Gaṅgeśa Upādhyāya, TCMP., p.613.*

<sup>240</sup> *Tattvacintāmaṇi: Pratyakṣakhaṇḍa (Nirvikalpakavādaḥ), Gaṅgeśa Upādhyāya, TCMP., p.615-616.*

*jñānalakṣaṇa sannikarṣa* is the *memory* of fragrance (*gandhasmṛti*). But in the case of first acquaintance the olfactory perception of fragrance works as the associate of the visual sense-organ; hence the relevant *jñānalakṣaṇa sannikarṣa* is the *perception* of fragrance (*gandhagrahaṇa*).

In the case of *anuvyavasāya* we have seen that the object of *vyavasāya* is perceived by *manas* through *jñānalakṣaṇa sannikarṣa*; and in this case the *vyavasāya* works as *jñānalakṣaṇa sannikarṣa* which might be a perception. Hence there is no rule that in order to work as *jñānalakṣaṇa sannikarṣa* a cognition must be a memory-cognition. Perception as well can do the job; in fact it does so in the case of the first acquaintance of fragrant sandalwood. Here one thing must be clarified that even in the later occasions of the cognition ‘fragrant sandalwood’ perception (*gandhagrahaṇa*) may work as *jñānalakṣaṇa sannikarṣa*. Because, even though we are already acquainted with fragrant sandalwood, in some later occasion also we may smell its fragrance from near, see the sandalwood with eyes and have the visual perception ‘fragrant sandalwood’ without invoking the memory-trace of fragrance. In such cases also the *sannikarṣa* is *gandhagrahaṇa* – not *gandhasmṛti*. We were citing the situation of first acquaintance as perception-induced extraordinary perception because the first acquaintance is bound to be so. The option of memory-evocation is closed in that situation. But that does not mean that in all the later cases the cognition will be memory-induced. So, there is openness. Whether in a particular situation the perception is memory-induced or it is perception-induced depends entirely on that particular cognitive situation.<sup>241</sup>

### 5.3.9. Unacceptability of these Two Theses: The Solution

However, if we try to workout the moment-examinations of these two theses then we observe that although Jayanta’s thesis may be accepted as an alternative Nyāya account of the first acquaintance of fragrant sandalwood but Śrīdhara’s account utterly fails. On the other hand, Jayanta fails to explicate the inner psychological steps involved in the said cognition.

In our chapter of moment-examinations we shall offer the models of the cognitive situations called *jñānalakṣaṇa alaukika pratyakṣa* where it will be clear how even the first acquaintance of fragrant sandalwood is memory-induced extraordinary perception. We shall see that the

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<sup>241</sup> *ye tu viśeṣaṇaviśeṣayorekajñānāmbanāvatmāhuḥ, teṣāṃ surabhi candanamityatra kā vārtā?..... nanvevaṃ tarhyāpekṣiko’yam viśeṣaṇaviśeṣabhāvo na vāstavaḥ, kiṃ na dṛṣṭo bhavadbhiḥ karṭṛkāraṇādīvyavahāra āpekṣiko vāstavaśceti kṛtaṃ vistareṇa saṃgrahaṭīkāyām. – Nyāyakandalī, Śrīdhara Bhaṭṭa, PBNK., pp.276-279.*

memory-trace of fragrance is created on the spot, consequently energized and as a result the memory cognition of fragrance is produced which works as *jñānalakṣaṇa sannikarṣa*. This is consistent with the Navya-Nyāya literature where *jñānalakṣaṇa sannikarṣa* is always described as '*upanītabhāna*' meaning *memory cognition*, and not any *perceptual cognition*. This account seems to resolve all the previous problems regarding the first acquaintance of fragrant sandalwood. And it more close to our common-sense than the Advaita account.

In the next chapter we are going to discuss about a clinically proved interesting psychological phenomenon, synaesthesia, which proves the possibility of cross-modal perception. This empirical evidence lends support to the mechanism of *jñānalakṣaṇa pratyakṣa*. Or we can say that there are empirical evidences in favour of the theories explaining synaesthesia those in turn lend support to the mechanism of *jñānalakṣaṇa pratyakṣa* propounded by the Naiyāyikas.

## CHAPTER - 6

### Synaesthesia and Multi-modal Perception

*“After millennia of philosophical speculation, the problem of consciousness has finally entered the experimental laboratory. Though this development is of recent date (just a few decades or so), it is now rapidly gathering speed. The fundamental assumption underlying it – that empirical research has a good chance of resolving the issues that have not yielded to philosophical argument – is open to question. But if one does accept this assumption (as I do), then scientific progress may have a profound impact on our understanding of human nature, of the place of human experience in the universe, and conceptions of core religious and spiritual issues such as the existence or nature of the soul, the possibility of a nonmaterial afterlife, or the nature of meditative experience. Fortunately, the methods of natural science do not depend on the beliefs held by individual scientists concerning these (or other) issues. One may therefore put such beliefs aside and use standard scientific approaches to see what they can deliver on even this difficult terrain.”*

– Jeffrey Gray, ‘A Window on the Hard Problem of Consciousness’. In Lynn C. Robertson & Noam Sajiv (Eds.), *Synaesthesia: Perspectives from Cognitive Neuroscience*. Page-127.

#### **6.1. Introducing an Empirical Evidence in favour of *Jñānalakṣaṇa*: Synaesthesia**

We have seen that the Nyāya theory of *jñānalakṣaṇa* is required to explain five cognitive cases. Those are: the cognition that sandalwood is fragrant (*surabhi candanam*) perceiving sandalwood from distance, illusion, recognition, subsequent mental perception of determinate cognition and the cognition of the absent object in the perception of the absence. So, the thesis has sufficient explanatory power. But, the other schools do not think so. The Advaitins claim that they can provide better explanation for those five cognitive cases without admitting *jñānalakṣaṇa*. So, they hold that the theory of *jñānalakṣaṇa* is a theoretical overload. Visualization of fragrance is impossible. The cognition, ‘*surabhi candanam*’ is visually perceptual in respect of *candana* and mnemonic or inferential or olfactorily perceptual in respect of *surabhi*. Madhusūdana Sarasvatī says that on seeing a piece of sandal-wood we infer its fragrance. The Bhāṭṭas say that recognition and illusion are partly perceptual and partly mnemonic. The Buddhists also hold that recognition is a blend cognition. For the Bhāṭṭas, subsequent internal perception (*anuvyavasāya*) is unnecessary since cognition is self-revealing. Absence and its negatum are known by another independent instrument of true cognition named non-apprehension (*anupalabdhi*) or non-apprehension. Regarding illusion the Advaitins say that the object of illusion, silver, is present in front of the person in illusion,

although it is not a practical or empirical silver. Ephemeral silver is created on the spot. For the Prābhākaras, in illusion, two different cognitions occur – the incomplete perception of shell and the memory of silver without its pastness. The main Advaita objection against *jñānalakṣaṇa* is that if the theory of *jñānalakṣaṇa* is admitted, then such inference will be redundant where the probandum (*sādhya*) is inferred by perceiving the seat (*pakṣa*) of its mark (*hetu*) – and all cases of such *pratyakṣa-pakṣa-anumāna* will be considered to be the cases of *jñānalakṣaṇa pratyakṣa*.

The Naiyāyikas have replied to these objections from within their theoretical framework. Firstly, they say that no blend cognition is possible which is partly perceptual and partly mnemonic because perceptuality (*pratyakṣatva*) is a universal (*jāti*) which cannot be cross-sectioned with any other universal. The possibility of cross-sectioning deters a property from being a universal (*śānkarya jātibādhaka*). Secondly, there is independent argument in favour of the thesis that cognition is revealed only through another cognition (*paraprakāśatva*). Hence, subsequent mental perception (*anuvyavasāya*) is not unnecessary. Thirdly, non-apprehension is not an independent means of true cognition. It is only an associate cause for perceiving absence. Fourthly, the creation of an ephemeral object on the spot of illusion is a more counter-intuitive thesis. Lastly, the causal assemblage for perception and inference are not the same. Hence, *pratyakṣa-pakṣa-anumāna* is not redundant.

Now, the opponents will say that the Nyāya theory of universal is unwarranted and their basic epistemological presupposition that there are only four means of true cognition (*pramāṇas*) is not acceptable.

This way we can see that the whole debate boils down to a never-solving conflict between fundamental epistemological and metaphysical presuppositions. However, there is an alternative method for knowing the truth – empirical test. If we can get empirical evidence for such a memory-intervened perception, then we need not enter into hair-splitting metaphysical debates. Rather some conflicts between those presuppositions might be solved this way. The mechanism of *jñānalakṣaṇa* is a psychological issue and its possibility should not be determined through logical arguments which are offered from within a rigid system of metaphysical presuppositions. So, we have to address the problem from another point of view.

We have already mentioned that the thesis of *jñānalakṣaṇa sannikarṣa* receives some support from some psychologists such as Wundt, Stout, Ward etc. We all have the experience of mouth-watering at the sight of ‘Phuchka’. It cannot be inference, rather some kind of perception – the ‘taste’ through ‘sight’. Recent researches have revealed that such experiences are more prominent for some persons. The phenomenon is called synaesthesia.

### 6.1.1. Synaesthesia: An Unusual Phenomenon

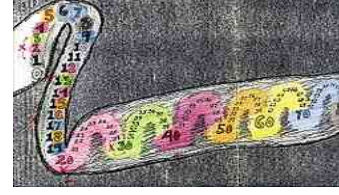
The word ‘Synaesthesia’ is a blend of the Greek words ‘syn’ or together or union and ‘aesthesia’ or sensation. Therefore, it means union of senses. Synaesthesia is a curious condition in which an otherwise normal person experiences sensations in one modality when a second modality is stimulated. In such neurologically based condition, a particular tone, for example, may also evoke a vivid perception of a specific colour (C-Sharp may be blue) or the person may see any given number as always tinged with a certain colour (‘5’ may be green, ‘6’ may be red). Wiley’s Encyclopedia writes, ‘Synaesthesia occurs when stimulation of one sensory modality automatically triggers a perception in a second modality, in the absence of any direct stimulation to this second modality (Vernon, 1930; Marks, 1975; Cytowic, 1989, 1993; Motluk, 1994).’ Those with the condition describe the percept phenomenologically either as a part of their external visual experience or in their ‘mind’s eye’. However, sometimes within the same modality one quality may evoke the perception of another quality. Such as, the sight of the shape of a letter evokes the sight of colour in grapheme → colour synaesthesia.

There are different forms of synaesthesia. In grapheme → colour synaesthesia achromatic alphaneumeric characters, i.e. numbers and letters, are perceived to be chromatic or inherently coloured.

In number → form synaesthesia, numbers, months of year, days of week evoke location in space or view the year as a map. A number → form is a mental map of numbers, which automatically and involuntarily appears whenever a number → form synaesthete thinks of numbers. They report that the numbers are represented sequentially along an imaginary line which is called ‘number-form’ by Galton. The number form is often long and convoluted, sometimes even doubling back on itself.



SYNESTHESIA  
0123456789



Grapheme → colour synaesthesia      A number-form from one of Francis Galton's subjects

In ordinal linguistic personification (OLP) ordered sequences, such as ordinal numbers, days, months and letters are associated with personalities, e.g., J may appear as male and jocular, K may appear as female, quiet and responsible. Most of the Indian synaesthetes have grapheme-personification or shape-personification synaesthesia (Vijayasree K. and Rajasekhar T., 2013).

Sound → colour synaesthesia is something like fireworks where voice, music or different sounds from the environment trigger colour and simple shapes that arise, move around and then fed away when the sound stimulus ends.

আমি বললাম, “কি আপদ! কে তোমায় গাইতে বলছে?”

লোকটা এমন বেহায়া, সে তবুও আমার কানের কাছে ঘ্যানঘ্যান করতে লাগল, “রাগ করলে? হ্যাঁ ভাই, রাগ করলে? আচ্ছা, নাহয় কয়েকটা গান শুনিয়ে দিচ্ছি, রাগ করবার দরকার কি ভাই?”

আমি কিছু বলবার আগেই ছাগলটা আর হিজিবিজবিজটা একসঙ্গে চেঁচিয়ে উঠল, “হ্যাঁ-হ্যাঁ-হ্যাঁ, গান হোক, গান হোক।” অমনি ন্যাড়াটা তার পকেট থেকে মস্ত দুই তাড়া গানের কাগজ বার করে, সেগুলো চোখের কাছে নিয়ে গুনগুন করতে করতে হঠাৎ সরু গলায় চাঁৎকার করে গান ধরল – “লাল গানে নীল সুব, হাসি হাসি গন্ধ।”

ঐ একটিমাত্র পদ সে একবার গাইল, দুইবার গাইল, পাঁচবার, দশবার গাইল।

– হ য ব র ল, সুকুমার রায়

In the rare lexical → gustatory synesthesia, individual words and the phonemes of spoken language evoke taste sensations in the mouth. In taste → touch synaesthesia tastes in mouth evoke feelings of shape in the palm at one's arm's reach. For MW, the subject of Prof. Cytowic, the taste of sour (lemon) used to be felt as pointed shape and the points would prick on his face or on his hand. In visual motion → sound synaesthesia visual motion and flicker evoke hearing sounds. In the synaesthetic condition named misophonia negative experiences like anger, flight, hatred, disgust etc. are triggered by specific sounds. Other forms of synaesthesia are touch → hearing and tone → colour synaesthesia.

In mirror → touch synaesthesia individuals literally feel the same sensation that another person feels (such as touch). For instance, when such a synaesthete observes someone being tapped on their shoulder, the synaesthete involuntarily feels a tap on their own shoulder as well. It shows higher empathy levels, perhaps related to the mirror neurons. Cytowic refers to an audio-motor synaesthete who would position his body according to the sounds of different words.

Although synaesthesia is thought to be a neurological aberration, most synaesthetes take it to be a gift – an additional hidden sense – that they do not want to miss. Alexander Luria (1968) mentioned in his book *The Mind of a Mnemonist* the case of a famous mnemonist who seemed to have unlimited memory due to her five-fold synaesthesia, that is, all her five senses were linked. And this fivefold synaesthesia gave him extra hooks on which to hang and remember numerous facts.

Synaesthesia is involuntary, insuppressible and passive experience. It is elicited by a detectable stimulus. The experience cannot be conjured up or dismissed at will although attention and distraction may make the experience more or less vivid. Seizure in the hippocampus of the limbic system makes one synaesthete. He may experience flashing light, a taste, a feeling of heat rising or a high-pitched whine. 4% of limbic seizures become synaesthete. The seizures confined to the hippocampus produce an elementary experience – for example, a taste is described as bitter, metallic or unpleasant. Only when seizures spread to the cortex of temporal lobe, the perception becomes more specific and elaborated – like ‘rusty iron’, ‘oysters’ or ‘an artichoke’.

Synaesthesia is an experience which is subjective. Then how an objective study or third-person perspective is possible regarding synaesthesia? The principal objection against it is that the reports of two synaesthetes with same sensory pairings do not match with each other. Cytowic explains that perception is like a finished product of a factory-line having a moving conveyer belt going through each stages of processing. The terminal event could be ‘different’ due to a ‘defect’ in any stage of the whole processing.

Galton estimated that 1 out of 20 people has this condition. Richard E. Cytowic estimated 1:20000 ratio and noticed that majority of these people are female. Baron-Cohen estimated

1:2000 ratio and Ramachandran claimed that it is 1:200. Some of this variability is probably due to differences in definitional criteria or due to different subtypes of synaesthesia examined by different investigators.

Simon Baron-Cohen and John E. Harrison hold that the use of the term synaesthesia covers at least five very different situations. They are (a) developmental synaesthesia or naturally occurring synaesthesia, where synaesthetic experiences are the result of the biological make-up of the patient from his birth, (b) acquired synaesthesia caused by neurological dysfunction, (c) synaesthesia caused by psychoactive drug use, (d) metaphor as pseudosynaesthesia and (e) association as pseudosynaesthesia. Developmental synaesthesia has the following characteristics: (a) it appears from childhood, (b) it is not hallucination or delusion, (c) it is different from imagery arising from imagination; (d) it is vivid, automatic, involuntary and unlearned. Acquired synaesthesia is the result of lesion etc., pathological causes. Drug-induced synaesthesia is (a) hallucinatory, accompanied by the loss of reality-monitoring, (b) transient and (c) unnatural. Almost all the writers on the topic of synaesthesia mentioned about a number of creative persons like famous authors, poets, novelists and music composers having synaesthesia. But Simon and Harrison say that there is no evidence that their synaesthesia was diagnosed. Hence their creation involving cross-modal references are not the result of their synaesthetic experiences rather the result of the use of metaphor or analogy. However, V.S. Ramachandran holds that although the ability to use metaphor *is not* synaesthesia, the ability could be *explained by* synaesthesia

### 6.1.2. *History*

In the ancient Greece it was philosophically discussed whether the color of music was a quantifiable quality. We find Pythagoras (6<sup>th</sup> century BC) mentioning music of the spheres. In 4<sup>th</sup> BC Aristotle mentions about harmony of colours like harmony of sounds. The reference to synaesthesia is found in John Locke's (1690) 'An Essay Concerning Human Understanding', where Locke mentions about a blind man, for whom 'scarlet' was like the sound of a trumpet. Isaac Newton proposed that musical tones and color tones shared common frequencies. Goethe presented similar view in his book 'Theory of Color'. Following the idea it was arranged to perform colored music in concert halls. The first medical description of colored hearing was published in Germany in 1812. Gustav Fechner reported the first empirical survey of colored letter photisms among 73 synaesthetes in 1871. Then Francis Galton published his book 'Inquiries into Human Faculty and its Development' in 1883, where he documented this

phenomenon for the first time. In the essay 'Colour Associations', in the book *Inquiries into Human Faculty*, published by Dent in 1883 at London, Sir Francis Galton mentions about several synaesthetes. He also mentions about the paper by Professor Bruhl of Vienna, published in 1873, where the author mentions about some other synaesthetes. Two Swiss investigators, Messrs Blenler and Lehmann published a pamphlet in Leipzig in 1881 containing numerous (62) cases of synaesthesia.

However, with the advent of behaviorism subjective reports of synaesthetic experiences were ignored as a reliable foundation of research. That is why synaesthesia faded into scientific oblivion between 1930 and 1980. As the 1980s cognitive revolution began to make inquiry into internal subjective states respectable again, scientists once again looked to synaesthesia. Led in the United States by Larry Marks and Richard Cytowic, and later in England by Simon Baron-Cohen and Jeffrey Gray, research explored the reality, consistency, and frequency of synaesthetic experiences.

### 6.1.3. *Explanatory Hypotheses*

Researchers are trying to explain this curious phenomenon of synaesthesia offering different theories. There are alternative hypotheses in the field. However, they are as follows:

- (1) *Preserved Neural Connectivity Theory* is propounded by Maurer (1997). Dehay, Bullier and Kennedy (1984) found connections between auditory and visual areas in the brain structure of macaque monkey and domestic cat. Meltzoff and Borton (1979) showed that babies who suck on either a 'nubby' or a 'smooth' dummy pacifier prefer to look at the picture of the pacifier they sucked on, thereby showing a match between touch and vision. It is an evidence for cross-modal transfer. Lewkowicz and Turkewicz's experiment (1980) shows that one-month old children respond to auditory stimuli in terms of their similarity to the previously presented visual stimulus. Maurer (1997) goes one step further and says that synaesthetic conglomeration of different senses is the normal state of the babies. He holds that human babies mix different senses giving rise to normal synaesthesia and the transitory pathways get 'pruned' as part of the biological maturation of the brain when they grow. Probably for genetic reasons the neural pathway between two sensory areas continues to exist even in adulthood in the synaesthetes beyond neoteny.

- (II) *Sensory Leakage Theory* is proposed by Jacobs et al. (1981) which suggests that in the case of, say, auditory-visual synaesthesia, auditory information ‘leaks’ into visual area. There are numerous regions in the brain where visual and auditory pathways lie in close anatomic proximity where leakage is possible.
- (III) *Bimodal Activation Theory* says that there are brain regions those are bimodally activated.<sup>242</sup> It means the other parts of the brain produce ambiguous interpretations of the firing of these neurons. The patient of Halligan et al. (1996) named DN was unable to feel tactile stimuli in the left side. But when he was permitted to ‘see’ the application of stimulus, he felt the tactile sensation. It proves the visual information helps in interpreting tactual information through the energization of those bimodally excitable neurons. So, this may be an alternative to the Leakage theory of synaesthesia.
- (IV) *Cytowic’s Disinhibition Theory* hypothesizes that synaesthesia occurs because parts of the brain becomes disconnected from one another causing the normal processes of the limbic system to be released, bared to consciousness, and experienced as synaesthesia. Measurements of rCBF (regional cerebral blood flow) with non-tomographic <sup>133</sup>Xenon inhalation technique showed widespread decreases in the neocortex during synaesthetic experience. So Cytowic and Wood (1982) concluded that in synaesthesia sensory integration occurs in limbic system in conjunction with neocortical inhibition.<sup>243</sup> However, Paulesu and Frith (1997) found no such difference in the synaesthetes in the rCBF in limbic system using PET scan.
- (V) *The Learning Association Theory* of Calkins (1893) says that in coloured hearing synaesthesia the reported correspondences are due to learned association, previously known from the alphabet book in childhood; hence it is one form of pseudo-synaesthesia.
- (VI) *The Genetic Theory of Synaesthesia* was first put forward by Galton (1883) which says that synaesthesia might be an inherited trait. Harrison and Baron-Cohen (1997) also admit it because synaesthesia is found to run in families. The preserved neural connectivity may be an effect of a particular genetic structure or genetic mechanism. In a study of Baron-Cohen, Burt,

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<sup>242</sup> In the research of Graziano, Yap and Gross (1994) it was found that 27-31% neurons in the ventral portion of the premotor cortex are bimodally responsive as a result of visual or somatosensory stimulation.

<sup>243</sup> It is consistent with the finding of Murray and Mishkin (1985) that lesions of the monkey’s amygdala abolish their cross-modal matching ability while unaffected within-modal matching ability.

Laittan-Smith, Harrison and Bolton (1995) on the pedigrees of seven families of proband it has been found that the condition is transmitted as an autosomal dominant X-chromosome-linked condition. The gene may affect either by regulating the migration and maturation of neurons within the developing brain, or by the mechanism of ‘neuronal pruning’.

- (VII) *Environmentally Shaped Brain Maturation Theory* holds that synaesthetic correspondence or the transient connection is established as a result of reinforcement through use which leads to maintain the pathways later on. The plasticity of brain makes the lasting impact upon neuronal structure possible. Harrison and Baron-Cohen (1997) says that it is known from the work of Wiesel, Hubel and Levay (1980) that experience plays a role in shaping the structure of the brain. However, this theory suggests that we all have the potentiality to become a synaesthete while the genetic theory suggests that only a few who are biologically *able* can become synaesthete.

- (VIII) *The Cross-Modal Matching Theory* is an extension of the Preserved Neural Connectivity Theory. This theory hypothesizes that ‘normal’ subjects also have ‘mild synaesthesia’ since they also are able to relate different modalities or preserve the cross-modal connections such as brightness of light and loudness of sound. Such cross-modal connections in normal subjects have been carried out by Marks (1982a, 1982b, 1987) and Zellner and Kautz (1990). Zellner and Kautz (1990) have shown that perceived odour intensity can be affected by the colour of the smelled object. One explanation is that from prior experiences the perceivers of the substance in a specified colour are set to expect associated intensity of odour. Clear colourless solutions generally are odourless and coloured solutions generally do have odour. People expect them accordingly. This expectation makes the felt odour different when novel colour is produced. So, either it is due to conditioned association or due to residual inter-sensory neural connections.<sup>244</sup>

- (IX) *The Modularity Theory* holds that synaesthesia occurs due to a breakdown in modularity.

This hypothesis is consistent with the Preserved Neural Connectivity Theory.

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<sup>244</sup> This experiment reminds of the Nyāya instance of ‘fragrant sandalwood’ where vision of sandal evokes the fragrance of sandal and makes it an object of perception through *jñānalakṣaṇa sannikarṣa*. The alternative hypotheses of ‘conditioned association’ and ‘neural connectivity’ remind of the age-old alternative hypotheses whether the fragrance in ‘fragrant sandalwood’ is *memorized* (Prābhākara or Advaita Vedānta suggestion) or *perceived* (Nyāya suggestion). The extremely high consistency of the experiences elicited by particular stimuli in synaesthesia proves that it is not *memory* or association, rather a clear case of *perception*.

- (X) *The Hypothesis of Re-Entrant Processing* is a combination of both Cross-activation and Disinhibition theory which says that a feedback also comes from the anterior inferior temporal region (AIT) which is responsible for meaning analysis. It explains the top-down influence in perceiving synaesthetic photism. It proposes that in addition to the forward sweep of activity from V1 through V4 to posterior and then anterior inferior temporal regions (PIT and AIT) aberrant neural activity from AIT feeds back to representations in PIT and V4, leading to the experience of synaesthetic colours. In favour of this model it is argued that visual context and meaning influence the experienced colours in synaesthesia.

These alternative explanatory hypotheses can be categorized under four heads. Either synaesthesia is pseudosynaesthesia (V), or it is due to a preserved neuronal connection or leakage between different sensory modalities caused by genetic, environmental or other factors (I, III, VI, VII, VIII, IX), or it is due to neocortical disinhibition (III), or it is due to re-entrant pathway activation (X).

## 6.2. Is Synaesthetic Experience Veridical?

### 6.2.1. *The Genuineness of the Phenomenon*

Sometimes the phenomenon of synaesthesia is doubted to be a genuine one. But there are plenty of reasons for taking it to be true – it is neither a means to draw attention, nor a hyperactive imagination, nor an effect of childhood memories nor a use of metaphorical tangential speech like ‘sharp cheese’, nor only an effect of drug use.

In most of the cases the synaesthetes are shy enough to share their special experience with others; or they think that everyone else has the same worldview as they have. So it is not a matter of drawing attention to oneself. fMRI and PET scan results<sup>245</sup> show that synaesthetic

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<sup>245</sup> Functional Magnetic Resonance Imaging (fMRI) and Positron Emission Tomography (PET) have already been used in synaesthesia studies, mainly to see which areas of the brain are activated during synaesthetic experiences. The simple logic of fMRI method is that regional cerebral blood flow (rCBF) increases in the active parts of the brain in order to meet up the extra requirement of glucose and oxygen. Oxygen is transported by hemoglobin. When oxygen is absorbed in the corresponding part of the brain, hemoglobin becomes deoxygenated. When a part of the brain becomes active, the increased blood overflows the region beyond requirement. So the amount of oxygenated hemoglobin overrates deoxygenated hemoglobin. This ratio of oxygenated hemoglobin over deoxygenated hemoglobin (which is referred to as blood oxygenation level dependent effect or BOLD) becomes greater than normal in the activated brain-part. Now, this deoxygenated hemoglobin is more sensitive (paramagnetic) to the magnetic field than the oxygenated hemoglobin. Using this physical property,

experiences (like perception of colour) are associated with certain activation in particular brain areas. But even after extensive training, imagination of such experiences does not produce such scan results. Hence it is not an instance of hyperactive imagination. Researches have shown that those special persons can associate specific grapheme with specific complex colours, and even after years, they report about the same associations accurately although they were not given any previous clue about the retest. Baron Cohen et al. (1993) asked nine synaesthetes and nine controls to give colour association for 130 words. Control subjects were told that they would be tested one week later. They were 37.6% consistent. The synaesthetes were tested one year later without prior information. They were 92.3% consistent. So the phenomenon is not a confabulation with the help of memory. It is truly sensory. It has also been seen that synaesthetically induced colours are consistent across months or even years. Thirdly, we can say that, to explain one mystery (synaesthesia) in terms of another mysterious phenomenon (metaphor) is no explanation at all. Instead, it can be suggested that metaphor could be explained in terms of the phenomenon of synaesthesia whose neural basis we are beginning to understand. Fourthly, there are 'natural' (by born) synaesthetes besides the users of hallucinogenic drugs such as LSD (Lysergic Acid Diethylamide) or mescaline. So, the idea that synaesthesia is a result of drug use only suggests that certain drugs might pharmacologically mimic the same physiological mechanism that genetically based synaesthesia follows. And we have to explain that mechanism.

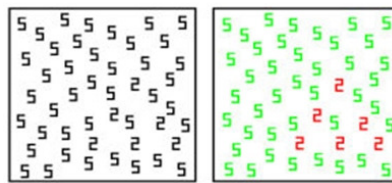
Ramachandran and Hubbard (2001) conducted several experiments that show that it is a sensory phenomenon – not cognitive or memory association. Introspective phenomenological reports of the subjects clearly support this view. They 'see' the colour when graphemes are presented – not 'memorize' them. It is not memory – but perception. However an important experiment in this regard is as follows:

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the MRI machine can trace this BOLD effect creating a great magnetic field surrounding the brain and construct a three dimensional picture of the brain showing its activated parts. The TMS device consists of a coil encased in an insulated sheath and connected to powerful capacitors. When triggered, the capacitors send a large electrical current through the coil, which generates a magnetic field. When the coil is placed on the surface of the skull, the field passes through the skull and induces a physiological current which causes firing in nearby neuronal area resulting a bizarre sensation or involuntary motor movement. The firing interferes in the normal processing causing a virtual lesion in that part of the brain. TMS has allowed researchers to safely and non-invasively stimulate specific brain areas or make that area inactive. Previously, stimulation of the brain was only possible during brain surgery, which drastically limited its use. TMS may be used to stimulate areas postulated to be responsible for synaesthesia to examine whether their synaesthesia is temporarily altered or removed.



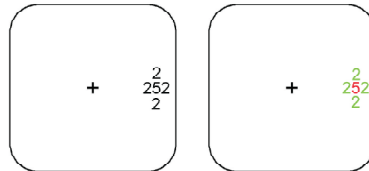
When presented a field of green dots with a shape made of red dots in it, everybody can instantly see the red shape. The grapheme-colour synaesthetes experience the same thing with numbers or letters. Some grapheme-colour synaesthetes and non-synaesthetes were presented with the displays composed of a matrix of randomly-placed computer-generated grapheme – ‘5’, within which some ‘2’s were placed, forming a triangle. Since the number ‘2’ is the mirror image of ‘5’, it is hard to find the ‘2’s within the ‘5’s for the non-synaesthetes. But the synaesthetes found them immediately. Their searching performance was consistently better than the non-synaesthetes. When asked they replied that for them different numbers were coloured differently, say ‘5’s as green and ‘2’s as red. When the displays were presented to them, as if, a red triangle popped-up on the green background. But when the target and distracter elicited similar colour (searching for a ‘6’ among ‘8’s, when both elicit blue), the search was much less efficient. In control subjects, no such difference was observed (Palmeri et al. 2002). This shows two things. First, that the phenomenon is genuine for if it were not, then how could they be performing the task better than the non-synaesthetes? Secondly, the popping-out proves that it is a sensory phenomenon.



The popping-up incident in synaesthesia

Another experiment involves crowded grapheme. Graphemes presented in the periphery are difficult to identify when crowded by other, flanking graphemes. This effect is called crowding effect (Bouma, 1970; He et al., 1996). When you look at an area with a plus sign in the middle and a ‘5’ on one side, while staring at the plus sign, you can still recognize the ‘5’ in the periphery of the view. But when some other numbers, say ‘2’s, are placed surrounding the ‘5’, number ‘5’ becomes blurry. This is caused by attention being drawn away from the ‘5’ by the ‘2’s. This is crowding effect. It has been seen that in such cases synaesthetes cannot perceive the crowded graphemes. Nevertheless, the grapheme evokes the corresponding colour from which the subject can infer what would be the grapheme. (It is red, and then obviously the number is ‘5’). It is to note that even though the synaesthetes were not consciously registering the middle number, it was being processed somewhere in the brain at an unconscious level evoking the appropriate colour. So, this cross-activation occurs relatively

early in sensory processing. At this level, synaesthesia is not an effect of high level metaphorical association or memory. But this is true only for the sensory or low-level synaesthesia.



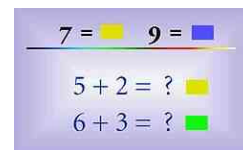
The crowding effect: A single grapheme presented in the periphery is easily identifiable. However, when it is flanked by other graphemes, the target grapheme becomes much harder to detect. Synaesthetic colours are effective (as are real colours) in overcoming this effect.

A grapheme is displayed for a split-second and then replaced by another object in the same location. Control subjects are not able to identify the grapheme, but synaesthetes are, because the grapheme elicits an associated colour that they can identify. This ability of the synaesthetes shows that the phenomenon is a genuine pre-attentional phenomenon.

A colour-blind synaesthete can see colour in seeing grapheme which he does not see in real life visual scene. Moreover, for a non-colour-blind synaesthete, if a number is presented in a wrong colour, the induced colour delays the ability to report the name of the real colour. As for example, if the number '5' is seen by a synaesthete as red, but is presented in wrong ink colour, such as in green, the synaesthete is slower to name the ink colour. This effect is called Stroop interference (Stroop, 1935). It shows that the colour associations are automatic (Dixon et al., 2000; Mattingly, 2001). These experiments prove that cross-sensory experience is genuine, automatic and involuntary perceptual (sensory) phenomenon.

YELLOW BLUE ORANGE  
 BLACK RED GREEN  
 PURPLE YELLOW RED  
 ORANGE GREEN BLACK  
 BLUE RED PURPLE  
 GREEN BLUE ORANGE

Stroop interference effect



Reaction times for answers are faster that are congruent with a synesthete's automatic colors than whose answer is incongruent

In the McCollough test an observer alternately views red vertical contours and green horizontal contours for many minutes. Thereafter an achromatic test figure composed of horizontal and vertical gratings is shown to the observer which miraculously appears to be

faintly coloured in reverse way – with greenish vertical bars and pinkish horizontal bars. This is normal McCollough effect. From the experiments of Kim et al. (2003) we can know that McCollough effect is operative on synaesthetic colour. The subjects, WO and LR were presented with vertically arranged such an achromatic letter that induces synaesthetic red colour, and horizontally arranged such an achromatic letter that induces synaesthetic green colour alternatively for 5 minutes. Then a test figure is shown that is composed of horizontal and vertical contours made of non-alphabetic characters those do not elicit any synaesthetic colour. LR saw vertical contours as faint green and horizontal ones as faint pink. WO saw horizontal contour as pinkish but surprisingly no colour on vertical contour. In a further test on WO it was seen that in a *real* colour McCollough test WO failed to see any colour in the vertical contour. So the ‘half McCollough effect’ was present in both *real* and *synaesthetic* colour.

Stroop<sup>246</sup> and McCollough effect prove the perceptual reality of the synaesthetic colour. So, the synaesthetic colours are not *thought* or *memorized* but are *seen*. These experiments support the Nyāya hypothesis of *jñānalakṣaṇa pratyakṣa* and defy Prābhākara hypothesis of non-apprehension between perception and memory.

Ramachandran and Hubbard (2005) conducted standard fMRI retinotopic mapping technique test for six grapheme-colour synaesthetes and six non-synaesthetic controls. Both of these groups have shown activation in grapheme areas. In addition to the grapheme activation, the synaesthetes showed clear activation of hV4 area. This area was not activated in the cases of the non-synaesthetes. For the synaesthetes, even when white on grey letters or numbers were presented, hV4 was activated. Hence, it is a genuine perceptual real phenomenon. The phenomenon of synaesthesia is real in the sense that they are reliably repeatable.

Besides, the synaesthetes who performed well in texture segregation task (to detect ‘2’s among the ‘5’s) have shown larger fMRI responses in early retinotopic visual areas (V1, V2, V3 and hV4). It proves not only that synaesthetic colours affect behavioural performance in a manner similar to real colours but also that they also activate colour-selective regions of cortex in a manner similar to real colours (Ramachandran and Hubbard, 2005). The result

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<sup>246</sup> We can know the synaesthetic Stroop effect from the experiments of Ramachandran and Hubbard (2001), Dixon, Smilek, Cudahy and Mericle, (2000), Mills, Boteler and Oliver, (1999), Mattingly, Rich, Yelland and Bradshaw, (2001), Odgard, Flowers and Mradman, (1999) etc.

suggests that proximal condition for colour perception may be present even when there is no distal condition for colour perception. Hence, there is a level between object and cognition, presumably a brain state (proximal condition) wherefrom illusion can emerge. Perhaps it is the platform for all kinds of cognitive manipulation such as illusion and multi-modal cross-connections.

V.S. Ramachandran and E.M. Hubbard (2001) mentions that Baron-Cohen, Paulesu and their colleagues have conducted PET experiment by measuring regional cerebral blood flow (rCBF), where spoken words were delivered to the subjects (synaesthetes and non-synaesthetes). In both cases activation was seen in the language-processing areas like superior and middle temporal gyri (bilaterally) and the left inferior frontal gyrus. But the synaesthetes showed additional activation in the brain areas those are important for colour perception such as posterior inferior temporal cortex (PIT cortex), V4, etc. Now, this PIT cortex is correlated with complex form of colour-perception as well as multi-modal visual integration like object recognition.<sup>247</sup> It is the border of language and colour. This activation on the border of adjacent areas explains and substantiates cross-sensory experience. In a follow-up, Nunn et al. (2001, 2002) tested six right-handed female word-colour synaesthetes and six matched non-synaesthetes using fMRI, which has better resolution and sensitivity than PET. In that test left hemisphere regions involved in the processing of colours i.e., V4 and V8, were seen to be active for the synaesthetes when they hear words or listen to tones. No such difference was observed in control subjects even when they were extensively trained to imagine specific colours for specific words. It suggests that this colour-phonemic synaesthesia recruits normal colour processing area.

All these researches undoubtedly prove that synaesthesia is a genuine psychological (and physiological) phenomenon where one sensory input triggers a second sensory modality leading to a perception in the second modality also in spite of the fact that there is no external input for the second modality. It lends support to the Nyāya hypothesis of *jñānalakṣaṇa pratyakṣa* and *jñānalakṣaṇa sannikarṣa*. The only difference between these two phenomena is that synaesthesia is an acute sensory condition present only in some people but *jñānalakṣaṇa* is such perceptual phenomena that involves concepts and may occur to any normal being.

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<sup>247</sup> The involvement of PIT cortex in the mechanism proves that cross-modal object-recognition also can be explained in the same vein. The Naiyāyikas have explained recognition through the hypothesis of *jñānalakṣaṇa*.

Later we shall see whether there is a single common mechanism that can explain both of these phenomena level wise.

Before we enter into exploring the other alternative explanatory hypotheses let us discuss whether synaesthetic experiences are veridical or not. The arguments are equally applicable to the Nyāya hypothesis of *jñānalakṣaṇa pratyakṣa* because *jñānalakṣaṇa* also tries to explain veridical as well as non-veridical cases.

### 6.2.2. Whether Synaesthetic Experiences are Misperceptions

It is commonly assumed that synaesthetic experiences must be misperception. Fish (2010), Gray (2001), Lycan (2000), etc. hold the same view. But in the paper, 'Rethinking synesthesia', Michael Sollberger (2011) says that at least some synaesthetic experiences can be viewed as truly veridical perception. MW is a synaesthete for whom gustatory and olfactory properties like sour induce tactile sensation like pointed pricks on the hand. Michael Sollberger claims that such experiences also can be thought as veridical. He says whether a person tastes through tongue or through skin has nothing to do with the perception's epistemic property of being veridical. Synaesthesia is veridical where the persons ( $\alpha$ ) literally attribute the sensory properties of their experiences to the *distal* stimulus itself, and ( $\beta$ ) that they do not take their experiences as non-veridical. It may be said that  $\alpha$  and  $\beta$  simply are not sufficient condition for veracity. If it is so then all illusory or hallucinatory experiences will become veridical since while in such experiences people follow  $\alpha$  and  $\beta$ .

Against such a contention, the author argues that, synaesthesia enhances several cognitive and perceptual capacities like reading, writing, music composition and even memory. In grouping, pop-out and segregation tasks they are considerably better than the non-synaesthetes. Recent researches of Banissy, Walsh and Ward (2009) have shown that synaesthetes have enhanced and hypersensitive perceptual system. These abilities prove that they are not suffering from a kind of perceptual disorder or dysfunction. The second reason is the conviction of the synaesthetes that their experiences are valid. The third argument says that from the evolutionary perspective the goal of perception is to interact with the environment successfully in a discriminative way so that each distinct object receives distinct behavior on our part. Synaesthesia maximizes this possibility hence it assures veracity of cognition.

However, the given arguments are not conclusive. Mystical experiences and schizophrenia may be cognitively beneficial but it is psychopathological, hence non-veridical. The same may be true for synaesthesia. Moreover, we can say that the synaesthesia of MW is not the cause of successful volition. Although the ‘pointed’ sensation helps in understanding the ‘taste’ sensation in another dimension, if someone tries to use the ‘pointed chicken’ as a ‘perforator’, he will be disappointed. Against the second argument one can say that the first person perspective of a hallucinatory is not reliable. Against the third argument it may be said that experiences of colours are illusory in the sense that there is no real colour in object. It is always our nervous system that interprets it as colour. But they are fitness-enhancing (Maund, 2006). If correspondence with reality is the yardstick of veridicality then perception is always illusory. And if success be the only yardstick, then synaesthesia also is veridical since it brings success.

We can say that synaesthetic experiences are not sublated afterwards; hence, the perceiver does not realize that they could be false, whereas after illusion or hallucination such a correction-phase appears. In this connection we may mention that the Naiyāyikas also hold that *jñānalakṣaṇa pratyakṣa* of fragrant sandal is veridical since fragrance really exists in the perceived sandal which is confirmed from the fact that the cognition is the producer of successful volition (*saphalapravṛttijanaka*), but illusion of snakesness in a rope is non-veridical since no snakesness exists in rope which is confirmed by the fact that the cognition is the producer of unsuccessful volition (*viphalapravṛttijanaka*). So, cross-modality does not ensure non-veridicality for the Naiyāyikas – although Sollberger may differ from the Naiyāyikas in determining the criteria for veridicality.

We have discussed about the genuineness of the phenomenon of synaesthesia and thus we reject the hypothesis of pseudosynaesthesia. Let us now explore the other three hypotheses in detail.

### **6.3. The Explanatory Mechanisms of Synaesthesia**

#### **6.3.1. Cross-activation Hypothesis and the Hypothesis of Defective Pruning**

The most popular and convincing explanation of synaesthesia is the cross-activation hypothesis. The researches on grapheme → colour synaesthesia have resulted with such a hypothesis. The amazing finding in this matter is that the colour area in the brain (V4) is anatomically adjacent to the visual grapheme area in the brain. Recognition of visual numbers

(Pesenti, Thioux, Seron & De Volder, 2000) and visual words (Cohen et al., 2000; Polk et al., 2002) depends on the fusiform gyrus (especially left) and that this visual ‘word-form area’ (Cohen et al., 2000) lies directly adjacent to the ‘colour area’ V4 (Leuck et al., 1989; Zeki & Marini, 1998). Hence, grapheme → colour synaesthesia is caused by a cross-activation between these adjacent brain maps.

Sacks and Wasserman (1987, 1988) report a patient who was a tone-colour synaesthete. His synaesthesia was lost in a car accident. He became colour blind (cerebral achromatopsia) and lost the ability to recognize graphemes (alexia). This indicates that a single (adjacent) brain region might have been damaged leading to all of those losses.

Similar to the grapheme-colour synaesthesia, cross-activation in the parietal cortex, particularly in the region of the angular gyrus, in the ventral intraparietal area, and in the lateral intraparietal area explain sequence-space synaesthesia, where ordinal sequences are experienced as having specific locations in space. Auditory word-to-taste synaesthesia may arise due to the cross-activation between insular regions involved in taste processing and superior temporal and/or frontal regions involved in auditory word comprehension. Lexical-gustatory synaesthesia may arise from cross-activation between these same insular regions and somatosensory cortex in the parietal lobe. The hearing centre in the temporal lobe and the brain area that receives colour information from V4, are in each other’s vicinity. It explains colour experience when listening to a certain pitch of sound.



Visual-grapheme processing area and hV4 area are adjacent to each other in the fusiform gyrus. Insular regions and somatosensory cortex in the parietal lobe are adjacent. It explains Lexical-gustatory synaesthesia.

The cross-activation hypothesis receives support from the phantom limb experiences where one can sense the existence of the amputated limb from the sensation in his face. It is suggested that the nerve corresponding to the limb is fired by the associated facial nerve.

However, there are two questions that may bother us. First, if genetic differences are involved, why do they affect one brain area and not others? Second, if synaesthesia occurs only between adjacent brain modules, then how can we account for more exotic variants like tasting shapes? The answer to the first question is that the gene mutation is expressed selectively in certain areas due to transcription factors. This also explains why a synaesthete is likely to have more than one type of synaesthesia. Turning to the second question, we have to bear in mind that even remote modules often have some connections. Kennedy, Batardiere, De Lay & Barone (1997) have shown a connection between primary auditory cortex and V4. Micheal Watson (MW) had taste → touch synaesthesia. Conversely, synaesthete MB reported that tactile sensation evoked specific tastes. Ramachandran and Hubbard (2005) suggest that this is because the gustatory cortex is in the insula which is very close to the hand area of the Penfield map in S1.

Since synaesthesia runs in families, it is suggested that a single gene mutation causes an excess of cross connection or defective pruning of connections between different brain areas. In the immature brain, there are substantially more connections between and within areas than are present in the adult brain. Some of them are removed afterwards through a process of pruning. In the research of Kennedy et al. (1997) it has been shown that in the cases of foetal macaque, 70-90% of connections are from inferior temporal cortex to V4; but in the cases of adult macaque it is only 20-30%. Human infants also go through such a process of pruning. After adulthood no new neurons are produced. But fortunately, we have more than enough redundant brain-cells, so that 10% of the total cells are sufficient for our purpose. In the first few months of life a huge amount of brain cells are damaged. It is a judicious pruning which causes modularity of senses. The presumption is that this process (apoptosis) of slimming down yields genetic structure as well as experience. Hence, if due to some genetic mutation the process is hampered, connections may persist between grapheme area and V4 leading to synaesthesia. That is why in most of the cases synaesthesia is an inherited condition. Maurer and Maurer (1988) suggested that all infants are typically synaesthetic. The psychologist William James held that in the case of a child information from different senses gets fused and form a single undivided object for the mind creating a blooming buzzing confusion. Moreover, we all suffer infantile amnesia. We do not recollect events prior to 3-4 years of age. The theory holds that we were all synaesthetes for the first two-three months of our lives, a time that we are unable to recall. Maurer has shown that the response of the neonate's SEP increases when auditory input is given. When auditory event is presented, a signal is observed

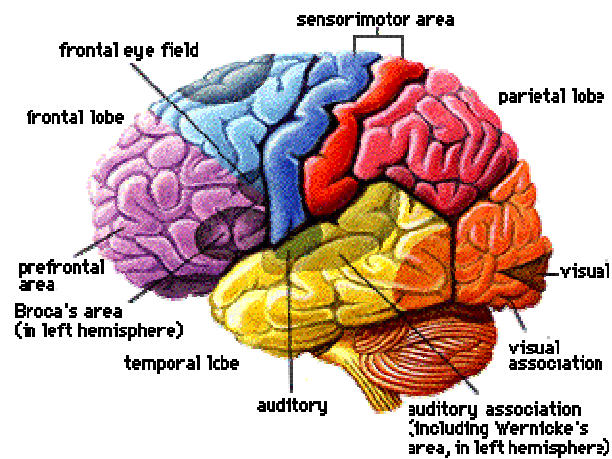


to come from visual areas in the occipital cortex. Instead of assuming a new supranormal connection in the synaesthetes we can hold the possibility that the pathways left intact even after the usual period.

There are several evidences in favour of neonatal synaesthesia. In the findings of Bourgeois, Greenough, Alcantara, Scheible, Garey, Kennedy and Dehay (Boysson-Bardies et al., 1993), it was found that human babies like other mammals are born with transient connections between many neural structures. The neonatal hamster has transient connections between the retina and the main somatosensory and auditory nuclei of the thalamus (Frost, 1984). The kitten has transient connections between visual, auditory, somatosensory and motor cortices (Dehay, Bullier and Kennedy, 1984; Dehay, Kennedy and Bullier, 1988). Such transient connections explain why in babies primary sensory cortex responds to stimuli from the 'wrong' modality or their synaesthetic experience. By the Retrograde Tracers<sup>248</sup> it is possible to identify wherefrom the neurons were projected to area 17 and to which areas the neurons of area 17 were projected. In the adult cats it was seen that projection to 17 area all originate from secondary and tertiary visual areas. But in the cases of kittens during their early postnatal development the connectivity included strong projections from primary auditory area those are eliminated between 20 to 30 days after birth (Dehay et al., 1984; Innocenti and Clarke, 1984; Kennedy, Batardiere, Dehay, Barone, 1997). Such transient connections were found to be neither diffused nor widespread, nor reciprocal. But projection of auditory area penetrates visual cortical grey matter. So they may cause development of visual cortex, because formation of temporary synapses by developing axons is the general feature of mammalian CNS. However, in the experiment of Miller and Vogt (1984) it was revealed that only in the rodents (and in no other mammals) such projection – from auditory to visual area – is stable even in their adulthood. It suggests that the transient connection is remnant or leftover of phylogenetic ancient pathway which is now become extinct in adulthood as a course of evolution. But these temporary connections are necessary for developments and in a developing brain such connections are ubiquitous. Kennedy et al. (1997) hypothesizes that such transient projections could provide the basis for a polysensory convergence required for matching different sensory maps. We may conjecture that it also is the basis of higher cognitive tasks such as the use of multimodal metaphor.

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<sup>248</sup> In the stein technology retrograde tracers are those that are injected at axon terminals and transported back to their cell bodies. Anterograde tracers are injected near and taken up by cell soma. They then travel along the axon and label it with a tracer.



Human Brain and its parts

Our brain is modular. The lobes of the brain include the frontal, parietal, temporal, occipital and limbic lobes. The frontal lobe is for planning, cognitive control, and execution of movements. The parietal lobe receives sensory input about touch, pain, temperature and limb-position, and is involved in coding space and coordinating actions. The temporal lobe contains auditory, visual and multimodal processing areas. The occipital lobe processes visual information. The limbic lobe is involved in emotional processing, learning and memory. Basal ganglia are involved in movement processing. Hippocampus is involved in learning and memory. The thalamus is the relay station for almost all sensory information. Association cortex is neocortex which is neither sensory nor motor in function. The hypothalamus is important for the autonomic nervous system and endocrine system. It controls functions necessary for the maintenance of homeostasis. It controls emotions and pituitary gland. The brainstem (midbrain, pons and medulla) controls respiration, sleep and wakefulness. The cerebellum integrates information about the body and motor commands and modifies motor outflow to effect smooth, coordinated movements.

In the case of vision it was found that a particular point of visual field is taken by a particular area of retina and neighbourhood in visual receptive field perfectly represented in neighbourhood in the continuous sheet of retina (retinotopic map). In the case of audition it was found that tone of a particular frequency stimulates a particular area of the auditory cortex (tonotopic map or cochleotopic map). A particular movement in, say right arm, co-occurs with stimulation in a particular region in somatosensory area (somatotopic map). The basic visual function of the neonates is insulated from other functions. Primary visual cortex is well-insulated from birth. In the brain, the information is conveyed in the form of electrochemical 'spark' which does not leak out to the neighbouring neurons. To prevent this leak out neurons develop coats of fatty tissue or myelin which grows around the neurons in concentric layers. But perhaps for the synaesthetes this is either not or less the case.

Even for the non-synaesthetes, the walls between our senses are not as solid as they appear. It is possible to induce the sensation of taste simply by changing the temperature of small areas on palate. Warming front of the tongue 20-35°C creates a mild but clear sweet sensation. Cooling the same area resulted salty taste. So, we can say that perhaps there is some degree of pruning of perinatal pathways but that degree differs between synaesthetes and non-synaesthetes. If it is slightly pruned synaesthesia occurs. If it is heavily pruned, only a residual activation may remain, which may be sufficient for establishing cross-sensory mapping but insufficient to reach conscious awareness.

### *6.3.2. The Hypothesis of Long-Range Disinhibited Feedback*

Peter G. Grossenbacher speaks of two classes of neural circuitry potentially responsible for synaesthetic experience named 'crosstalk' and 'feedback'. He also hypothesizes that perhaps non-synaesthetes also have the same circuitry although the mechanism they enjoy does not come to the conscious level. In this way he explains the resemblance or similarity between the aspects of synaesthetes and non-synaesthetes.

'Crosstalk' – The primary trend of evolution is anatomical segregation and isolation between sensory modalities within the cortex. In human we notice strict anatomical segregation at the low level having numerous cortical areas and also several levels of central nervous system. Different cortical areas respond selectively to stimuli in a single sense modality (Haxby et al., 1991; Kawashima, O' Sullivan and Roland, 1995). Beyond this there are higher level multimodal areas of cortex those receive inputs from multiple senses. It is important for

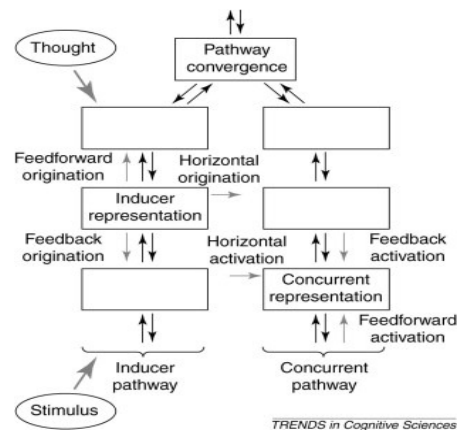
producing meaningful thought (Amir, Harel and Malach, 1993). Hence brain has a hierarchy of modalities where the low level unimodal representations are combined at the higher level into multimodal representations. Synaesthetic experiences result when a communication or cross-talk occurs between separate sensory pathways. Suppose there are two parallel ascending sensory pathways – one is auditory and the other is visual. Now, in the case of coloured hearing synaesthesia, the auditory stimulus evokes neural activity in the auditory pathway which leads to hearing the sound. But the upper part of the visual pathway is also activated by virtue of a cross-talk link which conveys neural signals from the auditory pathways. These cross-talk signals induce neuronal firing in the visual pathway leading to visual synaesthetic experience in the absence of direct visual stimulus. However, it is not clear at which level of the ascending auditory pathway the cross-talk signal originates and at which level of visual pathway it is terminated. It should be sufficiently low/high to produce concurrent visual phenomenology. The cross-talk levels may vary from case to case. The difference in the terminating level explains the difference in the phenomenology of concurrent stimulation (vision) or the maturity of visual product – someone perceives complete visual objects and others only shaped colour. However, cross-talk may be caused by anatomical proximity of the sensory pathways.

‘Feedback’ – Modern neuroanatomy proves that feedback connections pervade the brain’s hierarchy of sensory pathways (Cynader et al., 1988). It means any ascending neuronal projection that conveys bottom-up signal from lower to higher level also conveys reciprocal top-down signal from higher to lower level. And the feedback information regulates the processing of original or bottom-up processing. We may become conscious of this feedback process when we expect to see something before the visual stimulation begins – e.g., I expect someone to come in when someone knocks and I am going to open the door. However, these feedback connections contribute to a variety of cognitive functions including attention, imagery and memory. However, normally we do not become aware of these feedback activations since they are almost always inhibited. In the feedback hypothesis coloured-hearing is explained in the following way. Two parallel sensory pathways – one auditory and other visual stand apart; but neural projections from both of the streams converge into a multimodal nexus. As for example, when auditory stimulus is presented auditory ascending neural signal leads to phenomenal experience of sound. And from the multimodal nexus a feedback signal comes down through the visual projection to multimodal nexus and it is taken by the ascending visual stream. The upper part of the visual pathway becomes activated by

feedback signals, keeping lower part inactive. This hypothesis has a serious consequence. It suggests that feedback mechanism is common to all humans – synaesthetes and non-synaesthetes equally. But in the case of non-synaesthetes it is inhibited, whereas in the cases of synaesthetes it is not neutrally inhibited due to different causes such as hypersensitivity. Hence the difference between non-synaesthetes and synaesthetes is only a matter of degree – not of kind. We all are potentially synaesthetes having the same neural circuitry. It perfectly explains why a non-synaesthete becomes synaesthete when he uses LSD or mescaline. V4 is colour processing area which has been evolved relatively recently. For this reason it is strongly connected to large number of other cortical areas through which it may be activated by feedback process. It explains why colour dominates synaesthetic experiences.

So, the other hypothesis is that perhaps synaesthesia is due to disinhibited feedback from a ‘multisensory nexus’ such as Temporo-Parietal-Occipital junction or TPO junction (Armel and Ramachandran, 1999; Grossenbacher, 1997; Grossenbacher and Lovelace, 2001). One patient, PH became blind at the age of 40 due to retinis pigmentosa. After 2 years, he reported that he was experiencing visual movements from tactile stimulation. Interestingly, the intensity of tactile stimulation required to induce synaesthetic visual movement was greater when his hand was placed in front of his face than it was held behind his face. It suggests some kind of top-down influence of multisensory activation involving TPO junction.

Grossenbacher and Lovelace suggest that at a junction of neural convergence inducer representation (synaesthesia producing stimuli such as the visual graphemes) and concurrent representation (resulting synaesthetic experience such as colour) might be converged. Existence of multisensory brain area supports this hypothesis of pathway convergence. Cortical areas in the primate superior temporal sulcus (STS) send feedback connections to unisensory cortical areas involved in processing of visual features. STS also contains neurons having the sense of multiple modalities. So, STS may mediate the pathway convergence in synaesthetic induction. Now, normally the feedback effect from convergence to the concurrent representation remains inhibited so that no direct connection between inducer and concurrent representation is established. But in the cases of the synaesthetes, this feedback influence is not inhibited. That is why when they perceive graphemes, colour is evoked.



Schematic depiction of neural mechanisms in synesthesia: Synesthesia could be mediated via neural signals between an inducer pathway (left) and a concurrent pathway (right). Each box depicts a representation within a pathway (a single representation may be anatomically distributed over multiple brain areas). Afferent flow of information is conveyed by bottom-up signals via feedforward neuronal projections (upward black arrows), and top-down signals are carried by feedback connections (downward black arrows). Synesthesia stems from activity in the inducer pathway during either synaesthetic perception of a stimulus or synaesthetic conception of a thought, and the concurrent representation could become activated either via horizontal connections between the pathways or as a result of pathway convergence. (Borrowed from 'TRENDS in Cognitive Sciences' Vol.5 No.1 January 2001)

Disinhibited feedback is a reduction in the amount of inhibition along normally existing feedback pathways. Normally, excitation and inhibition are balanced. However, if normal feedback were not inhibited as usual, then signals feeding back from late stages of multi-sensory processing might influence earlier stages. Cytowic & Eagleman find support for the disinhibition idea in the so-called acquired forms of synesthesia that occur in non-synaesthetes under certain conditions like temporal lobe epilepsy, head trauma, stroke or brain tumors. It can likewise occur during stages of meditation, deep concentration, sensory deprivation or with use of psychedelics such as LSD or mescaline, and certain prescribed medications. Richard Cytowic and Marks have emphasized on synaesthesia's potential importance for understanding normal sensory function in this hypothesis. The nervous system of everyone contains interneurons or other pathways connecting neural regions that normally process information in distinct modalities. In non-synaesthetes, any neural activity in these pathways is normally inhibited. In synaesthetes there is disinhibition leading to coactivation of concurrents in a secondary modality or dimension. Thus the theory postulates no special hardware in synaesthetes.

The difference between the hypothesis of disinhibition and that of cross-activation (neural pruning) is that the former requires feedback connections all the way from higher areas to sensory areas, while the later requires cross-activation only at a local level. Moreover, the former theory does not say that an extra neural connection is set between two brain zones. They say that all the potential neural connections are hardwired in each brain. Hence, potentially all of us are synaesthetes. But in some cases the said feedback activation is disinhibited. That is why an unusual experience like synaesthesia occurs. Maurer has suggested that human infants are born with dense interconnections between cortical sensory systems and that synaesthesia results from a partial failure of the normal pruning process that eliminates those connections. But Disinhibited Feedback Theory posits no abnormal (direct or horizontal) neural connections. Cytowic (1988) explains newborn's synaesthesia as the manifestation of connections within the midbrain which later become inhibited by the cortex. In the case of his patient MW, who was a gustatory-tactile synaesthete having no cortical abnormality or lesion, spearmint would evoke the feeling of smooth, cold glass columns, felt in hands, back, cheeks and arms. It was found that this is because of the excess of cortical depressants like ethanol and amyle nitrate. These synaesthetic experiences were diminished when cortical stimulants such as nicotine, amphetamins and caffeine were applied. The column seemed more distant, slipping out of the hands. It proves that cortex can inhibit synaesthesia. Study of blood flow in the brain showed that during spearmint-evoked synaesthesia the blood flow in the parietal, frontal and temporal cortex dropped to such level that is observed in strokes. Cytowic's data proves that cross-modal connections occur when cortex is not functioning fully, as in the cases of the babies. Afterwards when modular cortex is developed through the process of pruning such experiences disappear (although some aspects of synaesthesia never disappear). Even the adults are able to interconnect or match those differentiated sensory modalities.

### 6.3.3. *The Hypothesis of Re-Entrant Feedback Processing*

Smilek et al. (2001) proposed the Re-Entrant model. Two basic premises of the proposed model are: (1) that information flows through the visual system in cascade form rather than in discrete stages (Humphreys et al., 1988) and (2) that information flows along both feed forward and feedback connections (Di Lollo, Enns and Rensink, 2000). The model says that when a projector views a black digit, information cascades forward through V1 and V2 to striate cortex and extrastriate posterior areas of the fusiform gyrus that deal with digit form. Information continues to cascade forward to anterior fusiform and posterior inferior temporal

(PIT) cortical areas where the meaning of the digit is activated (Allison et al., 1994). Information then cascades back from anterior fusiform and PIT areas to V4/V8 using reentrant pathways. Importantly, perception does not occur all at once – but rather accrues over successive cyclical iterations – early stage areas contact later stage areas using feed forward connections and the later stage areas contact early stage areas using feedback connections or reentrant pathways. These feed forward and reentrant connections reiterate over and over back and forth in a cyclic fashion – increasing the activation of colour by form and form by colour – until a fully conscious percept emerges gradually. This model assumes that even partial activation of meaning can backwardly activate colour in V4/V8. It perfectly explains the ‘pop-out’ visual search task, because partially activated concept of the number in PIT activated colour photism via feedback connection from PIT to V4/V8. So, the key difference is that in reentrant model *concept*-activation is necessary to trigger photism which is not necessary in the early-stage cross-linkage model. Cross-wiring architecture does not explain why same form can elicit two different synaesthetic colours. Ramachandran and Hubbard suggested that there are ‘lower’ synaesthetes, with early stage cross-wiring and ‘higher’ synaesthetes, with later stage cross-wiring, which allows concept activation to elicit synaesthetic photism. However, it is difficult to see how cross-wiring between late stage *abstract* semantic representations elicit projected synaesthetic colour in the same spatial location of the grapheme. It would seem necessary to invoke early stage areas that support spatiotopic representation. Ramachandran and Hubbard recognized top-down influences on synaesthetic perception but to explain it cross-wiring hypothesis has to include some reentrant pathways. If so, then it will be similar to the reentrant hypothesis of Smilek et al. (2001).

#### 6.3.4. A Combination

A single model may not be sufficient to explain all the various types of synaesthesia, although it is expected that there are some common factors in all these mechanisms present in all synaesthetes and the other variable factors influence the strength of synaesthetic experiences, leading to individual differences in their experiences. In addition, the different models are not necessarily mutually exclusive. In fact all of them may work in concert. This way Hubbard suggests a ‘Grand Unified Theory’ of synaesthesia.

However, the existing theories of synaesthesia have certain limitations. They do not explain the role of learning in the process of the development of synaesthesia. When the inducers are cultural artifacts such as letters, words or numbers, considerable amount of learning is



necessary. And the process of learning involves deployment of concepts. So far we have described synaesthesia as a purely sensory phenomenon. Only this much is not sufficient to draw a parallel between synaesthesia and *jñānalakṣaṇa pratyakṣa*, because during *jñānalakṣaṇa pratyakṣa* we deploy abstract qualities as *prakāra* which is a content of memory. This might be considered to be an out and out top-down processing which brings the Nyāya account nearer to conceptualism. We can say that in *jñānalakṣaṇa pratyakṣa* there occurs a conceptual association through memory and the degree of vividness of that concept is increased to that extent due to the operativeness of the sense-organ (i.e., due to the energization of the proximal sensory nerve stimulation) that it becomes a percept. Hence we have to see whether there occurs a conceptual association in synaesthetic experiences or mechanism.

The second difference is that synaesthetic experiences occur in a limited group of people whereas *jñānalakṣaṇa pratyakṣa* is a universal cognitive phenomenon. Previously we have seen that potentially we all are synaesthetes. Now we have to show that, in a ‘diffused’ sense, synaesthesia comprises of a universal phenomenon like ‘association of concepts’ besides ‘sensory association’. Then we shall be able to say that in the cases of sensory associations the degree of acuteness of the experiences is so high that sensory-synaesthetes are differentiated from the rest of the community. But in a diffused sense, synaesthesia causes conceptual association for the rest of the people the condition of which is less acute. The difference is that in the sensory cases people require specific physiological conditions at the level of hardware while in the conceptual cases our existing hardware and normal cognitive states are sufficient to *perceive* the conceptual association. This theory will suggest a spectrum or continuum of synaesthetic experiences starting from more acute specific instances (sensory), such as a basic grapheme → colour synaesthesia, to less acute general instances (conceptual), such as abilities to use language and metaphor. And *jñānalakṣaṇa pratyakṣa* will possess a place in between the two extremes of the spectrum.

Let us see whether conceptual association is possible in our brain.

## **6.4. From Association of Senses to Association of Concepts**

### **6.4.1. *Is Conceptual Association Possible?***

Mills, Boteler and Oliver (1999) and Wollen and Ruggiero (1983) hold that synaesthesia is a sensory phenomenon; but Mattingley, Rich, Yelland and Bradsaw (2001) and Dixon, Smilek,

Cudahy and Merikle (2000) hold that synaesthesia is conceptual. Ramachandran et al. (2005) hold that neither conclusion can be derived from Stroop task. Stroop interference at most proves that it is automatic.

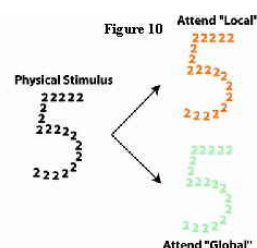
We have seen that the cross-activation hypothesis is predominant among the existing hypotheses. However, the final expression of such cross-activation requires 'learning'. Such as, in the case of grapheme → colour synaesthesia, one has to learn the graphemes. If someone perceives M as red then there is something about its M-ness that makes it red. So, some kind of learning must be involved in synaesthetic experience although synaesthesia is a low-level higher function. It must involve top-down processing and not fully sensory. Lawrence E. Marks (1978, 1982a) says that in synaesthesia sensory dimensions are linked to one another through a learned association – a psychological entity, perhaps with overtones of neural basis. The link might be a physiological response – a neural, muscular, or other physiological entity of actual or mythological status. Thirdly, the link is a cognitive entity since the association is to some extent learned. Once a connection is established between a 'number node' and a 'colour node', it persists life-long.

An important question is whether attention and full awareness of the identity of the inducer stimulus is required for synaesthetic concurrent experience? Logically without being aware of say grapheme 'A' one cannot see what would be its colour. So identification and recognition (explicit) of grapheme is precondition for synaesthetic colour perception. Mattingley et al. (2001) and Rich and Mattingley (2002) concluded in this way. But later researches proved that synaesthetic elicitation occurs even before the conscious awareness of the identity of the grapheme. Inducer recognition and synaesthetic experience may proceed in a cascaded fashion – increment of evidence producing increment of synaesthetic elicitation – instead of strictly serial fashion. Rich and Mattingley (2004) tried to prove this point by a Stroop experiment. But Blake et al. (2005) do not accept this conclusion. Moreover we have seen that in the 'pop-out' experiment synaesthetically elicited colour helped the subjects in identifying the letters. It proves that synaesthetic colour is available before explicit identification of inducer grapheme – otherwise synaesthetic colour could not enhance the grapheme identification ability. The experiments of other researchers like Wagar et al. (2002), Enns and De Lovo (1997) and Ramachandran and Hubbard (2001) prove this fact. However, some degree of processing of the grapheme must be done as a precondition of elicitation of synaesthetic colour, but evidently that process is unconscious.

Now, we need to see how ‘memory’ takes part in ‘learning’ to form such a connection. Nevertheless, such connection is not a ‘conceptual’ connection. In the cases of JC and ER – two grapheme-colour synaesthetes – only actual Arabic numerals evoke colours. Roman numerals and subitizable clusters of dots do not.

This conclusion is consistent with the hypothesis of cross-wiring in the fusiform because fusiform area deals with *grapheme-forms* – not with *concept*. It also explains flanking through crowding experiment where flanked grapheme is not consciously recognized but colour is elicited, because, as Dehaene et al. (2001) hold, neuronal activity in the fusiform is necessary but not sufficient for conscious awareness.

But synaesthesia can also be affected by top-down influences. In the experiment with Navon-type hierarchical figures (Navon, 1977) the entire figure takes on one colour when attending to the global form and another colour when attending to the local elements. The same experiments were conducted by Ramachandran and Hubbard (2001) with JC and ER showing the same result. When hierarchical figure such as a big ‘5’ composed of small ‘2’s were presented to JC and ER, they voluntarily switched back and forth between seeing ‘red’ (5) and ‘green’ (2). So, although this is a sensory phenomenon, it can be modulated by top-down influences such as attention. When the picture was shown to the synaesthetes they reported that they saw the colour switched from red to green depending on whether they were attending to the component digits or to the whole structure. This observation implies that even though this kind of synaesthesia is evoked by visual appearance alone, not by high level concept, the manner in which the visual input is categorized, based on attention, is somehow dependent on what ‘5’ means or what ‘2’ means. This top-down influence proves some kind of conceptual interference guided by attentional shift.<sup>249</sup>



Top-down influence: Role of attention in synaesthesia

<sup>249</sup> Smilek et al. (2004) conducted similar experiments.

Some grapheme-colour synaesthetes were presented with the grapheme ‘THE CAT’ in the way that the ‘H’ and the ‘A’ were replaced with an ambiguous grapheme between the two, i.e., slightly tilted ‘H’. The subjects saw different colours for the same ambiguous grapheme in different words. It also proves that the mechanism involves top-down processing. Here, somehow the concepts interfered in color perception. In the experiment of Blake et al. (2005) on the grapheme → colour synaesthetes WO and LR, it was seen that semantic context can modulate the perceived colour of an alphanumeric character. The character ‘13’ is seen to be ‘B’ having its corresponding colour when it is seen to be placed in between ‘A’ and ‘C’. But when it was placed between ‘12’ and ‘14’ it was seen as ‘13’ with its corresponding colour which was of entirely different from the previous synaesthetic colour.



The Top-down effect: 1. THE CAT Puzzle: – In figure 1 there is an ambiguous letter in the middle. On its own it can be depicted either as an H or an A. When flanked on either side by T and E (horizontally), it looks like H, whereas when flanked by C and T (vertically), it looks like an A. When the synaesthete subject grouped the letters vertically, he saw the middle character as an A and saw blue, but when he grouped the letters horizontally, he saw the middle character as an H and saw pink (Ramachandran and Hubbard, 2002). 2. Number-Grapheme Puzzle: – In figure 2 the ambiguous middle character is seen as green (B is green for him), when grouped horizontally; it is seen as brown and yellow (1 is brown and 3 is yellow for him), when grouped vertically.

The crowding effect experiment proves that synaesthetic operation or mechanism is unconscious and preattentive. This conclusion may seem to be contradictory to the top-down influence experiment and pop-out experiment. But further reflection shows that there is no contradiction. In the crowding effect experiment the lack of visibility was due to attentional limitations. Top-down influence was present even there. Top-down influence may work unconsciously. So pop-out situations also can accommodate top-down influence.

Besides sensory cross-activation, Ramachandran also found synaesthetic instances of conceptual cross-connection which he names ‘higher synaesthesia’. Some colour-synaesthetes elicited colour when Arabic as well as Roman numerals were presented to them. And

furthermore the colour was evoked when listening to number being said or seeing the number built out of small dots. It was interesting to note that imagining a number seems to evoke the colour even stronger, perhaps because there is no real colour coming from the retina (percept) that counters the synaesthetic colour. Hence, it is the abstract ‘concept’ of numerical magnitude – not the visual grapheme – which evoked colour. For some others, the days, months and years are coloured. In some of these synaesthetes it is the first letter of the day (M for Monday) that determines the colour of the day but in others, it is the concept of ordinality or position in a numerical sequence that determines the induced colour. It is supposed that the brain region that encodes abstract numerical sequence is cross-wired to the higher colour area. A patient of Spalding and Zangwill had a gunshot near right angular gyrus. As a consequence, he suffered from spatial problem. He lost his synaesthesia and for him the ‘number plan’, forms for months, days and letters were no longer distinct. Perhaps the cause of the synaesthesia was a cross-wiring between higher colour area and angular gyrus which was lost in the accident.

Now, angular gyrus in the left hemisphere is supposed to be responsible for abstract numerical calculation, damage to which results acalculia. The patient with a damage in this area cannot do even simple arithmetic such as multiplication or subtraction. Interestingly, the subsequent colour areas in the cortical colour-processing hierarchy lie in the superior temporal gyrus which is adjacent to angular gyrus (Zeki & Marini, 1998). It is held that a cross activation occurs at this higher colour area and abstract computation area. It indicates that concept-percept cross-activation is also possible which is called ‘higher synaesthesia’. It tempts us to say that following similar process a memory-content might evoke a corresponding sensation, as it happens in the cases of *jñānalakṣaṇa pratyakṣa*.

There is an old clinical observation that angular gyrus is involved in cross-modal synthesis. Information from touch, vision and hearing is thought to flow together in the angular gyrus to enable construction of high level percepts. We can say that this area helps in binding different sensory inputs into one single concept.<sup>250</sup> And damage to this area causes anomia, in which people cannot name a complex object like ‘cat’ which has certain odour, touch and sound

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<sup>250</sup> We may notice that this cognitive task is done in what the Nyāya calls ‘*pratisandhāna*’ where we have the cognition in the form, ‘I see what I touch’. According to the Naiyāyikas such binding is performed by the Self.

property. Such patients also lose the ability to decode the metaphorical statements like proverbs and take them literally.

There are bilingual synaesthetes also for whom colours are evoked by more than one language. Graphemes or phonemes of those languages may evoke colour. In other cases the second language evokes colour if that is written in the first language. The phoneme equivalent of first language evokes colour. As for example the kanji word for 'love' is pronounced 'ai'. Now one synaesthete perceives the English letters 'A' and 'I' as red and black respectively. Therefore the kanji word is seen by him as red with a touch of black. However, in some exceptional cases the meaning of kanji overrides the pronunciation where the concept of the kanji word determines what would be the colour. The kanji word for 'west' is 'nishi', which should have been perceived as purple, black, yellow, red-purple and black. But the word 'nishi' evokes green colour because 'west' is seen as green, orange, yellow and blue. Here the concept of 'nishi' or 'west' dominates over the kanji pronunciation. This is another example of top-down influence.

We can describe the process in the following way. When light enters the eye, the retina senses it. Then the visual image is transported to the primary visual cortex (V1 or Brodman's area 17) through the lateral geniculate nucleus in the thalamus. From there visual information is broken into different parts such as colour, motion, form, depth etc. The colour information goes to V4 located in fusiform gyrus of the temporal lobe. Near V4 there is a small area in fusiform gyrus where the graphemes are represented. Due to the short distance between V4 and visual numerical area (and also for some other reasons) a cross wiring occurs between them. After V4 colour processing moves to angular gyrus of TPO junction where numerical computation is performed. Once again colour processing and numerical processing are located close together. It explains why certain colours are evoked by the concept of ordinal sequences such as months of year or days of the week. The former cross-activation is called lower synaesthesia where evocation of colour seems to be sensory, whereas the later one is called higher synaesthesia where evocation of colour seems to be conceptual.

In higher synaesthetes the induced colour might not lead to pop out and perceptual segregation. They should not perform better than the controls on the perceptual tasks because their colours are elicited later in the processing hierarchy. Their experiences are most likely driven by the numerical concept rather than the visual form. Hence, Grossenbacher and Lovelace distinguish 'conceptual' from 'perceptual' synaesthete. In addition the higher

synaesthetes report that their colours appear in their mind's eye instead of being projected out into the world. Hence, Dixon et al. distinguish between 'associator' and 'projector' synaesthetes.

Synaesthesia is more common in the artists, poets and creative persons.<sup>251</sup> The common capability of creative persons is that they can relate two seemingly unrelated realms in order to highlight a deeper similarity. Just as synaesthesia involves making arbitrary links between seemingly unrelated perceptual entities like colours and numbers, creative metaphor involves making links between seemingly unrelated conceptual realms. Perhaps the reported higher incidence of synaesthesia in artists is rooted deep in the architecture of their brains. Ramachandran and Hubbard suggest that the synaesthetes can do this very well because concepts are represented in brain maps in the same way that the percepts are. Just as 'number', which is an abstract concept, is represented by angular gyrus. The other concepts also may be represented by different brain regions. If so, then metaphors may be thought to be cross-activation of conceptual maps. Angular gyrus is situated at the cross-road of temporal, parietal and occipital lobe. So, it is an important junction (TPO junction) which performs cross-modal association – lesion to which causes inability to understand cross-modal metaphor like 'loud shirt', 'warm hue' etc. When mutation-induced cross-wiring selectively affects the fusiform or angular gyrus – someone may experience synaesthesia but when it is more diffusely expressed, the hyperconnectivity between concepts opens the possibility of creativity.

Ward et al. (2005) have shown that tone-colour associations share common mechanism with non-synaesthetic pitch-lightness associations. Blakemore et al. (2005) have shown that observed touches are experienced as felt touches on the corresponding body part. fMRI pictures have shown that there were activities in the cortical networks related to the mirror neuron system involved in self-other mapping. Although in these cases the mirror → touch synaesthetes showed activity to a greater degree than the non-synaesthetes, but even the non-

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<sup>251</sup> The nineteenth century poet, essayist and salon art critic Charles Baudelaire (1821-1867), French Poet Arthur Rimband (1854-1891), famous musician Alexander Scriabin (1872-1915), Nicholas Rimsky-Korsakov, French composer Olivier Messaien (1908-1992) and British 'pop' art painter David Hockney (1937- ) etc. were/are synaesthetes. 1965 Nobel winner physicist Richard Feynman (1918-1988) was a grapheme-colour synaesthete. The composer Franz Listz (1811-1886), composer Amy Beach (1867-1944) and the composer and musician Jean Sibelius (1865-1957) all were sound-colour synaesthetes. György Ligeti (1923- ) and Michael Torke also were composers having sound-colour synaesthesia. Novelist Vladimir Nabokov (1899-1977) wrote in his autobiography 'Speak Memory' (1966) regarding his grapheme-colour synaesthesia. His mother, wife and son Dmitri also were synaesthetes. Contemporary synaesthete authors include Brits Julie Myerson and Jane Yardley.

synaesthetes also have shown the same activity in corresponding brain regions. So, it suggests that synaesthesia depends on mechanisms shared by everyone. The difference might be only in degrees. Perhaps this same mechanism can account for the ‘conceptual rightness’ of certain cross-sensory mappings such as mapping a ‘jagged visual shape’ with a ‘jagged sound’ or associating high pitch with bright light. These associations surely indicate towards ‘conceptual’ mappings we do in everyday language, specially, in metaphors. Being asked by Myers about synaesthesia Alexander Scriabin, the synaesthete musician response that in general, when listening to music he (Scriabin) has only ‘feeling’ of colour; only in cases where the feeling is very intense it passes over to give an ‘image’ of colour. It supports our conjecture that there is a continuum between lower (sensory) and higher (conceptual) synaesthesia. Under acute condition the vividness of the associated idea is increased to the degree of a percept.

Cytowic (2002) holds that besides purely sensory-sensory synaesthesia, there are category-sensory and verbal-sensory synaesthesia – even a concept-sensory synaesthesia, where just thinking of, say, number ‘5’ triggers some colour, say, green. These conceptual correspondences exist among the synaesthetes and non-synaesthetes alike. Both say that louder tones are brighter than soft tones; low tones are larger and darker than high tones etc. Perceptual similarities, synaesthetic equivalences and metaphoric identities are available also in the more abstract knowledge that is embodied in language. Cytowic and Lawrence E. Marks propose a cognitive continuum extending from perception to synaesthesia to metaphor to language (Cytowic, 2002). This continuum resides universally in us but, the reasons yet unknown, rises to consciousness in only a few men. This conjecture is supported by two recent researches. Firstly, synaesthesia is almost 100 times more frequent during Zen meditation. Secondly, both blind and sighted persons became able to perceive video impulses fed into an electrode array placed on the tongue. So, the tactile sensation on the tongue can be unconventionally bound to discern form, movement, direction, spatial location and other qualia that we conventionally ascribe to vision. Hence, the capacity for anomalous binding, which is the essence of synaesthesia, is latent in all brains (Cytowic, 2002).

In relation to the metaphorical use, we can understand that even normal people also experience synaesthesia. We all speak of certain smells – like nail polish – being sweet, although we never tasted them. This might involve close neural links and cross-activations between smell



and taste. The sight of 'Phuchka', the Indian spicy snacks, brings its taste in the mouth leading to salivate. These might be different forms of synaesthesia present in all.

In Indian classical music different ragas give cue to different times of a day or different seasons of a year. It is claimed that even those who have no knowledge of such correspondences also will perceive the time or feel the season hearing the ragas. This is a strong example of a complex form of cross-activation where specific sound evokes the feelings, emotions and memory of a specific time or season, which is present in us all.

## **6.5. From Special to Universal Phenomenon: Multimodal Information Processing**

### **6.5.1. Multi-modal Information Processing: A Universal Phenomenon**

It has been neuroscientifically proved that multi-modal information processing is a universal phenomenon. Multisensory areas of the brain are those areas where two or more senses converge. Multiple-cell-recording in the Superior Temporal Sulcus (STS) of monkey has shown that this area responds to visual, auditory and somatosensory stimuli. Recordings were made from over 200 cells in this region among which 20% were bimodal or trimodal (Hikosaka et al., 1988). Prominent multisensory areas are in temporal lobe, parietal lobe, frontal lobe as well as in the hippocampus, and also in the Superior Colliculus (SC) of midbrain which controls the orientation of sensory organs. SC contains orderly topographic maps of the environment in visual, auditory and even tactile domains. These maps are integrated in the deep layers of SC. Many cells in SC combine information from different sensory channels and integrate that information so that the sum of them is more useful than information from single modality. Multimodal integration increases the sensitivity and accuracy of perception. Barry Stein found that the response of individual cell in SC is greater than a combined response of visual auditory and somatosensory stimulus. This is called multisensory integration or multisensory enhancement. Combination of weak, even sub-threshold unimodal signals can be detected and cause the animal to orient toward the stimulus. But the necessary condition for such integration effect or enhancement is that different unimodal stimuli are spatially and temporally coincident or synchronous. And when different unimodal stimuli are not presented coincidentally the multisensory response is decreased. Gemma Calvert et al. (1997) proved that left STS of human beings integrates visual and auditory information and creates a stronger representation of the stimulus.

Every human being and perhaps all living being processes and compares information coming through different sense-organs. Without processing multi-modal information survival is not possible. So, the ability of multi-modal information processing has been developed in the living beings through generations as a survival strategy. In human brain it is found that TPO junction (Temporo-Parietal-Occipital junction) is the area where different sensory information converges to form multi-modal concept. The inconsistency of brain mechanism lies in the question: if brain is modular and has specialized areas for different sensory information, then why does it integrate all of them? The answer is integration also is a task for which some special area are devoted those enjoy converging inputs from multiple modalities. These multisensory neurons are the functional polar opposites of their modality-specific counterparts; because they are specialized for pooling rather than segregating modality specific information and probably do not produce any qualia. One of such area is superior colliculus (SC) which is situated in the midbrain structure. It initiates and controls orientation behaviour. The multisensory integration area in the cerebral cortex is the anterior ectosylvian sulcus or AES at TPO junction, which consists of three sub-regions: a somatosensory region referred to as SIV, an auditory region referred to as FAES and a visual region referred to as AEV. In the case of human being in the superior temporal polysensory area STP (the ventral intraparietal area or VIP and lateral intraparietal area or LIP), audio-visual convergence happens. Besides, there are numerous other cortical regions where such convergences happen. Many single neurons in the primate orbitofrontal cortex respond to different combinations of taste, somatosensory, visual, olfactory and auditory inputs.

So we can conjecture that if this area is activated to a certain degree along with an input sensation the activities will be relayed to the other modalities also and corresponding experiences will happen. That the normal human beings have multi-modal concepts may be proved by the following experiment.

In 1999, Deibert and his colleagues were investigating on the neural activation corresponding to touch. In order to identify which area of brain becomes activated when people recognize objects through touch alone, the combined method of functional magnetic resonance imaging (fMRI) and transcranial magnetic stimulation (TMS) was applied. The subjects are asked to recognize an object through touch with closed eyes. The fMRI scans during recognition shows a profound activation in the visual cortex also in spite of the fact the eyes of the subjects were closed during the whole experiment. One hypothesis may be that the subjects generated visual

image of the object after recognizing it. The other possibility is that the subjects constructed visual images during tactile exploration and used the images to identify the objects. Now, a follow up experiment shows that TMS stimulation over the visual cortex impaired tactile object recognition. It supports the second hypothesis and proves that sensation in one organ stimulates the corresponding brain-part of another organ in order to execute a higher level cognitive task. This is the usual brain processing of the normal human beings. The result of this experiment suggests that cross-firing or cross-connection in the neural level not only enunciates cross-modal sensory experience but also causes cross-modal conceptual cognition.

Now it has been proved that sensory systems interact with each other. 'Multisensory processing' refers to what happens when information from two sensory organs is combined in some way in the brain. There may be physical (retrievable into its components) or chemical (non-retrievable into its components) bonding between two sensory information. Cross-modal experiences are of many kinds. Cross-modal experience is conscious perceptual experience produced by or associated with more than one sensory modality. That there is multi-modal processing, and it does affect the cognitive mechanism and experience of normal people is proved by the experiment done by McGurk. McGurk and McDonald (1976) reported that when an auditory stimulus, a /ba/ sound was heard alone, it was reported accurately. But when it was heard whilst looking at lips making movements that would produce a /ga/ sound, then people report hearing a /da/ sound instead. Here the auditory system starts to process auditory information based on just the stimulus impinging on the ears – the /ba/ sound. The visual system also starts to process visual information based purely on the stimulus that impacts the eye – the /ga/ sound inducing lip movement. At some point a comparison is made and the information is found to be incompatible. The auditory information is then changed to /da/ which is nearer to the visual information. It is new audio information which is not separable in terms of its components. This phenomenon is known as McGurk effect. Most of our experiences are produced by simultaneous or parallel operation of multiple sensory faculties.

In the cases of coloured hearing synaesthesia a correspondence between sound quality and visual sensation is found to be universal. The higher the pitch or frequency of a sound, the greater is the brightness of the photism. And when the lower notes are struck, colours become darker. It was also found that high pitched sounds produce the photisms those are smaller in size; whereas low-pitched sounds produce synaesthetic photisms those are larger in size. In the same way louder sounds produce brighter and larger photisms. Such correspondences are

found in normal subjects under the influence of hashish or mescaline. Even the non-synaesthetes in normal non-drugged condition make such associations. It implies that whatever may be the content of sensations, the intensity or vividness of sensation (light) varies proportional to the intensity of the affect (sound). This association is the cause of the metaphorical use ‘auditory brightness’.

It supports the mechanism of *jñānalakṣaṇa pratyakṣa* as described earlier. The best part is that this mechanism is followed not only by some special people but by all.

Stevenson and Boakes (2004) hold that in olfaction a kind of automatic cross-modal hallucination occurs routinely in even non-synaesthetes. Vanilla is consistently reported as smelling *sweet* where sweetness is such a property that is known through taste. Such phenomenon is termed as odour-taste synaesthesia.<sup>252</sup> Olfactory receptors can be stimulated by two anatomically distinct routes – either by nose (orthonasal olfaction) or by mouth (retronasal olfaction). So, one may hold that it is nothing but an inference from previous association of taste and smell through retronasal olfaction (Frank Byram, 1988). But Stevenson and Boakes conducted sweetness enhancement test experiment on Australian undergraduates who had no experience of lychee and water chestnut. It was found that the rate of *sweetness* or *sourness* increases when lychee odour and water chestnut odour are mixed with same sucrose and citric acid solution, in respect of non-odoured solution. So, although such connections may be based on learning, it is not inference from pre-association, but is a clear case of perceptual hallucination (Prescott, 1999). In the case of odour the cross-modal association is a universal one. It might be an effect of implicit memory but here the implicit memory directly affect to perceptual process and performance without any conscious and intentional recollection. Ubiquity of this odour-taste synaesthesia suggests that cross-wiring is not the only mechanism for synaesthesia, neither is synaesthesia an abnormal brain cognition. We can say that in the case of odour synaesthesia is universal.

Modern neuroscience says that normal perception itself is a product of multisensory integration. The ‘sense-by-sense’ approach is set aside and it is held that perception is fundamentally a multi-sensory phenomenon. Our senses are designed to function in concert and our brains are organized to use the information they derive from their various sensory

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<sup>252</sup> Experiments of ratings of sweetness on the presented odours prove that such odour-taste synaesthesia is reliable. In a subsequent reverse experiment it was seen that taste also influences odour.

channels cooperatively in order to enhance the probability that objects and events will be detected rapidly, identified correctly and responded to appropriately. Even those experiences that at first may appear modality-specific are also influenced by the activities of other sensory modalities, despite our lack of awareness of such interactions. Our brain sorts through the massive and multiple streams of information it receives and couples those signals from different modalities which are derived from a common event. It is called multisensory integration/processing. The research suggests that there is remarkable constancy in some of the underlying principles by which the brain synthesizes different sensory inputs.

### 6.5.2. Cross-modal Object Recognition

It is a fact that during object recognition we, the common people, often depend on multi-modality. The existence of such universal multi-modal task had been recognized even in Nyāya tradition. It is named '*pratisandhāna*' where seeing an object we recognize it as the same object that we previously touched (or simultaneously touch). The Naiyāyikas used such cognition as a proof in favour of the existence of Self or *ātmā* who binds the information coming through different sense-organs forming a concept of a unique object. The neuroscientists intend to seek the brain areas where such integration of multi-modal information happens. Whatever may be the case, if there are such multi-modal concepts unifying different modal information then activation in one portion will energize the other portion of the concept. Researches in the domain of multi-modal object recognition support such view and it increases the possibility of the *jñānalakṣaṇa* hypothesis which is a universal phenomenon.

We recognize objects using a variety of modalities – specially, with the help of vision. The inner representations of objects are formed by integrating information from different sources which are complementary to each other and converge to form a coherent percept. Here we take only visual and tactile representations for specificity. The question is how information from different modalities combines to form a single multisensory representation of object. For this, the information must be encoded in a similar manner for all modalities – which assumes a functional equivalence among the modalities. For example vision and haptic information can both be seen as image processing systems – therefore amenable to similar functional descriptors. Loomis and others have shown when the spatial band-width of vision is reduced to that of haptics then letter identification performance is equivalent across both senses. To study these and other measures, we can use EEG, MEG, PET and fMRI techniques.

### *Neural Plasticity in Cross-Modal Object Recognition:*

Traditionally, cortical areas have been considered to be functionally separate and generally sensory-specific. The plasticity of brain questions this traditional approach. Neighbouring cortical areas can remap in situations of sensory deprivation or as a result of sensory experience. Ramachandran and others describe an example where a patient with a limb amputation, the somatosensory areas originally associated with areas on the limb were remapped onto face areas. So, sensory modalities are not structurally and functionally separate. Cortical areas are plastic. Cross-modal plasticity questions the role of primary sensory areas in perception.

Sadato and his colleagues (1996) used PET to measure blood flow in the visual cortex during a tactile discrimination task in both blind and sighted subjects. It was found that in the blind, blood flow increased in primary and secondary visual cortex, which normally responds only to visual stimulation. In the case of sighted subjects the discrimination task decreased the activity in the visual areas. The experiment proves the phenomenon of cortical plasticity.

So, it is unlikely that there is a wholesale growth of new long-range corticocortical association. More plausible is the hypothesis that the plasticity occurs because of changes in the efficacy of existing circuitry in the form of disinhibition or unveiling weak connections those already exist in the cortex through the release from inhibition.

### *Necessity of Primary Visual Areas for Tactile Object Recognition:*

Sadato's PET study shows that the primary visual areas of congenitally or adventitiously blind persons become activated when they read Braille letters. No such activation is found for the sighted control participants. For blind persons, the somatosensory information is relayed to primary visual area via the visual association areas during Braille reading. In another study using MEG activation in visual cortex is found in response to auditory information in early blind individuals (Kujala et al., 1995). Conversely, fMRI study of Finney, Fine and Dobkins (2001) shows activation in primary and higher auditory cortex in response to visual stimulation in the cases of early deaf person. No such activation is found in normal control participants. Rauschecker (1995) reported that visual deprivation in a cat resulted in complete recruitment of the anterior Ectosylvian visual area by both the auditory and somatosensory areas. Roder and Rosler reported similar events of reorganization in humans. Schroeder and

Foxe show some evidence that there happens cross-modal processing in the primary visual areas even in the normal beings. Sathian, Zangaladze, Hoffman and Grafton (1997) have shown using PET scan that the primary visual area is active during tasks involving the tactile discrimination of oriented gratings, although this effect may be indirect and mediated by visual imagery. (Kosslyn et al. reported that tasks involving mental imagery increases activation in primary visual areas.) Using TMS they blocked processing in the occipital cortex and found impaired tactile discrimination of grating orientation. Deibert, Krant, Kremen and Hart (1999) found in fMRI result that visual areas (Calcarium and Extrastriatal areas) become activated during tactile object recognition (along with somatosensory, motor and language areas). So, activation in visual areas might be necessary for tactile object recognition or it may be a result of back-projection from other sensory areas. Or it may be due to a learned association because whenever an object is tactually recognized, it is visually recognized also. Generally when stimulus in one modality is presented the cortical areas of other modality which are irrelevant (such as audition) is deactivated. But learned association between the two may alter the case. The question arises: whether information from one sensory domain can be processed by another domain in a functionally relevant way? The researchers suggest that information is shared across modalities. Kubovy and van Valkenburg (2001) say that if an edge can be temporal as well as spatial (discontinuities in time or space) then it is likely that both auditory and visual edges can be processed by visual cortical areas and perceived as such, irrespective of modality.<sup>253</sup> If information from a stimulus is shared across modalities in order to create a percept, then interference effect should occur in perception when different information is presented to each modality. This is indeed what happens. Shams, Kamitani and Shimojo (2002) reported that when a constant number of visual flashes are accompanied by a variable number of auditory beeps, the number of perceived visual flashes is related to the number of beeps heard and not to the actual number of flashes. Hamilton, Keenan, Cotala and Pascual-Leone (2002) reported a case of congenitally blind individual who was a proficient Braille reader but after a stroke, which impaired visual cortex bilaterally, he could not read Braille. It has been seen that the visual areas of blind person becomes devoted to tactile recognition so that impairment in that area affect tactile recognition, whereas sighted persons shows no such result. Such cortical remapping depends on a critical time period, environment and learning. At least at the cortical level, different primary sensory areas can be involved in

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<sup>253</sup> We shall see later that this multi-modal realization of a concept like 'discontinuity' or 'jaggedness' is necessary for the higher cognitive ability such as understanding and using metaphor and language.

the recognition of an object, which suggests that an object's representation in memory can be multisensory.

*Evidence of Activation in Higher Sensory Areas for Cross-Modal Object Recognition:*

In humans, an area known as the lateral occipital complex (LOC) within the occipito-temporal part of the cortex has been found to respond to visual objects defined either by, motion or texture or luminance contrast using fMRI techniques. LOC is crucial for visual object recognition. Now, is it involved in multisensory object recognition? Amedi, Malach, Hendler, Peled and Zohary (2001) conducted a cross-modal recognition study using fMRI. Participants were presented with four different stimulus conditions, two visual (seeing objects or textures) and two haptic (touching objects or textures). The authors found significantly higher activation for object recognition relative to textures in the occipito-temporal areas and this effect was independent of sensory modality. Data suggests that LOC area is involved in cross-modal recognition, either by integrating information from the two senses or by representing haptic information about an object in a visual code for recognition.

Hadjikhani and Roland (1998) used PET to measure brain activation while participants performed a within-modality or cross-modality shape-matching test. In the conditions involving cross-modal transfer the authors found activation in the relevant sensory areas but also in the Claustrum. This area may play an important role in cross-modal matching because multisensory cross-modal projections stem from, and are projected to, the Claustrum. James et al. (2002) reported the effects of haptic priming on visual object recognition by measuring fMRI activation. They suggested that the ventral pathway is a generic object representational subsystem, such that, objects that are encoded haptically are then represented in terms of a visual or multisensory code. If higher visual areas are involved in multisensory object recognition, then damage or TMS to LOC should impair visual and haptic object recognition. Saetti, De Renzi and Comper (1999) described an individual with tactile agnosia whose performance was impaired on haptic recognition but was intact for tactile matching and tactile imagery. His right occipital lobe was damaged including lateral convexity and damage to the inferolateral part of the left occipital lobe extended to the posterior temporal cortex. His tactile discrimination of orientation also was impaired.

Active haptic exploration of an object makes different parts of the object visible. This way, through an interaction between haptic and visual processes, a rich view-independent



representation is created in memory – thus solving constancy-problem. Convergence of information from complimentary sense-modalities makes a more complete representation about the object. Recent studies suggest that both the visual and haptic systems can create a representation of an object that allows common access across these modalities (Reales, Ballesteros, 1999; Easton, Srinivas, Grenne, 1997). The efficient interaction between different modalities depends on the fact that the same object is perceived. When there is ambiguity, one modality dominates. When visual information overrides, the effect is called ‘visual capture’. However, Heller (1992) says that vision is not always dominant. In the cases like judging ‘roughness’, touch dominates. Easton, Srinivas, et al. (1997) suggest that object representation across vision and haptics are not necessarily combined, but are mediated by imagery. But this is task-dependent: haptic exploration of weight and temperature require no ‘visual translation stage’ and ‘image-mediation’. In order for information to be shared across modalities, these different modalities should organize information using common principles and be functionally equivalent.

### 6.5.3. The Correlations in Indian Theories: Jñānalakṣaṇa in Pratisandhāna

The aforesaid account throws an objection against the Naiyāyikas. If there are multi-modal experiences, does not it prove the existence of blend cognition as the Bhāṭṭas or Vedāntins propound? If so, then the whole Nyāya structure will collapse. In reply, a Naiyāyika would answer that it is true that experiences are multi-modal. But it is true in the sense that different sensory information is conglomerated in a systematic way into a unique concept. Nevertheless, it does not mean that two different sense-organs simultaneously operate to form them. Atomic *manas* will never allow that. There always operate one sense-organ which brings its own object ordinarily and the other sense’s object extraordinarily through *jñānalakṣaṇa sannikarṣa*.

The Nyāya theory of object recognition across different modality has been used to prove the existence of Self, who is the cognizer, as something different from combination of body, sense-organ, mind, intellect, pain, pleasure etc. There Gautama argues that often we cognize the same object through different sense-organs, such as we perceive a perceptible substance through vision and touch. Here two different perceptual cognitions are produced. Afterwards a mental perception of those two perceptual cognitions occurs. It occurs in the form of recognition (*pratisandhāna*) having the same subject and the same object. The form is like this: ‘whatever has been perceived through vision has also been (is also being) perceived

through touch by me'. For Gautama, recognition (*pratyabhijñā*) is a kind of mental perception (*mānas pratyakṣa*). The form of the recognition entails that the cognizer of those two different perceptual cognitions are the same (me). This 'me' is not sense-organ because different sense-organs receive different stimuli. Visual sense-organ cannot receive and hence recognize touch-quality and tactual sense-organ cannot receive and hence recognize visual-quality. This kind of the rule of the graspability of objects or *viśayavyavasthā* is an established fact. Hence, no sense-organ, individually and separately, can have the said kind of recognition. Recognition requires memory. Memory requires previous perception. Eye cannot perceive touch-quality; hence, it cannot memorize and recognize touch-quality. The vice versa is true for the tactual sense-organ.

So, Gautama holds that the instrument (*karāṇa*) of such cross-modal recognition (*pratisandhāna*) is *manas*. *Pratisandhāna* is a mental perception of those previous perceptions – one is visual and the other tactual – along with an identical cognizer and an identical object of those perceptions. So, such cognition is introspective (*anuvyavasāyātmaka*), where we perceive through mind two different kinds of perceptions announcing that the objects (and the cognizers) of those perceptions are identical. If so, then we have to admit that in *anuvyavasāya*, *manas* also grasps the object of those two determinate perceptions (*vyavasāyātmaka pratyakṣa*). The Navya Naiyāyika would say that it is through the *vyavasāya* that *manas* can grasp the external object; and those two perceptions work as *jñānalakṣaṇa sannikarṣa*. *Viśayavyavasthā* does not apply for the cases of extraordinary perception or extraordinary sensory connection. Moreover, *manas* is capable of grasping all kinds of objects grasped by any external sense-organ (*sarvendriyaviśayagrāhī*). Hence some kind of integration becomes possible at this level of cross-modal recognition, without inviting simultaneous operation of visual and tactual sense-organs.

In similar way, Jayanta Bhaṭṭa tried to solve the problem of multi-modal perception '*sugandhī ketakī*' explaining it in terms of *mental perception*. We shall see later that in moment examination a problem occurs in that account. It is because atomic *manas* needs to be attached to and detached from the relevant sensory organs (visual and tactual) for corresponding perceptions. This *saiṅyoga* and *vibhāga* need separate moments and in the meantime the first perception is destroyed since cognition exists only for two moments. So, we conclude that *pratisandhāna* is not introspection or mental perception of two *perceptions* (visual and tactual) but an introspection of the *memory* of those two perceptions along with their (common) object.

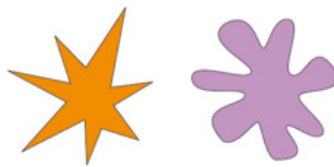
The Self binds visual and tactual object as one and the same object through memory. Thus we realize that what was perceived visually is now perceived tactually or the reverse. Nyāya does not allow simultaneous perceptions such as visual and tactual. This conclusion anticipates that those who are the patients of acute short term memory loss will not be able to recognize objects cross-modally. At the level of impression (*samskāra*) and its product memory (*smṛti*) that conglomeration or unification becomes possible because at that level there remains no *viṣayavyavasthā*. Visual and tactual object both are equally grasped in memory. *Pratisandhāna* is introspection of such memory (or sometimes a memory along with a perception). Gautama and Vātsyāyana also admit the role of memory in this regard in *ātmaparikṣā* in *Nyāyasūtra*.

From this we can conclude that although Nyāya does not admit blend in ordinary sensory level, but the content of memory can be blended with other contents following a certain mechanism. Atomicity of *manas* does not obstruct such blend in information as long as only one sense-organ remains operative and the produced perception is categorized in terms of that sense-organ. In the case of *pratisandhāna* it is *manas*, in the case of ‘*surabhi candanam*’ it is visual sense-organ or the like.

### 6.5.3. Cross-Modal Connection in Higher Cognitive Level

The existence of multi-modal concepts entails the existence of cross-firing at the conceptual level, besides sensory level. So, conceptual association (or memory association) between cross modal elements is a fact. And it is a normal cognitive phenomenon. In the hypothesis of *jñānalakṣaṇa* the Naiyāyikas acknowledged this truism. It is now claimed that if there were no such firing between different modal concepts some higher cognitive capacities would not flourish.

We can say that as a consequence of forming the multi-modal concepts human beings learnt to relate the properties of the information coming from different senses. As a result they learnt to use language and metaphor.



‘Kiki’/‘Bouba’ – effect

Ramachandran and Hubbard (2001) suggest that the evolution of language has something to do with this 'diffused' cross-modal activation. The corresponding experiment is called 'kiki/bouba' effect. In the experiment of Köhler (1929) two figures were presented – one is like a star, having sharp angles, and the other is like an amoeba, having rounded convolutions. Now two names are selected for them – 'kiki' and 'bouba' and the people are asked to say which one is which. 95% of them replied that the sharp one is 'kiki' and the rounded one is 'bouba'. Ramachandran and Hubbard say that the naming of objects is not completely arbitrary. The rounded shape may intuitively be named *bouba* because the mouth makes a more rounded shape to produce that sound, while a tauter, angular mouth shape is needed to articulate *kiki*. The sound of K is also harder and more forceful than that of B. It shows that they have found the connection between the sharp changes in visual direction of the lines in the star with the sharp phonemic inflection of the tongue on the palate. The gentle curves and undulations of contour on the amoeba-like figure metaphorically mimic the gentle undulations of the sound 'bouba'. Likewise the sharp inflections of the sound 'kiki' mimic the sudden changes in the jagged visual shape. So, there is a deep connection between auditory and visual stimuli. Yeterian and Pandya (1985) have proved that the angular gyrus of the brain receives signals from the spatial sense modalities (vision, touch and hearing) and integrates these signals to create an abstract description of the world. A person with damage to this brain area has no 'kiki-bouba' effect. The visual shape is conveyed by the light reflected from the paper and making a spatial pattern of photons dancing on the retina. The auditory sound is conveyed by a time-varying pattern of hair cell movements in the ear. These two have nothing in common except the single abstract property of 'jaggedness', which is extracted somewhere in the parietal lobe – probably in the angular gyrus. This synaesthetic abstraction is the first step towards the evolution of language and its metaphorical usages. Hence, all of us, who have acquisition of language, are in a sense synaesthetic. Ability to use metaphors also is a result of this cross-modal activation. Just as synaesthesia involves making arbitrary links between seemingly unrelated perceptual entities like colours and numbers, metaphor involves making links between seemingly unrelated conceptual realms. Perhaps the reported higher incident of synaesthesia in artists is rooted deep in the architecture of their brains.<sup>254</sup>

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<sup>254</sup> This observation shows the glimpses of the neural explanation or cross-modal abstraction and the course of evolution of cross-modal abstract thinking in our hominid ancestors. Angular gyrus is disproportionately larger than apes and monkeys.

Individuals on the island of Tenerife showed a similar preference between shapes called *takete* and *maluma*. Even 2.5 year-old children (too young to read) show this effect. This way sounds are mapped onto objects. So, this cross-modal wiring is the origin of proto language. This is consistent with onomatopoeic theory of language-origin. This phenomenon receives some support from researches from mirror neurons (Rizzolatti et al., 2001; Fadiga et al., 2000; di Pellegrino, et al., 1992) where the presence of sensory-motor synaesthesia (synkinaesia) is assured. Mirror neurons are in ventral premotor area in the monkey's brain (and in the human brain also). Most neurons in this area fire when some complex activities are performed by the monkeys. But a subset of them, mirror neurons, fire even when the monkey observes someone else to perform the same action. We can say that this sensory-motor synaesthesia is present in us all. Dancing exemplifies another kind of sensory-motor (cross-modal) wiring, present in all, where rhythm of movements mimics auditory movements. Ramachandran (2001, 2005) conjectures that the representation of certain lip and tongue movements in motor brain maps may be mapped with sound inflection which in turn is linked to the visual appearance of the external object. This bootstrapping may have been the cause of the origin of proto-language. It is a combination of synaesthesia between object appearance and sound contour and synkinaesia between sound contour and vocalizations. So, this effect might be the neurological basis for sound symbolism, in which sounds are non-arbitrarily mapped to objects and actions in the world. Perhaps the association continues at the conceptual levels also in fully grown language leading to its creative structures or formulations.

It is also noticed that patients with damage to angular gyrus have 'anomia' or difficulty in naming things due to the lack of the ability of multisensory convergence, because we identify most of the things conglomerating information from different sensory modalities. Most often, these anomia patients have difficulty with metaphors. They take metaphorical uses literally.

Cross-modal abstraction became more and more important in mammalian evolution. Visual processing begins at V1 and goes on elaborating at V2, V3 etc. secondary areas at occipital lobe those are anterior to V1. The processing of auditory information begins at superior temporal lobe. The processing of somatosensory information begins at post central gyrus at the parietal lobe. Both audition and somatosensation have secondary areas for elaboration posterior to the primary areas. While visual processing becomes elaborated moving anteriorly, audio and somatosensory processings become elaborated moving posteriorly. In this way all the elaborated streams of information come together at TPO junction (Brodmann's area 39

and 40) which includes angular and supramarginal gyri. Wilkins and Wakefield (1995) show that TPO junction and overall parietal cortex is differentially enlarged in humans relative to nonhuman primates. This course of evolution was originally set for cross-modal mapping. But then became an exaptation for other types of abstraction such as metaphorical uses and evolved language. Human parietal cortex was increased in size (Van Essen et al., 2001) making human able for cross-modal abstraction such as to select one among two irregular shapes felt with hands as one that is seen.

This is ‘what I touch I see’ type recognitional cognition. So we see that in neuroscience synaesthesia, recognition and illusion are explained by the same mechanism. Interesting to see that Nyāya also explains ‘*surabhi candanam*’, recognition and illusion by the same mechanism of *jñānalakṣaṇa*.

Ramachandran and Hubbard (2001) say that kiki-bouba effect is a proof in support of a preexisting, universal cross-modal synaesthesia that involves the abstraction of, say, the property of ‘jaggedness’ or ‘undulation’ in the angular gyrus. So there is preexisting non-arbitrary synaesthetic correspondence between word-sound and object appearance. That is why we find similarity in meaning in similarity pronounced words such as /gl-/ words – ‘glow’, ‘glitter’, ‘gleam’, ‘glaze’; or /sl-/ words – ‘slide’, ‘slink’, ‘slip’, ‘sled’ etc; or /tw-/ words – ‘twist’, ‘twirl’, ‘twiddle’, ‘twine’ etc. This is called ‘sound symbolism’ or ‘onomatopoetic emergence of words’. Contrary to Ferdinand de Saussure’s (1910-1993) theory of ‘arbitrariness of sign’, Ramachandran and Hubbard suggest that there was a built-in bias to associate certain sounds with certain visual shapes. And this bias is the cause of shared vocabulary. This built-in bias is due to three types of cross-modal correspondences:

- A non-arbitrary synaesthetic correspondence between visual object shape and sound contours represented in the auditory cortex through the activation of angular gyrus.
- Visual and auditory representations produce coactivation of corresponding Broca’s motor mouth maps mediated by arcuate fasciculus. If we ask people whether the object ‘mal’ is bigger or ‘mil’ both meaning table, most of the people will say that ‘mal’ is bigger. It shows a correspondence between the size of oval cavity during articulation and the size of the object (Sapir, 1929).

- Visuo-motor correspondence involving mirror-neurons is found while mimicking. Human babies often are seen to mimic bodily, mouth or orofacial movement only by observing their parents doing similar movements.

Ramachandran and Hubbard suggest that language evolved through the synergistic bootstrapping of these effects. This theory is different from onomatopoeic theory of language which suggests arbitrary association, whereas synaesthetic bootstrapping theory of proto language suggests higher-level cross-modal abstraction. Ramachandran claims that the phenomenon of synaesthesia may hint at some basic feature of brain that may be considered as one of the foundations of neuroepistemology.

### 6.6. Conclusion: Further Questions

From the aforesaid observations, we can say that the basic claim of *jñānalakṣaṇa* is not an absurd one. It is possible that one sense-modality can stimulate another sense modality either through purely sensory association or through the content of memory. We have seen that in the cases of higher synaesthesia there occurs abstract concept → percept bondage. More diffusely there may be a percept → memory image bondage where memory images are energized through a hyper-connective cross activation to such a degree that reaches the vividness of percept. It happens in the cases of illusion and dream.

In the light of this consideration we can reply to the objection of the redundancy of *pratyakṣa-pakṣa-anumāna*. The perceptual cognition of *pakṣadarmatā* and the memory of *vyāpti* may be sufficient for *anumāna* but it is not sufficient for *jñānalakṣaṇa*. Some other conditions also are necessary for energizing the memory-content so forcefully that the intensity of nerve-firing may cross the threshold of the grade of vividness required for being considered to be a percept. When the intensity crosses the threshold, through activation of a vast portion of such brain areas that is normally activated during perception, it acquires the phenomenal quality of percept. In the case of inference, those conditions remain absent. And when they are accumulated, *jñānalakṣaṇa pratyakṣa* occurs.

Here a question may arise that how does a content become percept (or memory) - whether by its origin or by its phenomenal quality? The reply might be as follows. The Naiyāyikas have given causal account of perception, and they have always told that the category of a cognition is revealed in a subsequent mental-perception. But the causal mechanism of previous

cognition is not exposed in that after-perception. Hence we can say that the category of a cognition is fixed causally but is known phenomenally. Now, in order to maintain a parallel between these two realms the Naiyāyikas introduced a memory-intervened non-physical connection - *jñānalakṣaṇa sannikarṣa*. It provides a causal ground for some cognitive cases those are phenomenally perceptual but lack the physical causal link. From the perspective of neuroscience it can be said that the missing link is certain condition at which sufficiently intense nerve-firing occurs resulting the phenomenal quality of perception for a memory-content. There is a perception-memory-imagination continuum in terms of the vividness of content having certain thresholds indicating the categories of cognition. This way the causal account will maintain a correspondence with the phenomenological account.

Neuroscience says that there are several causal levels for a visual perception. The information received by the eyes proceeds to the occipital lobe through several stages and even at the cerebral cortex of occipital lobe there are several layers of neurons those process the information and produce perception. The phenomenology of perception is produced due to the parallel processing at this occipital lobe. Now, if some sensation from another sense-organ come across this causal process in the middle of the chain and stimulates the latter part of the chain without there being any retinal stimulation, then synaesthesia occurs. In such case although the eye-ball (*akṣigolaka*) is inactive at the distal level, but the visual sensory nerves are active at the proximal causal level. We must remember that the Naiyāyikas do not say that the *akṣigolaka* is the visual sense-organ, rather they say that the visual sense-organ or any other sense-organs) is a subtle substance which resides in the *akṣigolaka*. We can conjecture that in the language of modern neurophysiology it is 'visual nerve-system'. Such a visual sense-organ may be stimulated either by a real object existing in front of the eye, or by a memory cognition, the object of which also is an elsewhere/elsewhen real object. In this way we can say in the extraordinary case also there occurs a sense-object contact since 'sense' is not the *akṣigolaka* but the internal visual nervous system.

So, the epistemic kind of the produced cognition is determined; and it is a perception. Now, since the phenomenology of perception depends on the acuteness of the energization of the visual nerve at the proximal level – and not on the distal causal level – in either case (ordinary and extraordinary) it is realized as perception; and this phenomenology of perception is rightly (normally) captured in introspection (*anuvyavasāya*). In this way the causal and phenomenal accounts go hand in hand.

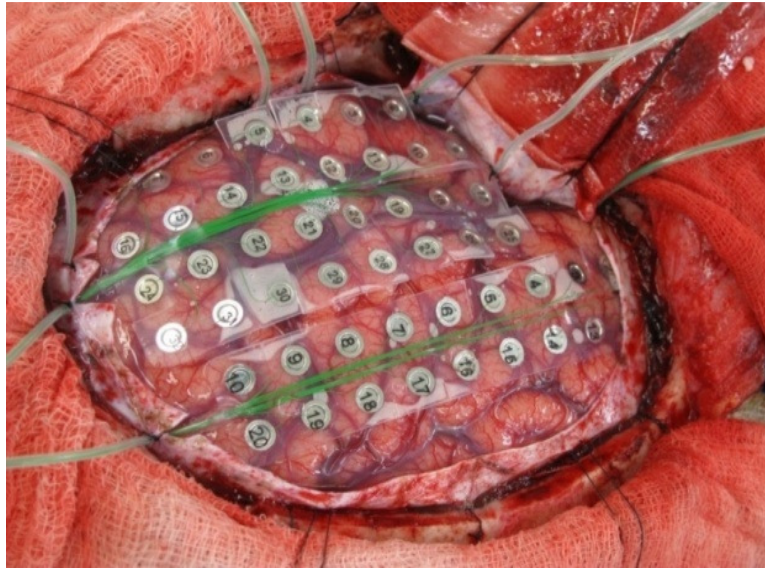


This was the explanation of illusion and hallucination. But what about the other instances of *jñānalakṣaṇa* like ‘fragrant sandal’? Why do we say that we *see* fragrance and not *smell*? The reason is in such cases the predominant sensory faculty is the visual one that is stimulated by the distal visual stimulus. Although the olfactory memory is energized with sufficient vividness but in the presence of operating visual sense-organ the whole cognition becomes visual perception – neither memory, nor olfactory perception.

It might be objected that synaesthesia is a rare condition whereas anyone can have that memory induced non-physical perception – *jñānalakṣaṇa*. In reply, it might be said that besides Local Cross-activation hypothesis, there is Long-Range Disinhibition Feedback hypothesis according to which synaesthesia occurs due to disinhibited feedback from a multi-sensory nexus of neurons such as temporo-parietal-occipital junction. We can remember the account of the patient who had retinis pigmentosa. It indicates a top-down impact which inhibits multi-sensory connections. When the hand remains within the visual field, tactile-vision feedback is inhibited. But when it is beyond the field, the feedback is disinhibited. This case of acquired synaesthesia suggests that multi-sensory nexus is present in all our brains. In normal condition, certain neuro-chemicals inhibit the feedback so that particular kind of stimuli can give rise to particular kind of sensation. But when disinhibition occurs, people experience synaesthesia. It is proved by another fact that non-synaesthetes also may experience synaesthesia under the influence of psychedelics. Another important discovery in this respect is that all the children are synaesthetes and we are potentially synaesthetes. Cytowic (2002, p.2) believes that synaesthesia is a “normal brain process that is prematurely displayed to consciousness in a minority of individuals”. According to Shanon (2002, p.338) synaesthesia is a mode of operation that is “very basic to human cognition, but under normal conditions is not very apparent”.

Auditory replay of well-known music or tune going around in head is a well-recognized phenomenon that all persons equally experience as an annoying repetition that cannot be suppressed. It is a vivid experience of sensory quality that is not physically present; and it is something more than memory. Normally we do not experience such replay in the cases of visual. Penfield and Rasmussen found that electrical stimulation in the temporal lobes of epileptic patients undergoing brain surgery evoked long sequences of visual, auditory or generic intersensory memories of specific past events long forgotten. It proves that memories

can be stored physiologically in the neuronal nexus in time sequential fashion, those are accessible through or stored in temporal lobe, and the vivid experience of them cross the threshold of memory and perception. Many epileptics have sensory experiences during seizure. It proves that brain is autonomous in producing sensation, which is a common trait of all human beings.



In the picture electric panels are placed on a living brain of a patient during his open brain surgery. The electric impulses sent to the brain regions produce corresponding sensations or evoke even long forgotten audio or visual memory.

Secondly, we need not take synaesthesia and *jñānalakṣaṇa* synonymously. Synaesthesia occurs under an acute physiological condition which alone is sufficient for giving rise to cross-modal sensation. There might be other conditions for giving rise to similar effects. Physiological conditions like defective pruning may lead to cross-modal sensation but in memory driven perception some psychological conditions like acute anxiety, strong passion, survival urge, intense expectation, fear and some environmental conditions like similarity with the object presented, inadequate light, etc., are necessary for generating cross-modal as well as memory-driven perception. These conditions also help in cross-activation of memory images. Since, these conditions mostly play at conceptual level; they generate cross-modal perception directly, rather through a cross-modal sensation. Now these conditions are more general and might occur for anyone. Synaesthesia is one kind of *jñānalakṣaṇa* which is empirically testable. It ensures the genuineness of such experience and renders a clue for finding the relevant mechanism of the other cases also. However, even the thought (memory) of a word or

letter (inducer) elicits the colour (concurrent) and in such cases the synaesthetes experience pure colour because the visual properties of the inducers do not interfere in the experience of the concurrent. So there is an acute memory-sensation link present in synaesthetic experiences.

Or, we may conjecture that *jñānalakṣaṇa* is one kind of synaesthesia. Taken in an extended sense, synaesthesia may be divided into two forms – higher or conceptual and lower or sensory. *Jñānalakṣaṇa* is placed in between these two extremes as a kind of higher synaesthesia. Although the lower synaesthesia is empirically testable due to its acute and exceptional physiological conditions, but it is not easy to empirically test higher synaesthesia due to its involvement of abstract concept or due to its universality, or ‘diffuseness’. However, the top-down effect in the field is empirically tested and the hypothesis of higher synaesthesia explains several cognitive phenomena like use of metaphor, origin of proto language, creativity etc. So, the hypothesis of higher synaesthesia has sufficient explanatory power. In this way we can have empirical support in favour of the Nyāya theory of *jñānalakṣaṇa pratyakṣa*.

Lastly, it might be said that it is always difficult to find a thorough correlation between two systems those are entirely different in their fundamental structures, motives and methodologies. But at least the experiments can substantiate the truth of certain phenomenon which otherwise could be considered to be counter-intuitive and absurd. However, the proposed mechanism of *jñānalakṣaṇa pratyakṣa* should be discussed further in the light of the following questions:

1. Whether we always require a conscious memory-cognition in order to link the sense-organ with its content (or, to transform its content into a percept), or only the evocation of memory-trace (*samskāra*) is sufficient?
2. Some synaesthetes experience Martian colours (which they have never seen before) while looking at a particular grapheme. It evokes a question, is *jñānalakṣaṇa* always memory-induced?, Or it can be sense-induced also?
3. ‘*surabhi candanam*’ is considered to be a true cognition. But is the shade of previously experienced fragrance identical with that of the present sandal?

4. When cross-modal firings happen, which mode plays the principal function? In other words, when fragrance is perceived non-physically, which sense-organ is considered to be the *karana* – olfactory or visual?
5. Is there any corresponding physiological change with the psychological factors? In other words, whether the causal process is entirely physical or not?
6. Is there any measurable way by which the proposed thresholds can be determined?
7. What is the physiological status of memory?
8. Is there any possibility of blend cognition?

It is expected that future researches will help in understanding the process and consequently we shall be able to understand the mechanism of perception in general.

## CHAPTER – 7

### Cognitive Models of Different Cases of *Jñānalakṣaṇa Pratyakṣa*

In the previous chapter we have seen that stimulation in one sensory modality may trigger another sensory modality. In acute cases this phenomenon is termed ‘synaesthesia’. So we can say that the phenomenon of synaesthesia lends support to the Nyāya hypotheses of *jñānalakṣaṇa pratyakṣa* where perception in one sensory modality revives the memory of such an object which is graspable by another sense-organ and make the memorized object a percept.

The theory of *jñānalakṣaṇa pratyakṣa* is not an *ad hoc* hypothesis for the explanation of illusory situation. The hypothesis has explanatory richness. There are other cognitive situations also those are explained by this hypothesis. We shall discuss those other forms of *jñānalakṣaṇa sannikarṣa* through moment examination (*kṣaṇavicāra*) and those moment examinations will represent the respective cognitive models adopted in those cases.

The Nyāya account of cognition or illusion is out and out causal account. Therefore the best way to explore the Nyāya mechanism of illusion is to discover the causal steps serially or momentwise. Hence within the framework of Nyāya tradition moment examination is the best way for cognitive modeling. In fact moment examination itself is our desired causal cognitive modeling – and what other thing could it be? Moment examination reveals two things:

1. It explores the causal steps for the production of illusion.
2. It proves that such model is plausible. That means if we do not fail to construct a moment examination maintaining the basic Nyāya presuppositions (such as cognition exists only for two moments) then it is certified that the moment examination itself is a plausible cognitive model of the Nyāya theory of illusion.

It is interesting to see that the moment examinations of different cases of *jñānalakṣaṇa pratyākṣa* represent different causal models. They are not the same. Let us explore them one by one.

### 7.1. The Cases of *jñānalakṣaṇa pratyakṣa*

According to the Naiyāyikas there are five cases of cognition where objects are perceived through the extraordinary cognition-induced sensory connection or *jñānalakṣaṇa pratyāsatti*.

They are as follows:

1. The perception in the form '*surabhi candanam*' or 'fragrant sandalwood'.
2. *Bhrama* or illusion of say snake in a rope or silver in a shell.
3. *Pratyabhijñā* or recognition of a person, say Devadatta, as the person who was perceived in the past.
4. The perception of the negatum of an absence while perceiving the absence of the negatum.
5. Perception of the object of a determinate cognition in the mental perception of that determinate cognition.

However, '*surabhi candanam*' is generally taken as the instance of a memory-induced extraordinary perception where the perception of sandalwood revives the memory of its fragrance by association. But the question is what happens during the first acquaintance of fragrant sandalwood? The later acquaintance of fragrant sandalwood requires a precognition of the association itself. If that precognition also is memory-induced then it depends on a still another precognition. This will go on until we admit that at the bottommost level the association of sandal and fragrance is known not through memory but through perception. We can say that the first acquaintance of fragrant sandalwood is not a memory-induced perception but a perception-induced perception. So, we observe that the memory-induced perception presupposes the existence of perception-induced perception.

Synaesthesia is a western alternative supportive account of *jñānalakṣaṇa pratyakṣa*. Likewise, in Indian tradition also we find alternative accounts of *jñānalakṣaṇa*. We have seen how the Vedāntins explain such cognitive situations remaining within their own system of presuppositions. Even in Nyāya tradition Jayanta Bhaṭṭa offeres an alternative account.

Jayanta Bhaṭṭa says that '*surabhi candanam*' is a clear case of mental perception where at the first moment we get the fragrance, at the second moment we have the vision of sandal and at the third moment we have the mental perception of fragrant sandalwood. Mind or *manas* can grasp both of those elements, i.e. fragrance and sandalwood, and therefore the problem of 'the operation of two different sense-organs for perceiving two different kinds of elements at the

same time' does not arise here. We can accept this explanation. But it is too oversimplified to expose the internal delicate psychological steps during such a cognition that the Neo Logicians associate with the term '*jñānalakṣaṇa pratyakṣa*'.

The Naiyāyikas may hold that this first acquaintance of fragrant sandalwood also is a cognition-induced extraordinary perception. But it is not a memory-induced extraordinary perception but perception-induced extraordinary perception, where the element of fragrance does not come through memory but through perception. Some other Naiyāyikas may contend that even the first acquaintance of fragrant sandalwood is a memory-induced perception. We shall discuss later acquaintance and first acquaintance of fragrant sandalwood through moment examination and also see how even the first acquaintance of fragrant sandalwood can be a memory-induced extraordinary perception. We shall see that in such cases we at first perceive fragrance on the spot but that perception produces the memory trace of fragrance instantly which is revived at the next moment and the memory of such perceived fragrance works as *jñānalakṣaṇa sannikarṣa*.

Śrīdharācārya in Nyāyakandalī has propounded such a thesis that in the case of the first acquaintance of fragrant sandalwood first we take the fragrance by olfactory sense-organ then taking this olfactory perception of fragrance as the associate cause our visual sense-organ produces a visual perception of fragrant sandalwood. Although Śrīdhara nowhere mentions the name *jñānalakṣaṇa sannikarṣa* in his account (the theory of *jñānalakṣaṇa sannikarṣa* is an invention of the later Naiyāyikas) but his thesis suggests that the olfactory perception may be considered as a relevant extraordinary sensory connection. However, this thesis has been propounded only by the Vaiśeṣikas.

So, actually the first case of *jñānalakṣaṇa sannikarṣa* incorporates two different cases: the first acquaintance of fragrant sandalwood from a smellable distance and the later acquaintance of fragrant sandalwood from a non-smellable distance. The first acquaintance can have three alternative explanations. One says that it also is memory-induced and the other says that it is perception-induced and the last one says that it is plain and simple mental perception. The four partisans of the first case are as follows:

1. The later acquaintance of fragrant sandalwood from a non-smellable distance as memory-induced extraordinary perception.

2. The first acquaintance of fragrant sandalwood from a smellable distance as a perception-induced extraordinary perception.
3. The first acquaintance of fragrant sandalwood from a smellable distance as a memory-induced extraordinary perception.
4. The first (or later) acquaintance of fragrant sandalwood from a smellable (or non-smellable) distance as a mental perception.

Let us discuss these cases of *jñānalakṣaṇa pratyakṣa* accordingly (except the case of illusion which will be discussed in the conclusion).

## **7.2. Moment Examinations of Different Cases of *jñānalakṣaṇa pratyakṣa***

### **7.2.1. Moment Examination of Case 1**

The first case is later acquaintance of ‘fragrant sandalwood’ from a non-smellable distance as memory-induced extraordinary perception.

M1<sup>255</sup>: Suppose a piece of sandalwood is placed in such a distance from us that it is visible but the fragrance of it is not graspable by the olfactory sense-organ through ordinary sensory connection. At the first moment our visual sense-organ is connected with a piece of sandalwood in relation of contact (*saṁyoga sannikarṣa*) and with sandalhood (*candanatva*) in relation of inherence-in-the conjoined (*saṁyukta samavāya sannikarṣa*). Now ubiquitous Self is in contact with *manas* and *manas* is in contact with the operating sense-organ. These connections will persist through all the moments till the end of the process, because ordinary sensory connection is not a di-moment-persisting (*dvi-kṣaṇasthāyī*) object like cognition.

M2: Indeterminate perception of sandal and sandalhood is produced in the Self in relation of inherence.

M3: The memory-traces of the corresponding denoting words (*vācaka śabda*) for sandal and sandalhood are revived by the indeterminate perception of sandal and sandalhood. Here we have to see whether more than one memory-trace can be revived at the same moment. *Prima facie* there should not be any problem because more than one *cognition*

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<sup>255</sup> The letter ‘M’ signifies ‘Moment’ and the number associated with it signifies chronological order, such as M1 signifies the first moment.



are not allowed to be produced simultaneously whereas memory-trace is not a *cognition*. Hence more than one memory-trace may be energized at the same time. Atomicity of *manas* does not seem to be a threat here, because contact with atomic *manas* is neither a sufficient nor a necessary condition for the evocation of memory-trace (although sometimes it may assist us in memorizing). A memory-trace may be revived automatically even if we do not consciously wish and sometimes in spite of our mental effort we cannot memorize.

M4: The determinate perception of sandal as being qualified by sandalhood and also qualified by the denoting word is produced. One may say that the evocation of memory-trace will necessarily produce memory cognitions of the denoting words at this moment – and not the determinate perception of sandal. They will say that since denoting words are elements and not facts or states-of-affair so they appear in our memory without the reference of time. Hence such memories are *pramuṣṭatattāka smṛti*. But the Buddhists will object that since there are several denoting words ('*candana*', '*candanatva*', '*ayam*' etc.), several memories will be produced in our Self one by one – because no two cognitions are allowed to be produced in the same moment. This objection is a problem for the Naiyāyikas, because if one more moment passes between indeterminate and determinate perception in memorizing the denoting words, then the determinate perception will not be called as the product of indeterminate perception or the product of sense-object connection – it will be cut apart (*vyavahita*) from indeterminate perception or from sense-object connection by memory. And therefore the determinate perception will not be worthy of the name 'perception' at all. Thus the Buddhists will say that all determinate perceptions are imaginations – delimited by memory (*vikalpa* or *kalpanā*). In reply the Naiyāyikas may say that the operation of sense-organ is not terminated until the production of determinate perception. Hence there is no problem in calling determinate perception as 'perception'.<sup>256</sup>

Although previous effect (*samskāra*) works during the production of determinate perception supplying the attribute from the conceptual repertoire of the perceiver through the top-down processing but the instrumentality of sense-organ (*indriyakaraṇatva*) does not end. Sense-organ continues to work as main instrument till

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<sup>256</sup> *nāpyanindriyārthasannikarṣajanyatvaṃsaṅketagrahaṇakālānubhūta śabdasmaraṇāpekṣanādyasya vaktavyam. sahakāryapekṣāyāmapi tadvyāpāravirateh. – Nyāyamañjarī, Jayanta Bhaṭṭa, NMS I., p.88.*

then. That is why that determinate cognition is considered to be perceptual – not memory. But why is not it considered to be memory-induced perception or *jñānalakṣaṇa pratyakṣa*? One reply is that there is no top down processing during the said cognition. Ananda Jayprakash Vaidya says that the attribute is supplied by sense-perception through bottom-up processing (through *sainyukta samavāya sannikarṣa*). Memory does not work there. Hence it is totally perceptual. But how does the name (which is extraneous to the object perceived) is attached to the object of determinate perception is not explained by this explanation.

But the problem remains, because after two moments the indeterminate perception will cease to exist. If memory takes more than two moments in between indeterminate and determinate perception, the determinate perception will not be a product of indeterminate perception. Now, the Naiyāyikas may say that while having a determinate perception in the form, ‘this is sandal’ we never have a full-fledged memory regarding the denoting words in the form, ‘*ayam vastu ayamśabdabodhya*’ or ‘this thing is denoted by this word’. So, the evocation of the memory-traces (*samskāraodbodha*) of the denoting words is sufficient for the purpose of the production of determinate perception. The occurrence of full-fledged memory cognition is not needed. After the evocation of memory-trace we directly have the determinate perceptual cognition which is determined by denoting word (*vācakaviśeṣita vācyārthajñāna*). Otherwise every determinate perception would become *jñānalakṣaṇa pratyakṣa* which is produced by the assistance of *pramuṣṭatattāka smṛti*. Here we may assume that at a given time a collection of several memory-traces (*ayam, candanakhaṇḍa* etc.) may be energized, so that at the next moment we can have the determinate perception in the form ‘*ayam candanakhaṇḍa*’.

At this moment the indeterminate perception is destroyed. So, one may raise an objection as to how can a non-existing indeterminate perception produce a determinate perception in the place. But the Naiyāyikas answer that indeterminate perception produces determinate perception through the revival of memory-trace which works as *vyapāra* or *dvāra*. Once the causal process is started it is bound to continue. At the second moment of indeterminate perception, when it was causally efficacious it worked as the cause of the determinate perception. So, although at the third moment the

indeterminate perception is destroyed, the determinate perception is bound to be produced.

M5: This is the persisting moment of the determinate perception. The determinate perception of sandal revives or energizes the memory-trace of fragrance as being qualified by fragrancehood along with the corresponding denoting terms.

For this step we need a precognition of fragrant sandalwood as a result of which the memory-trace (*samskāra*) of fragrance-related-sandal is produced in the Self and retains there as a quality of Self in relation of inherence. When the determinate perception of one relata (*ekasambandhijñāna*) is produced, the other relata (*aparasambandhī*) is revived.

Since the sensory connections persist through all the moments, an indeterminate perception of sandal and sandalhood again is produced in the Self in relation of inherence at this moment. The previous indeterminate perception was required for the determinate perception of sandal which was needed to energize the memory-trace of fragrance. And this indeterminate perception will energize the denoting terms '*candana*' etc. so that we can have the ultimate determinate extraordinary perception, '*surabhi candanam*'. The previous energization of the denoting term '*candana*' is not supposed to persist till the end of the process, because it is sublated by intermediate other cognitions like the memory of fragrance.

M6: The indeterminate perception of sandal and sandalwood energizes the memory-traces of the corresponding denoting terms '*candana*' and '*candanatva*'.

This is the moment when the determinate perception is destroyed. Through the energization of the memory-trace of fragrance, the memory of the fragrance of sandal (as being qualified by fragrancehood) is produced. The determinate perception produces this memory through the mediacy of memory-trace reviving. Although at the moment of the production of the memory the determinate perception is destroyed, but following the aforesaid logic of the continuous chain of causation we can say that this poses no problem for the Naiyāyikas.

The memory of fragrance, working as memory-induced (rather, cognition-induced) extraordinary sensory connection (*jñānalakṣaṇa pratyāsatti*), connects its content fragrance (as being qualified by fragrancehood and the corresponding denoting terms) to the operating sense-organ, i.e. to the visual sense-organ. Now, the contact between Self and *manas* (*ātmamanaḥsainyoga*) or between *manas* and visual organ (*manaḥ-indriya sainyoga*) also persist throughout the moments. Self is ubiquitous. Hence it always is connected with atomic *manas*. And *manas* is connected with the visual sense-organ from the first moment. So, we can see that all the necessary conditions for producing the perception of fragrant sandalwood have been accumulated at this moment.

M7: At this moment the visual memory-induced extraordinary determinate perception (*cākṣuṣa jñānalakṣaṇa alaukika savikalpaka pratyakṣa*) of fragrant sandalwood is produced in the form ‘*surabhi candanam*’, in which the sandalwood is perceived through ordinary sensory connection and the fragrance is perceived through extraordinary sensory connection.

Here the question would arise as to how is their relation perceived? The Naiyāyikas may say that the relation of *samavāya* holding between sandal and fragrance is perceived through both of the ordinary and extraordinary sensory connection by the visual sense-organ.

Previously we had posed a problem regarding the perception of relation in illusion. So let us discuss a bit further how according to the Nyāya-Vaiśeṣika inherence or *samavāya* is known in a determinate cognition (*viśiṣṭapratyaya*).

Generally, indeterminate perception is the cause of determinate perception. But the perception of the relation of inherence (*samavāya*) and the perception of absence (*abhāva*) are always determinate. Indeterminate perception of *samavāya* and *abhāva* are not possible. Without the reference of relata no relation is intelligible. In the same way, without the reference of negatum (*pratiyogī*), absence is unintelligible. Hence, in the perception of inherence, the relata must be the object of perception as the characterization of inherence. Pitcher resides in the parts of pitcher (*ghaṭa-avayava*) in relation of inherence. The inherence, which we perceive in the parts of a pitcher is characterized by pitcher (*ghaṭaviśiṣṭa samavāya*). We cannot perceive non-characterized pure inherence. In the same way, the negatum of an absence must be the

object of the absence-perception as the characterization in the part of absence. In the case of the perception of the absence of pitcher, the negatum, i.e. the pitcher, becomes the object of perception as a characterization of the absence. Hence, the perception of inherence and absence are always determinate. And this determinate perception is non-dependent on any indeterminate perception of *samavāya* or *abhāva*. Udayanācārya also accepts such view. In *Nyāyakusumāñjaliḥ* (4/4) he says, “*tayorviśeṣaṇāmśasya prāggrahanāt anumānādivat tadupapatteḥ*”. It means that an inference, like ‘hill is fiery’, does not require an indeterminate cognition of fire, which is the *viśeṣaṇa* of hill, because there remains the cognition of fire as *parāmarśajñāna* before inference. In the same way, the *viśeṣaṇa* of inherence, i.e., its relata, and the *viśeṣaṇa* of absence, i.e., its negatum, are previously known. However, this contention is intelligible in the case of the perception of absence because the negatum of the absence comes from memory, which is a determinate cognition. But does the ‘previous knowledge’ (*prāggrahaṇa*) of the relata of an inherence determinate? When we perceive a pitcher as being qualified by pitcherhood at the first indeterminate level we have the perception of pitcher and pitcherhood as unrelated objects. It seems that this indeterminate perception of these two relata is prerequisite for the perception of the relation. Hence, although indeterminate perception of inherence is impossible but the determinate perception of inherence requires indeterminate perception of its relata as a prerequisite.

One may say that Udayana meant determinate perception by the term ‘*grahaṇa*’. So, after we have the determinate perception of pitcher as being qualified by pitcherhood when we try to reflect on the question that what kind of relation does exist between pitcher and pitcherhood, we immediately perceive that it is inherence. However, the opponent may say that is it possible to know an object pitcher as being related to pitcherhood without even knowing the relation between them? Is not the knowledge of the relation prerequisite for the knowledge of the qualificandum as related with the qualifier in that relation? In reply, the Naiyāyikas would say that that there is a relation between pitcher and pitcherhood is realized during the determinate perception of ‘pitcher as being qualified by pitcherhood’. But that the relation is inherence is perceived afterwards.

The Naiyāyikas admit that inherence and absence are perceivable through the sensory connection ‘characterisation and characterised’ or *viśeṣaṇaviśeṣyabhāva sannikarṣa*. In *Nyāyakusumāñjaliḥ*, Udayana says “*samavāye cābhāve ca viśeṣaṇaviśeṣyābhāvāt*”. In *Bhāṣāpariccheda*, Viśvanātha says, “*pratyakṣam samavāyasya viśeṣaṇatayā bhavet*” and

“*viśeṣaṇatayā tadvat abhāvanam graho bhavet*”. Inherence and absence reside in the sense-connected object in relation of *viśeṣaṇatā* or ‘characterizedness’. It is termed as *svarūpa sambandha* or self-relation. Ontologically, self-relation is not any separate entity like *samavāya*. It is *svātmaka*. Pitcherhood resides in pitcher in relation of inherence. And inherence resides in both of its relata, i.e. pitcherhood and pitcher, in self-relation or in the relation of characterizedness. Now sense-organ, such as the eye, is connected to pitcher (or pitcherhood) in relation of conjunction or *samyoga* (or inherence-in-the-conjoined or *samyukta samavāya*), in which the inherence resides in the relation of characterizedness or *viśeṣaṇatā*. So, inherence is connected to the sense-organ such as eye in the relation of ‘characterizedness-in-the-conjoined’ or *samyukta viśeṣaṇatā* (in relation of pitcher) or it is connected in the relation of ‘characterizedness-in-the-inhered-in-the-conjoined’ or *samyukta samaveta viśeṣaṇatā* (in respect of pitcherhood). Now, the relation of *viśeṣaṇatā* has no separate existence over and above its relata. It is of the nature of inherence or of the nature of pitcher/pitcherhood. That is why it is termed as *svātmaka*. If *viśeṣaṇatā* were a separate relation then it would have to be related to its relata through still another relation. In this way, there would emerge a predicament of infinite regress. To avoid it we have to admit that the relation of *viśeṣaṇatā* is of the nature of its relata (*svātmaka*). Similarly, it is held that absence resides in its locus in *viśeṣaṇatā sambandha* or *svarūpa sambandha*. The absence of pitcher resides in eye-connected (eye-conjoined) ground in relation of *viśeṣaṇatā*. Hence the sense-organ, eye, is connected to the absence of pitcher in ground through the sensory connection *samyukta viśeṣaṇatā*. This *viśeṣaṇatā sambandha* is not a separate relation. It is of the nature of its relata. Some says that it is of the nature of the qualifier (*viśeṣaṇa*) and the qualificandum (*viśeṣya*) of the perception of absence (*abhāvapratyakṣa*). In the case of the perception of the absence of pitcher in ground (*ghaṭābhāvavat bhūtaḥ*), the *viśeṣaṇatā* is of the nature of the qualifier, i.e. the absence of pitcher or *ghaṭābhāva* (*viśeṣaṇasvarūpa* or *abhāvasvarūpa*), and also of the nature of the qualificandum, i.e. ground or *bhūtaḥ* (*viśeṣyasvarūpa* or *bhūtalasvarūpa*). That is why Uddyotkara has told “*viśeṣaṇaviśeṣyabhāvāt*”. Śaṅkara Miśra in the *Upaskāra* of *Vaiśeṣika Darśana* (9/1/1) has supported this old theory. According to the Bhāṭṭas absence resides in its locus in relation of characterization (*vaiśiṣṭya*), which is a separate category. The Neo-logician Raghunātha Śiromaṇi supported such view in *Padārthatattvanirūpaṇa* saying “*vaiśiṣṭamapi padārthāntaram*”. But Gaṅgeśa Upādhyaya has refuted such view before Raghunātha has propounded it. And in some later time, Viśvanātha has refuted such view in *Siddhāntamuktāvalī*. He says that such a relation named *vaiśiṣṭya*

cannot be an eternal relation. And if it is a non-eternal one then we have to admit innumerable such *padārtha* since it has production and destruction. In this way the theory will suffer the fallacy of overloadedness (*mahāguravadoṣa*).

The Naiyāyikas admit that inherence is perceptible. But the Vaiśeṣikas hold that it is not perceptible – but inferable. So, there is no scope for determinate perception or indeterminate perception of inherence. Kumāriḷa Bhaṭṭa denies the existence of the relation of inherence altogether.

Generally both qualificand (*viśeṣya*) and qualifier (*viśeṣaṇa* or *prakāra*) become the objects of one single cognition. When we perceive pitcher as being qualified by pitcherness, both of pitcher and pitcherness become the object of a single determinate cognition ‘*ghaṭatvaviśiṣṭa ghaṭaḥ*’. In such cases the qualificand (*viśeṣya*), qualifier (*prakāra*) and the relation (*samsarga*) of the produced cognition are perceived through the same sense organ. Here qualificand is pitcher, qualifier is pitcherness and relation is inherence or *samavāya*. Pitcher is perceived through the sensory connection contact (*sanyoga*) and pitcherness is seen through the sensory connection ‘inherence in the conjoined’ (*sanyukta samavāya*) by the same visual sense-organ.

The Naiyāyikas hold that the existence (*astitva*) of inherence is proved perceptually. It is perceptible by all the sense-organs. Colour, taste, smell, touch and sound are perceived by visual, gustatory, olfactory, tactual and auditory sense-organs respectively. Pain, pleasure, cognition etc. qualities of Self are perceived through *manas*. Those qualities remain in their locus in relation of inherence. Now, since visual, tactual and mental organ can grasp the respective qualities and also their locus the relation between those qualities and respective locus also is grasped by those sense-organs. But olfactory, gustatory and auditory organs cannot grasp the locus of their respective graspable qualities. Hence the relation of inherence does not become graspable by those organs. However, those organs can grasp the universals (*jāti*) residing in respective graspable qualities. Hence the inherence between universals and qualities is graspable by those organs. Thus the Naiyāyikas say that inherence (*samavāya*) is graspable by all sense-organs (*sarvendriyagrāhya*).

So, we can say that pitcher, pitcherness and inherence – this trio is graspable by one single sense-organ, the visual organ. Therefore, they become the objects of a single cognition. The

problem arises in the case of the cognition like ‘the sandalwood is fragrant’ (*surabhi candanam*). In such cognition sandalwood is cognised as being qualified by fragrance. So, sandalwood is the qualificand, fragrance is the qualifier and inherence is the relation. But here the qualificand (*viśeṣya*) and the qualifier (*viśeṣaṇa* or *prakāra*) are not graspable by the same sense-organ. Sandalwood is grasped by the visual sense-organ whereas fragrance is grasped by the olfactory sense-organ. And it is unclear by which sense-organ the relation (*samsarga*), i.e., inherence, is grasped. In order to grasp a relation it is necessary to grasp both the relata. Now, visual organ can grasp the substance (*dravya*) sandalwood, but it cannot grasp fragrance. Olfactory organ can grasp fragrance but it is incapable to grasp sandalwood. Therefore, the relation is grasped neither by visual nor by olfactory sense-organ.

According to the Vaiśeṣikas, inherence or *samavāya* is known through inference – not by perception. They hold that *samavāya* is one. So in order to perceive *samavāya* all the relata – correlates (*anuyogī*) and counter-correlates (*pratiyogī*) – of the relation are required to be perceived. Now, among those correlates and counter-correlates, some are intangible objects. Hence, *samavāya* cannot be perceived. The Vaiśeṣikas prove the existence (*astitva*) of inherence and its being a relation (*sambandharūpatva*) through an inference. The inference can be expressed in the following way: The determinate cognition such as ‘blue pitcher’ has as its content the relation between the qualificandum and the qualification; since it has the property of being a determinate cognition, such as the cognition in the form ‘there is a man with a stick’.<sup>257</sup> Just as the cognition ‘*dandī*’ reveals the relation of contact (*samyoga sambandha*) between the man and the stick, the cognition ‘blue pitcher’ reveals (or makes its own content) the relation between the colour blue and the object pitcher. Now, colour is a quality and pitcher is a substance. So the relation between them cannot be contact or *samyoga*. It is the relation of inherence or *samavāya*. The Naiyāyikas, by the same inference, proves only its being a relation (*sambandharūpatva*). The existence of *samavāya* is proved perceptually. But then they have to say by which sensory connection *samavāya* is perceivable. If they cannot tell, it is better to accept Vaiśeṣika theory.

Let us look into the problem analytically. The problem has three different levels for three different cases of cognition. They are as follows:

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<sup>257</sup> *nīlo ghaṭa iti viśiṣṭapratīṭh viśeṣaṇaviśeṣyasambandhaviśayā viśiṣṭapratyayāt dandīti pratyayavat.*



1. Ordinary visual perception in the form ‘blue pitcher’.
2. The first acquaintance of fragrant sandalwood in the form ‘sandalwood is fragrant’ where sandalwood is perceived by visual sense-organ through the sensory connection of contact and fragrance is perceived by olfactory sense-organ through the sensory connection of ‘inherence in the conjoined’ (*saiṅyukta samavāya*).
3. Extraordinary memory-induced perception (*jñānalakṣaṇa alaukika pratyakṣa*) in the form ‘sandalwood is fragrant’.

All these cases are the cases of determinate or qualified cognition (*viśiṣṭapratyaya*) where the qualificand (*viśeṣya*), the qualifier (*viśeṣaṇa* or *prakāra*) and their relation (*saiṅsarga*) have become the content of the cognition. In the case of the first cognition pitcher is the qualificand, blue colour is the qualifier and inherence is the relation. For the second and third cases sandalwood is the qualificand, fragrance is the qualifier and inherence is the relation. Pitcher and its blue colour are visually perceived through the sensory connections contact (*saiṅyoga*) and ‘inherence in the conjoined’ (*saiṅyukta samavāya*) respectively. Since both of the relata are perceived by the visual sense-organ, the relation of inherence also must be perceived visually. But the problem is that the Naiyāyikas have to specify the relevant sensory connection through which inherence or *samavāya* is perceived.

The Naiyāyikas may say that *samavāya*, like *abhāva* resides in its locus or correlate (*anuyogī*) in the self-relation (*svarūpa sambandha*). Ground, having the absence of pitcher (*ghaṭābhāvavat bhūtaḥ*) is perceived through the sensory connection ‘being characteriser in the conjoined’ (*saiṅyukta viśeṣaṇatā sannikarṣa*). Here, the absence has become the character (*viśeṣaṇa*) of such an object (ground) to which the visual sense-organ has been conjoined (*saiṅyukta*). In the same way, since *samavāya* has become a character of the eye-conjoined substance, *samavāya* is perceived through the sensory connection *saiṅyukta viśeṣaṇatā sannikarṣa*. From the opposite direction when we try to explicate the connection from the side of quality (*rūpa*) such as blue colour of the pitcher, we find that *samavāya* is perceived through the sensory connection *saiṅyukta samaveta viśeṣyatā sannikarṣa*. Blue colour, which is perceived through *saiṅyukta samavāya sannikarṣa*, is the characterizer (*viśeṣaṇa*) of the relation inherence (*rūpasamavāya*). Here *rūpa* characterises *samavāya*. Therefore, *samavāya* is the *viśeṣya* of *rūpa*. Now, *rūpa* is perceived through *saiṅyukta samavāya sannikarṣa*. Hence, *samavāya* is perceived through *saiṅyukta samaveta viśeṣyatā sannikarṣa*. More

generally, we can term these types of connections as ‘characteriser-characterised connection’ (*viśeṣaṇaviśeṣyabhāva sannikarṣa*). Hence the problem at the first level is resolved.

Let us now come to the second type of cognition – the first acquaintance of a piece of fragrant sandalwood. This is a problematic instance because the Naiyāyikas have to explicate how information from two different sense-organs are fused together to form a single qualified cognition. And if they admit such fusion then they will receive pressure from the Bhāṭṭas for accepting the fusion of perception and memory in the case of illusion. The Naiyāyikas are not ready to admit fusion in the case of illusion because they say that *pratyakṣatva* and *smṛtitva* are *jāti* which do not have any instance of cross-product. It will result in *sāṅkaryā jātibādhaka*. But if *pratyakṣatva* and *smṛtitva* are considered as *jāti*, then why not *cākṣuṣatva* and *ghrāṇajatva*? If so, then the ordinary acquaintance of fragrant sandalwood can never be a fusion of visual and olfactory perception. In reply, the Naiyāyikas may say that *cākṣuṣatva* etc., like *pramāṭva* and *apramāṭva*, are not *jāti*. And there is no rule that in the production of a single cognition the operating sense-organ will be single. Such instances are available in the cases of *samūhālambanajñāna* (cognition of conjugated object) and *pratisandhānajñāna* (Kantian apperception). We may have a single cognition resorting to two different objects. The form of such cognition is ‘pitcher and cloth’. Such cognitions may happily occur when we look at the cloth while touching the pitcher. In the case of *pratisandhānajñāna* we have the cognition of the form ‘I touch what I see’. In the same way while the cognition ‘fragrant sandalwood’, visually perceived sandalwood is revealed as the qualificandum (*viśeṣya*) of the produced cognition and the fragrance which is availed through the olfactory sense-organ is revealed as the qualifier (*prakāra*) of the cognition. The produced cognition is one single perceptual cognition whose qualificand and qualification are availed through different sense-organs.

But here one question would arise. ‘*Surabhi candanam*’ is a determinate cognition. So the relation (*samsarga*) between the qualificandum and the qualifier has become the content of the cognition. In this case the relation is inherence. Now the question is by which sense-organ inherence has been perceived? Is it by visual or by olfactory sense-organ? The Naiyāyikas may solve the problem in the following way. The relation of inherence is perceived through both of the operating sense-organs. By visual sense-organ it is seen through *sāmyukta viśeṣaṇatā sannikarṣa*. Because eye is conjoined with sandalwood in which *samavāya* resides in the self-relation (*svarūpa sambandha*). On the other hand, by the olfactory sense-organ it is

smelled through *saiṅyukta samaveta viśeṣyata sannikarṣa*. Because olfactory organ is connected to the fragrance through *saiṅyukta samavāya sannikarṣa* and fragrance (*gandha*) is the characterization (*viśeṣaṇa*) of the relation (*gandhasamavāya*). Inherence or *samavāya* is the *viśeṣya* of fragrance which is connected to the olfactory organ through *saiṅyukta samavāya sannikarṣa*. So, the sensory connection between the olfactory organ and inherence is *saiṅyukta samaveta viśeṣyata*.

Here the opponent may raise an objection that conceptually sensory connection is established before the object is realised in cognition as *viśeṣya* or *viśeṣaṇa*. Then how can the sensory connection become *viśeṣaṇa-viśeṣyabhāva sannikarṣa*? In reply the Naiyāyikas say that here *viśeṣaṇatā* or *viśeṣyatā* does not mean contentness or *viśayatā*. Only self-relation or *svarūpa sambandha* is meant by those two terms. Those two words indicate that the object (such as *samavāya* or *abhāva*) which is perceived through those connections is related to the sense-connected-objects (such as the correlates of *samavāya* and the locus of *abhāva*) in self-relation (*svarūpa sambandha*).

The opponent may raise here a pertinent question. They say that in the case of the cognition ‘*surabhi candanam*’, let us admit that *samavāya* is *seen* through *saiṅyukta viśeṣaṇatā sannikarṣa* and *smelt* through *saiṅyukta samaveta viśeṣyatā sannikarṣa*. But how can we know that the *seen samavāya* and the *smelt samavāya* are one and the same unique *samavāya* which objectively binds sandalwood and fragrance? However, the Naiyāyikas have a ready answer – ‘Self is the ultimate binder’. Just as in the case of *pratisandhānjāna*, where it announces the identity between seen and touched object in the form ‘I touch what I see’, here also the Self realizes that there is only one *samavāya*, relating the *seen* sandalwood and *smelt* fragrance.

We shall see afterwards whether the first acquaintance of fragrant sandalwood also is an instance of *jñānalakṣaṇa pratyakṣa*. If it is so then it will fall under the third type of cognition and be explained accordingly.

Let us now consider the third type of cognition. Here sandalwood is perceived by visual sense-organ normally – through *saiṅyoga sannikarṣa*. And fragrance is perceived by visual sense-organ extraordinarily – through *jñānalakṣaṇa sannikarṣa*. The question is, how and by which sensory connection *samavāya* is perceived? The Naiyāyikas may answer that it is perceived

both ordinarily as well as extraordinarily. Ordinarily it is perceived through *saṁyukta viśeṣaṇatā sannikarṣa*, because sandalwood is perceived through *saṁyoga sannikarṣa* and *samavāya* is the *viśeṣaṇa* of that sandalwood. Extraordinarily it is perceived through *jñānalakṣaṇa sannikarṣa*. The cognition of one relata (*ekasambandhijñāna*), i.e., visual perception of sandalwood, is the reminder (*smāraka*) of the other relata (*aparasambandhī*) i.e., fragrance. Hence, the relation, in which the relata are related, is also captured in the remembrance. Memory like any determinate cognition has structured content in the form ‘qualificand-relation-qualifier’. So it is *viśeṣya-saṁsarga-viśeṣaṇa viśayaka*. The normal perception of the *viśeṣya* reminds the other two parts of the chain. Hence, the *samavāya* relation, as the content of memory is connected to the visual sense-organ extraordinarily. Hence, *samavāya* is perceived also through *jñānalakṣaṇa alaukika sannikarṣa*.

So, in this way the Naiyāyikas explain the perceptibility of *samavāya*.

Now there is a rejoinder to the aforesaid moment examination. Some may hold that indeterminate perception of sandal, which is produced at M2, is able to revive the memory-trace of fragrance, without taking the help of any determinate perception of sandal produced at M4. There is Nyāya rule that the content of indeterminate perception can not be encoded in memory-trace and that is why it can not be remembered afterwards or the indeterminate perception itself cannot be introspected afterwards. But perhaps an indeterminate perception can decode a related element from the repertoire of memory-trace. Hence M3 and M4 are unnecessary.

One may object against this suggestion that elements are unrelated in indeterminate perception. Then how can it perceive a relation between two relata? Without the perception of the relation between sandal and fragrance the memory-trace of fragrance cannot be revived on seeing sandal. But in reply it may be said that the cognition of one relata (*ekasambandhijñāna*) – and not the cognition of the relation between the two relata (*sambandhijñāna*) – is the memorizer of the other relata (*aparasambandhī*). Hence, in such case, the indeterminate perception of sandal will energize the memory-trace of fragrance along with the term ‘*surabhi*’ and the term ‘*candana*’ at M3. The memory of fragrance along with the term ‘*surabhi*’ will be produced at M4. The visual memory-induced extraordinary determinate perception (*cākṣuṣa jñānalakṣaṇa alaukika savikalpaka pratyakṣa*) of fragrant sandalwood will be produced in the form ‘*surabhi candanam*’ at M5. Nevertheless, the Naiyāyikas do not

hold that indeterminate perception can be memory-trace energizer. Moreover, it is unanimously accepted that if we did not perceive the object in front *as* sandalwood, we would not memorize its fragrance at the next step. So the energizer cognition is a determinate perception – not an indeterminate perception, where nothing is perceived *as being qualified by* some property. So the aforesaid suggestion is rejected.

However, the Navya Naiyāyikas may hold that we should not add an extra moment which is unnecessary. They suggest that we should not allot one extra moment for the energization of memory-trace of either a relevant term or an object. Since determinate perception is always word-interpenetrated (*śabdānuviddha*) or associated with name, class etc. (*nāmajātyādiyojanāśahita*), we have to admit the energization of the memory-traces of the relevant terms (*nāma*). But that energization does not need an extra moment. Indeterminate perception and sense-object contact produce the word-interpenetrated determinate perception through the mediacy (*vyāpāratva*) of the energization of the memory-traces of the terms without taking an extra moment. Following the suggestion of the Grammarian Nāgeśa Bhaṭṭa we can say that these two events – trace energization and determinate perception occur in a single moment being merged with each other forming a unified event (*ekalalībhūta*). Similarly, when the determinate perception of a thing revives the memory of another thing then we should not take an extra moment for energization of the memory trace of the memorized object. In that case the cognition of one relata (*ekasambandhijñāna*) becomes the memorizer (*smāraka*) of the other relata (*aparasambandhī*) through the mediacy of the memory-trace energization. According to the Navya Naiyāyikas there is no separate metaphysical status of energized memory-trace (*udbuddha saṁskāra*) over and above the memory-cognition itself. When memory-trace is energized, it becomes *smṛti*. One may object that the memory-trace of fragrance and the memory of fragrance are two different qualities of the Self. One is *bhāvanākhyā saṁskāra* and the other is *smṛtijñāna*. Metaphysically they are distinct. Hence *udbuddha saṁskāra* may be a cause of *smṛtijñāna* and hence they are not metaphysically identical.

Moreover, there are two alternative theories regarding the destroyer of memory-trace. Some Naiyāyikas say that memory-trace is destroyed by the produced memory itself and the other group says that memory-trace is not destroyed by its product cognition and is reenergized afterwards to make another memory of the same object. The former group says that if we do not say that the merit or demerit (*adr̥ṣṭa*) is destroyed by its result happiness or unhappiness,

then the objection of eternal enjoyment of heaven will arise. So *adr̥ṣṭa* is *phalanāśya*. Now, if memory-trace is destroyed by the memory-cognition then how an object can be remembered again and again? The answer is the memory-cognition destroys its producer trace and creates a similar memory-trace in the Self which produces the second memory-cognition of the same object. In this theory a memory also can create a memory-trace, along with *anubhava*. According to this theory we might say that *saṁskāra* is metaphysically transformed into memory-cognition destroying itself. But this theory is rejected by the other Naiyāyikas because the theory is an overloaded one since it imagines infinite memory-traces for similar memory cognitions (*kalpanāgaurava*). Another fault is that suppose a single memory-trace is produced by a group-cognition (*samūhāmbana jñāna*) in the form 'pot and cloth'. Now, if we have a subsequent memory of only pot then the single trace of pot and cloth will be destroyed and a memory-trace of only pot will be re-created by the memory cognition. Hence subsequent memory of cloth will be impossible. But that is not the fact. We may remember cloth afterwards. So although this theory is true in the case of *adr̥ṣṭa*, it is not true in the case of memory-trace. Another fault in this theory is that it cannot explain how repeated memorization makes the trace firmer or stronger. Hence this theory is not acceptable. The other group is right in saying that memory-trace remains intact even when its result memory-cognition is produced. Now, if that is true then in no way memory-trace can be identical with memory-cognition. They are metaphysically distinct.

However, even if they are metaphysically distinct we may validly conjecture that energization of memory-trace does not take an extra moment because we consider the determinate perception of sandal (and not the energized memory-trace) to be the cause of the memory of fragrance. The perception of sandal produces the memory of fragrance at the next moment as *ekasambandhijñāna*, through the mediacy of the energization of the memory-trace (*saṁskārodbodhana*). Hence, the concise<sup>258</sup> moment examination will be as the following:

M1: Suppose a piece of sandalwood is placed in such a distance from us that it is visible but the fragrance of it is not graspable by the olfactory sense-organ through ordinary sensory connection. So our visual sense-organ is connected with a piece of sandalwood and with its sandalhood (*candanatva*).

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<sup>258</sup> In the later moment examinations we shall follow only this concise form.

M2: Indeterminate perception of sandal and sandalhood is produced in the Self in relation of inherence.

M3: The determinate perception of sandal as being qualified by sandalhood and also qualified by the denoting words (*vācaka śabda*) is produced by the sense-object contact (and the indeterminate perception) through the mediacy of the energization of the memory-traces of the denoting words such as ‘*candana*’, ‘*candanatva*’, ‘*ayam*’ etc. After the evocation of memory-trace we directly have the determinate perceptual cognition which is determined by denoting word (*vācakaviśeṣita vācyārthajñāna*). At the next moment we can have the determinate perception in the form ‘*ayam candanakhaṇḍa*’.

This is the persisting moment of indeterminate perception. So the objection that how can a non-existing indeterminate perception produce a determinate perception in the place does not arise.

M4: This is the persisting moment of the determinate perception. The determinate perception of sandal produces the memory of fragrance through the mediacy of the energization of the memory-trace of fragrance as being qualified by fragrancehood along with the corresponding denoting terms. This memory of fragrance is the memory-induced (rather, cognition-induced) extraordinary sensory connection (*jñānalakṣaṇa pratyāsatti*) which connects its content fragrance (as being qualified by fragrancehood and the corresponding denoting terms) to the operating sense-organ, i.e. to the visual sense-organ.

The sensory connection between the visual sense-organ and the piece of sandalwood persists at this moment. Now, the contact between Self and *manas* (*ātmamanahsamyoga*) or between *manas* and visual organ (*manah-indriya samyoga*) also persist throughout the moments. Self is ubiquitous. Hence it always is connected with atomic *manas*. And *manas* is connected with the visual sense-organ from the first moment. So, we can see that all the necessary conditions for producing the perception of fragrant sandalwood have been accumulated at this moment.

M5: At this moment the visual memory-induced extraordinary determinate perception (*cākṣuṣa jñānalakṣaṇa alaukika savikalpaka pratyakṣa*) of fragrant sandalwood is produced in the form ‘*surabhi candanam*’, in which the sandalwood is perceived through ordinary sensory connection and the fragrance is perceived through extraordinary sensory connection.

Here one may say that we may not admit the occurrence of indeterminate perception as the cause of determinate perception everywhere. In the case of later acquaintance of fragrant sandalwood we already have the precognition of sandal and fragrance. Those concepts are already existent in our cognitive repertoire. During determinate perception the cognition of qualification is borrowed from our memory. No separate indeterminate perception is required for the introduction of the qualifier. It is required only in the case of first acquaintance of an object. So, in this concise moment examination we can happily discard the second step or M2.

But if so, then there may be an objection that without any kind of rudimentary sensory impact how can we remember a corresponding denoting term for the next level determinate word-interpenetrated perceptual cognition? If there is no indeterminate level, then we have to admit that bare sense-object contact itself energizes the corresponding denoting term for the object in front. Or one may answer that determinate perception is word-interpenetrated in the sense that it is *fit* for being described in language (*abhilāpayogya*). It has that disposition on account of the relatedness of qualificandum and qualifier. But that does not mean that it will always be tagged with words. Words are not constitutive elements of determinate perception. If these interpretations are accepted then we have no problem in discarding this step of indeterminate perception.

So, as an alternative account we may conjecture that the sense-object contact directly produces determinate perception without the help of any indeterminate perception. However, the cognition of the qualification (*viśeṣaṇajñāna*), required for the cognition of the qualified (*viśiṣṭajñāna*), comes from memory. In order to know a flower as red we have to know what red is and this concept of red is previously acquired which remains in our memory. As soon as sense is connected with object that memory is charged up, and through the mediation of this memory cognition sense-object contact produces determinate perception. Normally this memory itself also is a *viśiṣṭajñāna* which itself depends on another *viśiṣṭajñāna* for its qualification. And this series ends up to an indeterminate perception. However, this account



suggests that there should be an extra step of memory cognition in between sense-object contact and determinate perception. Or one may say that we need not full-fledged memory cognition in between. Sense-object contact can produce determinate perception through the energization of the memory-trace of the qualification. So it does not require an extra moment.

But this account implies that perception is a product of top-down processing. So this account opens up a possibility of the Buddhist objection that every determinate perception is mixed with our imagination. The obvious Nyāya answer will be that during determinate perception the qualification such as red colour is connected to the visual sense-organ through *sāmyukta samavāya sannikarṣa*. Hence the knowledge of qualification comes through bottom-up processing – not through a top-down processing. Hence determinate perception is not mixed up with our imagination. This small tinch of realism saves us from constructivism but compels us to hold that sense-object contact produces the perception of qualification first and with the help of that cognition it produces the perception of the qualified. Now, the question is, is that perception of qualification determinate or indeterminate? The answer seems to be that sometimes it is determinate and sometimes indeterminate. We might have the perception of red colour as being qualified by redness. Redness is connected with sense-organ in *sāmyukta samaveta samavāya sannikarṣa* (hence, it is not a part of top-down processing). In some other occasions the perception of qualification might be indeterminate perception of red colour produced by *sāmyukta samavāya sannikarṣam* between visual sense-organ and red colour.

So, for the sake of realism and bottom-up processing we have to concede that the precognition of qualification is not a memory but an indeterminate perception which energizes the memory-trace of corresponding denoting term and produce word-interpenetrated determinate perception. However, if we admit that names are not constitutive elements of determinate perception then we need not incorporate the memory part in the process of the production of determinate perception at all.

Another thing is to be clarified here. In the aforesaid case, we were considering the situation when sandal is visually perceived from distance and fragrance is subsequently memorized and extraordinarily perceived. But in real situation we may smell the fragrance of a thing first, without perceiving the object, and subsequently remember the object (sandal), which has that smell. In such cases also we have the cognition in the form, '*surabhi candanam*'. Now the question is will this cognition also be an extraordinary memory-induced perception? The

answer is, generally the qualification comes through extraordinary sensory connection – not the qualificandum. We can say that such cognitions are inferential. But whether a cognition is perceptual or inferential, is certified by the afterperception (*anuvyavasāya*) of the cognition. If someone introspect such cognition as perceptual, it may be so. Whether the memory-trace of sandal is energized to the degree of the vividness of a percept completely depends on the perceiver’s cognitive condition. And logically there should not be any problem. In the case of determinate perception the qualification is always cognized before the qualificandum, since the cognition of qualification is a precondition of the cognition of qualified. However, one may object that just like *sāmānyalakṣaṇa pratyakṣa*, where at least one locus of the *sāmānya* must be ordinarily connected to the operating sense-organ, in the case of *jñānalakṣaṇa pratyakṣa* also the locus of the qualifier should be cognized ordinarily. If that rule is there then we must say that such converted cognition always is inferential. But then we shall not be able to explain the phenomenon of hallucination or dream (*niradhiṣṭhāna bhrama*) with the help of *jñānalakṣaṇa sannikarṣa* because in such cases there remains no locus to which our sense-organ may be ordinarily connected. In such cases due to some completely internal factors the memory-traces are revived to the degree of vividness of a percept. And in this way the content of memory becomes the content of perception without taking the help of ordinary external sensory connection. However, some Naiyāyikas have considered dream and hallucination as *pramuṣṭatattāka smṛti* – not perception.

### 7.2.2. Moment Examination of Case 2

The second case is the first acquaintance of ‘fragrant sandalwood’ from a smellable distance as perception-induced extraordinary perception.

‘*Surabhi candanam*’ is generally taken as the instance of a memory-induced extraordinary perception where the perception of sandalwood revives the memory of its fragrance by association. But the question is what happens during the first acquaintance of fragrant sandalwood? The later acquaintance of fragrant sandalwood requires a precognition of the association itself. This will go on until we admit a perception-induced perception. So, we observe that the memory-induced perception presupposes the existence of perception-induced perception, where the element of fragrance does not come through memory but through perception.

In Śrīdhara’s Nyāyakandalī we find such an account that suggests this theory.

However, let us see how this moment examination can be done.

Suppose there is a piece of sandalwood in front of us at such a distance that we can smell its fragrance. Now, two sense-organs cannot produce a single perceptual cognition according to the Naiyāyikas. So the moment examination will be as follows.

M1: Visual sense-organ is connected with sandal and sandalhood. At the same time the olfactory sense-organ is connected to fragrance and fragrancehood. These sensory connections persist till the end of the process. In the cognition 'fragrant sandalhood' fragrance is the qualifier. So we have to admit the cognition of fragrance precedes the cognition of sandal as because the cognition of qualifier is the precondition of the cognition of the qualified. Hence, we suppose that atomic *manas* at this first moment is connected with olfactory sense-organ in relation of contact. Ubiquitous Self is always in contact with *manas*. So, all the causal conditions for fragrance-perception are accumulated at this moment.

M2: Indeterminate perception of fragrance and fragrancehood is produced in the Self in relation of inherence. Since this is the first acquaintance of fragrant sandalwood, we have to admit an indeterminate level.

M3: At this moment, a determinate perception of fragrance as being qualified by fragrancehood and the corresponding denoting terms is produced (*saurabhatvāvacchinna saurabhajñāna* which is also the cognition of *vācakaśabdāvacchinna vācyārtha*) by the sense-object contact through the mediacy (*vyāpāratva*) of the energization of the memory-traces of the denoting words for fragrance and fragrancehood. Of course the perceiver is required to have the cognition of the signification of the terms previously. He must have known what is meant by the term 'fragrance' or '*saurabha*' in general.

At this moment atomic *manas* is dissociated (*vibhāga*) from the olfactory sense-organ.

Now we have to justify why dissociation occurs at this moment. It could be at M2; and the association of *manas* with visual sense-organ could occur at M3 (i.e. one moment

later). One problem with this suggestion is that one may say that if *manas* is dissociated from olfactory organ then the determinate perception of fragrance cannot be produced. The requirement for the production of the determinate perception of fragrance at M3 is that *manas* remains connected with olfactory sense-organ at M2 since *manah-indriya saṁyoga* is one of the necessary conditions for determinate perception. Hence the dissociation must occur at M3.

M4: Producing the determinate perception through energizing the memory-traces (as *vyāpāra* or *saṁskāradvāra*) the indeterminate perception is destroyed at this moment. At this moment *manas* is connected (*saṁyoga*) with the visual sense-organ. So, from this moment the operating sense-organ is the visual one – not the olfactory one. This is the persisting moment of the determinate olfactory perception of fragrance. Now, this Self-inhering olfactory perception, working as cognition-induced extraordinary sensory connection, connects its content with the operating sense-organ, that is, the visual sense-organ.

M5: M4 is the persisting moment of determinate perception of fragrance (*gandhagrahaṇa*) when it connects its content to the visual sense-organ. Since such determinate perception of fragrance (as being qualified by sandalwood and corresponding denoting terms) connects its content to the visual sense-organ at M4 working as *jñānalakṣaṇa pratyāsatti*, there should be a visual extraordinary perception of fragrance at M5. However, the content of this extraordinary perception is not a non-qualified one.

M6: The ordinary sensory connections between the eyes and sandal (also with sandalhood) persist throughout the moments. At M4 *manas* is associated with visual sense-organ. Hence, at this moment the indeterminate (non-qualified) perception of sandal and sandalhood is produced.

This is the persisting moment of the visual extraordinary perception of fragrance. So, we can see that at this moment two different perceptions coinhere in the Self in parallel. One is the indeterminate perception of sandal and sandalhood and the other is the extraordinary visual perception of fragrance.

However, at this level the qualified (fragrance) and non-qualified contents (sandal) are not perceived as related to each other. Hence the cognition is overall indeterminate.

M7: Through the mediacy (*vyāpāratva*) of the evocation of the memory-traces (*samskāra udbodha*) of the denoting terms the visual sense-organ produces a visual perception-induced extraordinary determinate perception (*cākṣuṣa jñānalakṣaṇa alaukika savikalpaka pratyakṣa*) of fragrant sandalwood in the form ‘*surabhi candanam*’.

One may object that the perception of fragrance, which was produced at M3, is destroyed at M5. So it does not exist at the previous moment of the production of the ultimate memory-induced extraordinary perception ‘*surabhi candanam*’ – that is at M6. In reply it is said that actually the extraordinary visual perception of fragrance occurs at M5. We took one moment more (M6) for the indeterminate perception of sandal and sandalhood which could not be produced at M5 along with the extraordinary perception of fragrance in parallel due to the atomicity of the *manas*. The content fragrance survives as the content of the visual extraordinary perception of fragrance at M6 and transferred to the ultimate determinate extraordinary perception of fragrant sandalwood as its content.

In this case, the cognition of the qualifier, i.e. the cognition (olfactory perception) of fragrance, has been considered to precede the cognition (visual perception) of the qualificandum, i.e. the cognition of sandal. It is because logically, the cognition of qualification is a precondition for a qualified or determinate cognition. But it may sometimes happen that our *manas* is associated with the visual sense-organ first. When the degree or force of visual stimuli is more than that of olfactory stimuli, it draws our attention and automatically *manas* is attached to the visual sense-organ. But we conjecture that even if a visual perception is produced before an olfactory perception that will not start the process of extraordinary perception. The previous visual perception of qualificandum will remain as a separate ordinary perception of sandal.

However, this moment examination also may not be satisfactory. The conception that the extraordinary perception of fragrance occurs two moments earlier than the ultimate cognition in the form ‘*surabhi candanam*’ may not be palatable.

For this reason one may say that the cognition of fragrance, which works as *jñānalakṣaṇa sannikarṣa* and connects fragrance with the visual sense-organ extraordinarily, cannot be a *perceptual* one. Rather it is a *memory* of fragrance. The *saṁskāra* of fragrance is produced on the spot. So the problem of endless dependence does not arise.

Let us see how it can happen.

### 7.2.3. Moment Examination of Case 3

So, the third case is the first acquaintance of ‘fragrant sandalwood’ from a smellable distance as memory-induced extraordinary perception.

Again suppose that there is a piece of sandalwood in front of us at such a distance that we can smell its fragrance. Now, two sense-organs cannot produce a single perceptual cognition according to the Naiyāyikas. So the moment examination will be as follows.

M1: Visual sense-organ is connected with sandal and sandalhood. At the same time the olfactory sense-organ is connected to fragrance and fragrancehood. We suppose that atomic *manas* at this first moment is connected with olfactory sense-organ in relation of contact.

M2: Indeterminate perception of fragrance and fragrancehood is produced in the Self in relation of inherence.

M3: At this moment, a determinate perception of fragrance as being qualified by fragrancehood and the corresponding denoting terms (*saurabhatvāvacchinna saurabhajñāna*, which is also the cognition of *vācakaśabdāvacchinna vācyārtha*) is produced by the sense-object contact through the mediacy of the energization of the memory-traces of the denoting words for fragrance and fragrancehood.

At this moment atomic *manas* is dissociated (*vibhāga*) from the olfactory sense-organ.

M4: Determinate perception of fragrance (as being qualified by fragrancehood and denoting terms) produces or ingrains the memory-trace of such qualified fragrance along with related denoting words in the Self in relation of inherence. The determinate perception is

produced along with all the causal capacities. So, at this producing moment it can pulverize the corresponding memory-trace in the Self. Pulverization does not take an extra moment.

Here we have to clarify why we have called in determinate perception of fragrance in the picture. It is because indeterminate perception cannot encode its content in memory-trace. Here we are trying to explain the case as a memory-induced extraordinary perception where the memory of fragrance (and not the perception of it) works as *jñānalakṣaṇa sannikarṣa*. Since it is the first acquaintance of fragrant sandalwood, the memory-trace of fragrance is not supposed to preexist. It has to be produced on the spot. And for that determinate perception of fragrance is necessary. Indeterminate perception can never produce memory-trace.

Producing the determinate perception through energizing the memory-traces (as *vyāpāra* or *samskāradvāra*) the indeterminate perception is destroyed.

At this moment *manas* is connected (*samyoga*) with the visual sense-organ. This connection persists till the end of the process.

M5: The determinate perception of fragrance, which is existent at M4, produces the memory of the previously perceived fragrance of sandal (as being qualified by fragrancehood and associated with denoting terms) at M5 through the energization of the memory-trace of fragrance.

M6: The ordinary sensory connections between the eyes and sandal (also with sandalhood) persist throughout the moments. At M4 *manas* is associated with visual sense-organ. Hence, at this moment again an indeterminate (non-qualified) perception of sandal and sandalhood is produced.

This is the persisting moment of *gandhasmṛti*. Such memory of fragrance working as *jñānalakṣaṇa sannikarṣa*, connects its content to the visual sense-organ at this moment.

M7: Due to the ordinary sensory connection with sandal, and the extraordinary memory-induced sensory connection with fragrance, and through the mediacy of the energization of the relevant denoting terms, the visual sense-organ produces a visual memory-induced extraordinary determinate perception (*cākṣuṣa jñānalakṣaṇa alaukika savikalpaka pratyakṣa*) of fragrant sandalwood in the form ‘*surabhi candanam*’.

This way, we can see that even the first acquaintance of fragrant sandalwood may also be a memory-induced extraordinary perception. The problem of infinite regress does not arise here.

#### 7.2.4. *Moment Examination of Case 4*

We have mentioned that Jayanta Bhaṭṭa has explained all the cases of *jñānalakṣaṇa alaukika pratyakṣa* as ordinary mental perception or *mānasa laukika pratyakṣa*. Hence let us take as the fourth case the first (or later) acquaintance of ‘fragrant sandalwood’ from a smellable or non-smellable distance as a mental perception.

Let us now examine the moments of the later acquaintance of fragrant sandalwood.

M1: Visual sense-organ is connected with sandal and sandalhood.

M2: Indeterminate visual perception of sandal and sandalhood is produced.

M3: Determinate visual perception of sandal, as being qualified by sandalhood and denoting terms, is produced.

M4: The determinate perception of sandal produces the memory of its fragrance through energizing the memory-trace of its fragrance.

M5: Mental perception of fragrant sandalwood is produced. *Manas* is able to grasp both fragrance and sandal. The cognitions produced at M3 and M4 work as associate causes for the production of the final mental perception, ‘fragrant sandalwood’.

The moment examination of the first acquaintance of fragrant sandalwood will be as follows:

M1: Olfactory sense-organ is connected with fragrance and fragrancehood; and visual sense-organ is connected with sandal and sandalhood. However, at this moment, *manas* is connected with the visual sense-organ only.

M2: Indeterminate visual perception of sandal and sandalhood is produced.



M3: Determinate visual perception of sandal, as being qualified by sandalhood and denoting terms, is produced. Atomic *manas* is dissociated from the visual sense-organ.

M4: *Manas* is associated with or connected to the olfactory sense-organ. The olfactory sense-organ is already connected with fragrance and fragrancehood.

M5: Indeterminate olfactory perception of fragrance and fragrancehood is produced.

M6: Determinate perception of fragrance as being qualified by fragrancehood and corresponding denoting terms is produced.

M7: Mental perception of fragrant sandalwood is produced as far as *manas* is able to grasp both fragrance and sandal.

In this moment examination there is a problem. The determinate visual perception of sandal, which was produced at M3, is destroyed at M5. Hence, at the previous moment of the mental perception of fragrant sandalwood (at M6) it does not exist as an associate cause. Then can memory help us in this respect? Let us see whether it can be successfully done in a different way.

M1: Olfactory sense-organ is connected with fragrance, and visual sense-organ is connected with sandal, but *manas* is connected with the olfactory sense-organ only.

M2: Indeterminate perception of fragrance is produced.

M3: Determinate perception of fragrance is produced. Atomic *manas* is dissociated from the olfactory sense-organ.

M4: The determinate perception of fragrance produces a memory-trace of it in the Self. *Manas* is associated with or connected to the visual sense-organ.

M5: The determinate perception of fragrance produces the memory of fragrance through energizing the trace.

M6: Indeterminate visual perception of sandal is produced.

M7: Determinate visual perception of sandal is produced.

M8: Mental perception of fragrant sandalwood is produced.

In this moment examination the memory of fragrance is destroyed at M7. Hence, it cannot assist *manas* in producing the mental perception of fragrant sandalwood. So, the moment examination fails. One may say that it is not the cognitions (visual, olfactory or memory) those assist *manas* to produce the mental perception of fragrant sandalwood, but the relevant external sense-organs or the memory-trace. Now, it is true that *manas* cannot grasp the

external objects independently. But if it depends on any *cognition* in order to grasp external object, then that cognition will become equivalent to what the Navya Nyāya calls *jñānalakṣaṇa alaukika sannikarṣa*; and the perception will no longer remain ordinary mental perception. On the contrary, if the external sense-organs are said to help *manas* there will be no question of extraordinary sensory connection. But in that case the occurrences of external perceptions of fragrance (olfactory) and sandal (visual) will be unnecessary and redundant. Perhaps Jayanta would not accept such a situation. He might say that even if those external perceptions (or memory) work as preconditions of the final mental perception but they are not extraordinary sensory connections. But in the moment examination we have seen that it is not possible for both of those preconditions to exist at the previous moment of the mental perception.

At most we can say that the visual perception of sandal, along with the memory-trace of fragrance, works as a precondition for the mental perception; and both of the visual and olfactory external sense-organs work as associate cause of the mental perception. We do not know whether Jayanta would accept this conclusion or not.

However, this is an alternative Nyāya account of ‘*surabhi candanam*’ given by Jayanta Bhaṭṭa where he does not invite any extraordinariness in the situation. Jayanta explains the other situations of *jñānalakṣaṇa pratyakṣa* as ordinary mental perception. Such as in the case of recognition or *pratyabhijñā* he says that although memory works as an associate cause for recognition but *manas* is capable of capturing the object of memory ordinarily. But if the Navya Naiyāyika asks Jayanta that what is the relevant ordinary sensory connection established between *manas* and the object of memory, Jayanta will not be able to answer. It seems to be none of the ordinary physical sensory connection. Perhaps from this necessity the Navya Naiyāyikas invited the concept of *jñānalakṣaṇa alaukika sannikarṣa* in their theory.

#### 7.2.5. Moment Examination of Case 5

The fifth case is the perception of negatum in the perception of absence, such as the perception of pitcher in the perception of the absence of the pitcher in ground.

In the perception of pitcher in ground (*bhūtale ghaṭābhāva*) the negatum pitcher also becomes the object of perception. However we cannot perceive pitcher ordinarily in front of us. If we could perceive pitcher in that way in front of us then how could we perceive its absence? An

object and its negatum (*pratiyogī*) are contradictory or mutually exclusive to each other; collocation of them is not possible. But somehow we know pitcher during the perception of its absence. Without the reference of pitcher the absence would be indefinite. Now, according to the Naiyāyikas, a cognition cannot be partly perceptual and partly any other kind of knowledge. It must be wholly perceptual or wholly inference or wholly any other kind of cognition. Otherwise the universals like perceptuality (*pratyakṣatva*) or inferentiality (*anumititva*) etc. will be unacceptable as universals due to the preventer of unwarranted blend (*sāṅkaryā jātibādhaka*). Hence, we have to admit that pitcher also is perceived in the perception of its absence in ground. Now, the negatum of an absence remains physically absent in the place. Hence there cannot be any ordinary (*laukika*) sensory connection between the negatum and the visual sense-organ. Therefore the connection must be an extraordinary (*alaukika*) one. The Naiyāyikas say that it is *jñānalakṣaṇa sannikarṣa* through which we can perceive the negatum of the absence. The insight is that if pitcher is not remembered then we cannot realize that there is its absence on the ground. Kumārila in *Ślokavārttika* also says that the negatum is remembered for cognizing the absence of the negatum.<sup>259</sup>

Now absence may be perceived in two ways. One is primed perception and the other is non-primed perception. In the case of primed perception we remember pitcher first and direct our visual sense-organ towards the ground. Common sense says that when we search for something if we do not find it in a place then we have a perception of its absence in the place. In such cases we direct our sense-organ keeping the memory of the object in our mind. In this case we perceive the locus with reference to the negatum (*pratiyogī*). Hence we perceive the locus as substratum or *anuyogī*. In the later case of non-primed perception, we perceive the locus first. Then we remember the negatum. We shall analyze the moments of the primed situation and rejoin the non-primed situation afterwards.

Here we must mention that according to Jayanta when we perceive a locus such as ground then we may not see it in reference to a particular negatum. But afterwards when we are asked whether there was any pitcher, we can rightly deny and say that there was no pitcher. In this way we can inform about all the things those were not present in the place. Jayanta says that while perceiving the locus we had a general collective absence-cognition or *mecakabuddhi* for

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<sup>259</sup> *grhītyā vastusadbhāvaṃ smṛtvā ca pratiyoginam/  
mānasam nāstīājñānam jāyate 'kṣā' napekṣanāt//27.5// – Ślokavārttika (Abhāvaparicchedah), Kumārila  
Bhaṭṭa, SVN.R., p.482.*

which we can rightly answer about the absences in the place. Now, if we had that collective absence-cognition then we must have remembered all the negatums while perceiving the locus. But that is impossible. Jayanta would say that we had a general memory of all the negatums but not the memories of each individual or particular negatums. The memorizations happen during the questioning session. When we are primed with questions regarding particular objects then we compare with the image of previously perceived locus with that of the particular objects and answer whether it was present in that place or not. However, let us now analyze the moments of primed situation.

M1: The memory-trace of pitcher (along with its denoting term) is energized. It may be due to many reasons. We may be in need of a pitcher at that moment; another person may remind us of the pitcher or question us about pitcher; perception of something else may energize the memory-trace of pitcher by association.

M2: Memory of pitcher (as being qualified by its name) is produced. In this case the memory may not be *pramuṣṭatattāka*. We may remember a particular past pitcher and subsequently have the perception of the absence of that particular past pitcher; or we may remember pitcher in general (*ghaṭatvāvacchinna ghaṭa*) and subsequently perceive the absence of pitcher in general.

M3: Our visual sense-organ is connected with the locus or *anuyogī* (ground or *bhūtala*) and its attributes in the relation of *saiṇyoga* and *saiṇyukta samavāya sannikarṣa* respectively. These ordinary sensory connections persist until the last moment.

This is the persisting moment of the memory of pitcher.

M4: Indeterminate perception of ground and groundhood etc. attributes is produced. This is the moment when the first memory of pitcher is destroyed. At this moment, again the memory-trace of pitcher (as being qualified by pitcherhood and the denoting word *ghaṭa*) is energized by the memory of pitcher and due to our internal quest for pitcher.

M5: The memory of pitcher, as being qualified by pitcherhood and the corresponding denoting term, is produced. This memory is either a *pramuṣṭatattāka smṛti* or not be so. In the former alternative the perception of the absence of *pitcher in general* will be produced

at the end. In the later alternative the perception of the absence of *a past pitcher* will be produced. However, this memory, working as an extraordinary cognition-induced sensory connection connects its object to the operating visual sense-organ.

We can see that the visual sense-organ is already connected with *bhūtala* and *bhūtalatva* etc. attributes in relation of *saiṅyoga* and *saiṅyukta samavāya* respectively. Now, absence of pitcher is a characterization (*viśeṣaṇa*) of eye-connected ground. As soon as the reference of pitcher comes into existence, the visual sense-organ is connected with the absence of pitcher in the connection of characterization-in-the conjoined (*saiṅyukta viśeṣaṇatā sannikarṣa*). Or we can say that the memory of pitcher, working as *jñānalakṣaṇa pratyāsatti* connects its object pitcher to the visual sense-organ.

Now pitcher is a perceptible object (*yogyā*) and at this moment there is no perception of pitcher (*anupalabdhi*) in our Self. This *yogyānupalabdhi* is an associate cause for the perception of absence. However, there is a question. Is this absence of the perception of fit object pitcher (*yogyānupalabdhi*) the cause of the perception of the absence of pitcher (*ghaṭābhāvapratyakṣa*) as being *known* (*jñāta*), or as being *unknown* (*ajñāta*)? In other words, should we mentally perceive the absence of the perception of pitcher in our Self, in order to perceive the absence of pitcher outside? Or is it the case that the absence of the perception of pitcher itself (*yogyānupalabdhi*) – in its own right (*svarūpasat*) – becomes the cause of the perception of the absence of pitcher (*ghaṭābhāvapratyakṣa*)? If we subscribe to the former alternative then one perception of absence will be the cause of another perception of absence. And in this way an infinite series of the perceptions of absences will set in. Udayana subscribes to the later option. *Yogyānupalabdhi* becomes the cause of *abhāvapratyakṣa* in its own right, i.e. as being unknown. Apprehension (*upalabdhi*) of a fit (*yogyā*) object is a preventor (*pratibandhaka*) of the apprehension of the absence of that fit object. So, *yogyānupalabdhi*, as an absence of that preventor (*pratibandhakābhāva*) becomes the cause of *abhāvapratyakṣa* in its own right. We need not *know yogyānupalabdhi* as residing in the Self.

So, we can see that at this moment all the necessary conditions for producing the perception of absence of pitcher in ground have been accumulated.

M5 is the persisting moment of the indeterminate perception of the ground. The indeterminate perception energizes the memory-trace of the denoting term for the ground ('*bhūṭala*'). Or we can say that through the energization of the memory-trace of the term '*bhūṭala*' the ordinary and extraordinary sensory connections along with the indeterminate perception produce the perception of the absence of pitcher in the ground at the next moment.

M6: The perception of absence of pitcher in ground is produced in our Self in relation of inherence.

In the case of non-primed situation, the sensory connections are established before the memory-trace of pitcher is energized. But without the reference of *pratiyogī* we could not see the ground as *anuyogī*. So, in this alternative scheme M1 and M2 will be obliterated. The process will start right from M3 (this step will be M1). In that case we shall start to see the ground as *anuyogī* after the memory of *pratiyogī* is produced, i.e. from M5 (it will be M3). All the causal conditions for the production of the memory of pitcher are collocated at M3 (M1) so that at M4 (M2) the memory of pitcher may be produced. At M5 (M3) the indeterminate perception of ground will be produced. M5 (M3) is the persisting moment of the memory of pitcher; at this moment this memory connects its content to the visual sense-organ working as *jñānalakṣaṇa pratyāsatti*. The absence of pitcher will be perceived at M6 (M4).

#### 7.2.6. Moment Examination of Case 6

The sixth case is recognition, such as the cognition in the form 'this is that Devadatta'.

Recognition is a perceptual knowledge where we realize that the object or person in front is the same object or person perceived earlier. According to the Naiyāyikas recognition (or any other memory-induced perception) requires revival of memory-trace which was created previously by a previous perception. Suppose in some previous occasion I had perceived Devadatta in Vārānasī. As a result, a memory-trace of Devadatta-as-being-qualified-by-certain-perceptible-features was created in my Self. Presently perceiving Devadatta in Kolkata I realize that this is that Devadatta (*sa ayam Devadatta*). This is recognition or *pratyabhijñā*. According to Nyāya there is no hybrid (*saṅkara*) cognition. Hence, this cognition is wholly perceptual and not a combination of perception and memory. Now, we cannot recognize present Devadatta as the past Devadatta without cognizing past Devadatta. So, the question is

how can we *perceive* past Devadatta and his presence in the past time (*tattā*) or presence in other place such as in Vārānasī (*Vārānasīvr̥ttitva*) in recognition? Nyāya says that on seeing present Devadatta or his presence in Kolkata in present time (*idantā* or *Kolkātāvṛttitva*) the memory of past Devadatta or his presence in Vārānasī in the past (*tattā* or *Vārānasīvr̥ttitva*) is remembered and the memory cognition connects its content to the operating visual sense-organ extraordinarily. Hence, Devadatta in present (this Devadatta) is perceived ordinarily and Devadatta in the past (that Devadatta) is perceived extraordinarily. These two Devadattas are identified with each other depending on certain similar features of past and present Devadatta. Now, for the Naiyāyikas similarity (*sādr̥śya*) is not a separate entity. Vardhamāna Upādhyāya says that similarity is nothing over and above the similar property itself which resides in different substratums (*tadbhinnatve sati tadgatabhūyodharmavattva*). So, when I perceive Devadatta in Kolkata I perceive him as being qualified by the same attributes of Devadatta I perceived earlier in Vārānasī. Those previously perceived features were associated with his *Vārānasīvr̥ttitva* or *tattā*. Hence the perception of certain similar features energizes the memory-trace of Devadatta as being qualified by *tattā* or *Vārānasīvr̥ttitva*. And this memory of Devadatta, as being qualified by *tattā*, connects the content of that memory with the sense-organ extraordinarily. As a result we perceive ‘that Devadatta’ and ‘this Devadatta’ at the same time. Now our Self, as a binding principle, unifies those two Devadattas into one single entity and ascribes those two different temporal features to one and the same Devadatta. As a result, we have a perceptual cognition in the form, ‘this is that Devadatta’ or ‘*ayam sa Devadatta*’. We may say that this unification or binding of the Self does not take an extra moment for unification. As soon as the relevant ordinary and extraordinary connections are established, we recognize that this is that Devadatta. This account says that *pratyabhijñā* is one kind of *pratisandhāna*.

An alternative account might be that *pratyabhijñā* is not one kind of *pratisandhāna*. Devadatta and his *idantā* or *vartamānakālavṛttitva* are perceived ordinarily and only his *tattā* or *atītakālavṛttitva* is remembered and consequently perceived extraordinarily. As a result the recognition occurs in the form, ‘*ayam sa Devadatta*’.

However, common sense says that *atītakālavṛttitva* alone, without being tagged with Devadatta, cannot be remembered. Then the question will arise, whose *atītakālavṛttitva* is it? Hence, Devadatta also (as being qualified by *atītakālavṛttitva*) is remembered and perceive extraordinarily. The alternative account may say that although we remember Devadatta as

being qualified with *tattā* but only the *tattā* is extraordinarily connected to the operating sense-organ resulting in the recognition of the form, 'sa *ayam Devadatta*'. But in order to have such knowledge also we need to identify the present Devadatta with the past Devadatta. Hence, we take the former account to be acceptable and examine the moments of it accordingly. However, our moment examination follows a common format in which both of these accounts may be incorporated, since we do not admit an extra moment for the binding operation of the Self. Let us now envisage the moment-examination.

M1: Visual sense-organ is connected with Devadatta and his qualities in relation of conjunction (*sāmyoga sannikarṣa*) and inherence-in-the conjoined (*sāmyukta samavāya sannikarṣa*). His presence in the present time (*idantā*), which is an undivided adjunct (*akhaṇḍa upādhi*), is perceived by *sāmyoga sannikarṣa*. *Akhaṇḍa upādhi* resides in objects in self-relation (*svarūpa sambandha*). Hence it is perceived through *sāmyukta viśeṣaṇatā sannikarṣa*. These ordinary sensory connections persist till the end of the whole process of recognition.

M2: Indeterminate perception of Devadatta and qualities and *idantā* is produced.

M3: Determinate perception of Devadatta as being qualified by certain features and attributes (and interpenetrating words) is produced in the form, 'this Devadatta' ('*ayam Devadatta*') or 'this person' ('*ayam vyakti*') through the mediacy (*vyāpāratva*) of the energization of the memory-traces of the name 'Devadatta' and the denoting terms ('*ayam*' etc. Here one may suppose that the memory-trace of the name 'Devadatta' is not energized at this moment. At this moment we only observe that there is a person having certain features, because as soon as we associate the name 'Devadatta' with that person, the process of recognition will be completed. The name 'Devadatta' comes to our memory after memorizing Vārānasī-residing Devadatta. Or we can say that it often happens that we can memorize the name of the person but cannot relate him with a person perceived in the past. In that case there is no problem in energizing the memory trace of the name 'Devadatta' at this moment.

M4: The determinate perception of present Devadatta produces the memory of past Devadatta in the form 'that Devadatta' or '*sa Devadatta*' through the mediacy (*vyāpāratva*) of the energization of the memory trace of past Devadatta as being qualified by *tattā* or



*Vārānasīvr̥ttitva* (along with the similar features and denoting terms such as ‘Devadatta’ and ‘sa’). This memory is never *pramuṣṭatattāka*. Rather it always refers to the temporal reference. Generally, the memory-trace of the name ‘Devadatta’ is energized for the first time at this moment.

Now, this memory of ‘that Devadatta’, working as a *jñānalakṣaṇa sannikarṣa* connects its content to the operating visual sense-organ. The ordinary sensory connections with Devadatta, ‘thisness’ and other similar features have already been established from M1. Self-*manas* contact and *manas-indriya* contact also have been established from M1. Self is present there in order to establish the *tādātmya* or *ekatva sambandha* between ordinarily perceived Devadatta and extraordinarily perceived Devadatta. So we find that all the necessary conditions have been accumulated at M4 so that the recognition may occur at M5.

Or we can establish an alternative account of *pratyabhijñā*. When the Self unifies the perceived content (present Devadatta) and memorized content (past Devadatta) a recognition occurs in the form ‘*ayaṁ sa Devadatta*’. Now, this is a perceptual cognition, because afterperception of this cognition says so. And if it is perceptual, then all its parts are bound to be percept. The cognition has three parts – Devadatta, his thisness and his thatness. The first two elements are explained to be percept in ordinary way. But how does the last element (thatness or *tattā*) become a percept? As an explanation we say that the memory of *tattā* working as *jñānalakṣaṇa sannikarṣa* connects its content *tattā* to the operating visual sense-organ.

Whatever may be the case, the unification of present and past Devadatta happens at this moment.

M5: The visual extraordinary determinate perception named recognition (*pratyabhijñā*) is produced in the form ‘this is that Devadatta’ or ‘*ayaṁ sa Devadatta*’.

We reject the suggestion that indeterminate perception of present Devadatta might produce the memory of past Devadatta on the consideration that if we do not perceive present Devadatta *as having some special features*, we shall not be able to remember past Devadatta who had the similar features. So, the energizer cognition is not indeterminate but a determinate one.

### 7.2.7. Moment Examination of Case 7

The seventh case is the perception of the object of a determinate cognition (*vyavasāya*) in the mental perception (*anuvyavasāya*) of that determinate cognition in the form 'I have the knowledge of a pot'.

'Anu' means that which follows and 'vyavasāya' means determinate cognition. So, 'anuvyavasāya' should mean that determinate cognition which follows any determinate cognition. But the memory which follows an apprehension, or the inference which follows *vyāptijñāna*, or a testimonial cognition which follows *padajñāna*, are not considered as *anuvyavasāya*. Hence the real meaning of 'anuvyavasāya' is a following determinate mental perception the object of which is a preceding cognition. However, in that case, the term 'anu' or 'following' becomes redundant since without being a preceding one the cognition cannot be an object of *anuvyavasāya*. The Naiyāyikas say that actually the term 'anu' indicates that the cognition is a mental perception whose object is any *vyavasāya*. So, the term is not redundant.

According to the Naiyāyikas after a cognition in the form 'this is a pitcher we may have a mental perception of that determinate cognition in the form 'I know or mentally perceive that it is a pitcher'. In this *anuvyavasāya* three things have become object or *viśaya*:

1. The previous cognition.
2. The Self.
3. The object of the previous cognition, in this case, pitcher.

Now, the previous cognition is perceived through *saiṅyukta samavāya sannikarṣa*, Self is perceived through *saiṅyoga sannikarṣa*. But how is the pitcher connected with the mental organ? The Navya Naiyāyikas say that the cognition of pitcher itself, working as an extraordinary sensory connection connects its object pitcher to the mental sense-organ, so that all the parts of the *anuvyavasāya* may become percept, otherwise the deterrent of unwarranted blendedness (*sāṅkarya*) would emerge. However, let us analyze the situation momentwise.

M1: Visual sense-organ is connected with pitcher and pitcherhood in relation of *saiṅyoga sannikarṣa* and *saiṅyukta samavāya sannikarṣa* respectively. Ubiquitous Self (*ātmā* or

*aham*) already is connected with the internal organ *manas* and *manas* in turn is in contact with the visual sense-organ. These connections persist till the end of the whole process.

M2: An indeterminate perception of pitcher and pitcherhood is produced in the Self in relation of inherence as a result of sensory connection.

M3: A determinate perception (*vyavasāya*) of pitcher in the form ‘this is a pitcher’ (‘*ayam ghaṭah*’) is produced by the sense-object contact (along with the indeterminate perception) through the mediacy (*vyāpāratva*) of the energization of the memory-traces of the relevant denoting terms (*vācaka śabda*) such as ‘this’ (‘*ayam*’), ‘pitcher’ (‘*ghaṭah*’), etc.

Since determinate perception is always word-interpenetrated (*śabdānuviddha*) or associated with name, class etc. (*nāmajātyādiyojanāśahita*), we have to admit the energization of the memory-traces of the relevant terms (*nāma*). The sense-object contact produces the word-interpenetrated determinate perception through the mediacy (*vyāpāratva*) of the energization of the memory-traces of the terms.

In this determinate perception of pitcher, pitcher is cognized as being qualified by pitcherhood. Now, the contact between Self and internal organ (*ātmamanaḥsanyoga*) is a necessary condition (*asamavāyikāraṇa*) of any cognition. So the Self is conjoined with the *manas* from the beginning of the process. And this determinate perception or *vyavasāya* is produced in *manas*-conjoined Self in relation of inherence. Hence from the very moment of production the internal sense-organ remains connected with this *vyavasāya* in relation of *sanyukta samavāya*, and as a result it remains connected with the *vyavasāya*-inhering cognitionhood (*jñānatva*) in relation of *sanyukta samaveta samavāya sannikarṣa*.

M4: As a result of the aforesaid sensory connections an indeterminate perception of *vyavasāya* and *jñānatva* is produced. In this indeterminate perception *vyavasāya* is not known as being qualified by *jñānatva*. But *vyavasāya* and *jñānatva* are perceived as non-related.

Here one may object that *vyavasāya* is connected with the operating sense-organ *manas* at M3; hence, let there be *anuvyavasāya* at M4 in the form, ‘*ghaṭamaharī jānāmi*’. In reply it is said that in such *anuvyavasāya*, *aham* or Self is the qualificandum or *viśeṣya* and the *vyavasāya* or *ghaṭajñāna* is the *viśeṣaṇa* or qualifier. In *anuvyavasāya* we know the Self as being qualified by the *vyavasāya*. So *anuvyavasāya* is a determinate or qualified cognition (*viśiṣṭajñāna*). Now, there is the Nyāya rule that the cognition of the qualification is a prerequisite for the qualified cognition. *Viśeṣaṇajñāna* is the cause of *viśiṣṭabuddhi*. Here in *anuvyavasāya*, *vyavasāya* or *ghaṭajñāna* is the *viśeṣaṇa*. So, before *anuvyavasāya* we need to have the cognition of *ghaṭajñāna* or we need to have *ghaṭajñānajñāna*. Now, if this *ghaṭajñānajñāna* also a *viśiṣṭabuddhi* and is known as being qualified by *jñānatva* then we shall need to have the cognition of *jñānatva* (*jñānatvajñāna*) at a previous step. In this way, an infinite regress will set in. In order to avoid this predicament we have supposed that at M4 (before the *anuvyavasāya*, which will occur at M5) an indeterminate perception of *ghaṭajñāna* and *jñānatva* is produced. In this indeterminate perception *ghaṭajñāna* and *jñānatva* are known non-related with each other.

Some Naiyāyikas may say that at M4 a determinate perception of *ghaṭajñāna* occurs in the form, ‘*mayi ghaṭajñānam*’ or ‘the cognition of pitcher in me’. In such cognition *ghaṭajñāna* is the *viśeṣya* and the property of being inhered in Self or *ātmaniṣṭhatva* or *ātmasamavetatva* is the *viśeṣaṇa*. In short, we may say that the *viśeṣya* is the *ghaṭajñāna* and the *viśeṣaṇa* is the Self. In Nyāya, the indeterminate perception of Self has not been accepted. The perception of pure Self – not qualified by any property – is impossible. We always perceive Self in the form, ‘I am happy’, ‘I am unhappy’ etc. (‘*aham sukḥī*’, ‘*aham duḥkhī*’ etc.) where happiness or unhappiness qualifies the Self. Cognition of Self is always determinate. Self becomes the object of determinate perception directly, without the mediation of an indeterminate perception of Self. So, although Self is the *viśeṣaṇa* of the cognition ‘*mayi ghaṭajñānam*’, the cognition of Self is not required previously. And *ghaṭajñāna* is the *viśeṣya* of ‘*mayi ghaṭajñānam*’. So, we need not have any *ghaṭajñānajñāna* at previous moment because the cognition of qualificandum is not prerequisite for the qualified cognition. So, the predicament of infinite regress does not arise even if we admit determinate cognition at M4.

But there is a problem. The question will arise whether the *viśeṣya* of ‘*mayi ghaṭajñānam*’ is known as being qualified by *jñānatva* or not. If it is, then the predicament of infinite regress again will set in. It may be replied that in such cognition *jñānatva* also is cognized but as unrelated with *ghaṭajñāna*. But then we have to admit the existence of such a cognition whose *viśeṣya* is qualified by a particular *viśeṣaṇa* and non-qualified by another *viśeṣaṇa* (nevertheless that another *viśeṣaṇa* also is cognized in the cognition). If it is admitted then the status of the cognition will be overall indeterminate – a mixed indeterminate perception. Hence, it is better to subscribe to the previous option that we have a simple indeterminate perception of *vyavasāya* and *jñānatva* at M4.

M5: At this moment a determinate mental perception of the determinate visual perception of pitcher (*anuvyavasāya*) is produced in the Self in relation of inherence in the form. ‘I know this jar’ or ‘*ghaṭamaham jñāmi*’. The sensory connection between *manas* and the *vyavasāya* and the indeterminate perception of *vyavasāya* produces such *anuvyavasāya* through the mediacy of the revival of the memory-traces of relevant denoting terms. In this *anuvyavasāya* Self or *aham* is the qualificandum or *viśeṣya* and the *vyavasāya* is known as the qualification of the Self. And this *vyavasāya* is known as being qualified by two properties or attributes – cognitionhood or *jñānatva* and the property of being such an entity whose object is the pitcher or *ghaṭaviśayakatva*. So, *anuvyavasāya* is the cognition of *jñānatva* (and *ghaṭaviśayakatva*) *viśiṣṭa jñānavān aham*. So, it can be expressed in the form ‘*ghaṭajñānavān aham*’. *Anuvyavasāya* is the cognition of Self which is qualified by cognition – and that cognition is in turn qualified by cognitionhood. We have mentioned previously that the cognition of Self does not arise at the indeterminate level. It directly arises at the determinate level as a consequence of *ātmā-manas-samyoga sannikarṣa*. So *anuvyavasāya* is a *mānasa pratyakṣa* of Self as being qualified by *vyavasāyajñāna*. *Anuvyavasāya* is the perception of such a *vyavasāya* that turns up as a qualification in *anuvyavasāya*.

Now there is a problem with this moment examination. According to the Nyāya-Vaiśeṣikas cognition exists only for two moments. The *vyavasāya* was produced at M3 which is destroyed at M5. So, at the moment of the production of *anuvyavasāya*, the *vyavasāya* (which is the object of *anuvyavasāya*) is destroyed. Now, there is a rule of perception that the qualificandum of perception will have to exist at the time of (the production of) the

perception. A past or a future object cannot be the object of perception as qualificandum. Perception is always *svasamānakālīnaviśeṣyaka*. Now, in relation of *jñānatva* or *ghaṭaviśayakatva*, *ghaṭajñāna* or *vyavasāya* is the qualificandum. Hence it must exist during the production of *anuvyavasāya*. Without this the cognition of ‘*jñānatvaviśiṣṭa jñāna*’ will be impossible; and consequently the cognition of ‘*jñānatvaviśiṣṭajñānaviśiṣṭa aham*’ will be impossible.

The problem is reflected in Gaṅgeśa’s account also. In ‘*Anuvyavasāyavāda*’ of ‘*Pratyakṣakhaṇḍa*’ of *Tattvacintāmaṇi*, Gaṅgeśa has addressed the problem of unavailability of a determinate cognition (*vyavasāya*) in the moment of its mental perception or apperception or after-perception (*anuvyavasāya*). The *anuvyavasāya* in the form ‘I am cognizing a pitcher’ itself is a determinate cognition where cognition of a pitcher (*ghaṭajñāna*) is known as being qualified by cognitionhood (*jñānatva*). But this determinate cognition requires at least an indeterminate cognition of the qualification, i.e. cognitionhood, at the previous moment of the determinate cognition of cognitionhood-qualified-cognition because the cognition of qualification (*viśeṣaṇajñāna*) is a prerequisite for the qualified cognition (*viśiṣṭabuddhi*). But in that case the indeterminate cognition of cognitionhood would stand between *vyavasāya* and *anuvyavasāya*. Since cognition is momentary and only one cognition occurs at a time, the *vyavasāya* dies at the moment of the production of the *anuvyavasāya*. Then how can the *anuvyavasāya* get its qualificandum, i.e. the *vyavasāya* (which is the locus of the qualification cognitionhood)?

Gaṅgeśa replies that although *vyavasāya* is not present at the moment of the production of *anuvyavasāya* but it is present at the previous moment of the production of *anuvyavasāya*. So, the causal process is unaffected. It would be cumbersome (*gaurava*) to require a cause to exist at the same time as its effect (*svasamayavartitayā gauravena*). A cause has to exist at the moment immediately before the effect. Moreover, the momentariness of cognition should not be interpreted literally. *Kṣaṇa* or moment is an imperceptible interval whereas cognition is perceived (apperceived). Hence cognition exists or endures for a spread of time. Its presence is for a ‘gross’ or ‘thick’ (*sthūla*) moment – not for an infinitesimal and precise current instant (*kṣaṇa*).

However, there is more to say about this cognitive episode. The ultimate apperception is of the form ‘I have the cognition of pitcher’ (*ghaṭajñānavān aham*) where the *viśeṣya* is the Self and

the *viśeṣaṇa* is the cognition. And hence, as a prerequisite of such a cognition there must be a cognition of the *viśeṣaṇa* or the cognition of 'the cognition of pitcher' with no 'I' as explicitly an object. We may call it a penultimate level apperception in the form 'pitcher is being cognized', after which the ultimate level apperception occurs in the form 'I have the cognition of pitcher'. So, the moment-wise occurrences would be as follows (where the pot is visually perceived):

M1: Sensory connection between visual sense-organ and the pitcher and pitcherhood.

M2: Indeterminate perception of pitcher and pitcherhood.

M3: Determinate perception of pitcher as being qualified by pitcherhood.

M4: Indeterminate perception of the cognitionhood of the determinate perception.

M5: An apperception of the original determinate perception in the form 'pot is being perceived'. The qualificandum of this cognition is the cognition of pot and the qualification is cognitionhood.

M6: The second or the final apperception of the original determinate perception with an explicit 'I' in the form. 'I have the perception of pot'. The qualificandum of this cognition is the enduring Self, which is the locus of the entire cognitive stream and the qualification is cognitionhood-qualified-perception.

Now, according to this moment-examination there are two cognitions (at M4 and at M5) standing between the original non-apperceptive cognition (at M3) and the final apperception (at M6). Gaṅgeśa resolves this problem by a view of the causal sequence which is like the story told with recognition. In the recognition 'this is that Devadatta', the 'thatness' is a past entity which is not present here and now. But recognition is a wholly perceptual cognition. It is resolved that 'thatness' is prompted to recognition through its memory. Similarly, an original non-apperceptive cognition, though destroyed, can be a qualificandum of the first apperception; and being carried by this first apperception it can be an object (as qualifier) of the second apperception (at M6). And the object of the original non-apperceptive cognition, i.e. pitcher, also, becomes the object of the final apperception by means of a cognitive intermediary.

But this interpretation may be questioned further since we find no memory involved in the process. Then how is the content of the cognition at M3 carried to M6? One suggestion Gaṅgeśa renders is that the indeterminate perception at M4 involves not only 'cognitionhood'

but also the ‘determinate non-apperceptive cognition’ as its content, although these two elements are not understood as related. Thereafter, at the next moment (at M5) the occurrence of the final apperception in the form ‘I have the cognition of pitcher’ is possible, where the Self is qualified by determinate cognition and the determinate cognition is qualified by cognitionhood.

Gaṅgeśa says that actually a cognition can be an object of cognition only as qualified by its object – just like an absence becomes an object of cognition only as qualified by its negatum. In the case of *anuvyavasāya*, *vyavasāya* is captured as being qualified by its object because there is sufficient causal complex for being so. And ‘cognitionhood’ also is captured due to the presence of sufficient causal complex. Hence, *anuvyavasāya* is partly determinate (in the part of *vyavasāya*) and partly indeterminate (in the part of cognitionhood – since cognitionhood has no predicate part), taking the form of a man-lion (*narasiṅhākāra*). But this interpretation of Gaṅgeśa by Tatacharya and Philips does not seem to be convincing because ‘cognitionhood’ itself appears in apperception as a predicate and not a subject which may need a further predication. Narayan Chandra Goswami thinks that actually the indeterminate perception (at M4) is the man-lion cognition Gaṅgeśa intends to say.<sup>260</sup>

However, Gaṅgeśa concedes that although we can account for *anuvyavasāya* of perception in the form ‘I am perceiving such and such’ because perceptionhood is always available at the intermediate levels (as the sensory connections endures for the whole period), but in the case of the *anuvyavasāya* of inference etc. we shall fail to construct a convincing moment examination because at the intermediate level ‘inferencehood’ etc. will be unavailable. It is an acknowledgment of the problem with no solution implied.<sup>261</sup>

Following Gaṅgeśa’s trail we may say that *vyavasāya* is not the principal qualificandum of *anuvyavasāya*. It figures as a qualification in *anuvyavasāya*. The only qualificandum is the Self or *aham*. Hence the rule of *svasamānakālīnaviśeṣyaka* of perception is not violated because the *viśeṣya* Self is eternal. But this reply may not seem to be a convincing one. One may say that the rule should be that perception is *svasamānakālīnaviśayaka* – not *svasamānakālīnaviśeṣyaka*. Even the qualification (*viśeṣaṇa*) and relation (*saṁsarga*), which are the objects or *viśaya* of the perception, (although not *viśeṣya* or qualificandum) should also

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<sup>260</sup> TKSN., p.330.

<sup>261</sup> TCMP., pp.603-608.



exist at the time of perception. However, we may reply that in the cases of *jñānalakṣaṇa pratyakṣa* like illusion we perceive *deśāntarīya*, *kālāntarīya prakāra* like snakehood or silverhood. Hence the rule is the *svasamānakālīnaviśeṣyakatva* of perception – not its *svasamānakālīnaviśayaikatva*. However, our reply raises a question. If *vyavasāya* is the *prakāra* of Self in *anuvyavasāya* and if it does not exist at the moment of the production of *anuvyavasāya*, then does it come through *jñānalakṣaṇa sannikarṣa*? Is it the memory of *vyavasāya* which connects its content *vyavasāya* to the *manas* extraordinarily?

It is difficult to accept such a thesis. It is unanimously accepted that *anuvyavasāya* is an ordinary mental perception of *vyavasāya*. If we say that such perception is memory-driven then we have to admit a previous perception of *vyavasāya* as a result of which the memory-trace of *vyavasāya* was created. And in this way the chain will be beginningless. Here we are discussing the perception of *vyavasāya* which occurs just after the *vyavasāya* has occurred. It cannot be memory-driven because this is the first perception of *vyavasāya*. So, even if we admit the rule that perception is *svasamānakālīnaviśeṣyaka*, we have to admit that *vyavasāya*, which figures as the *prakāra* of the *viśeṣya aham*, must exist during the production of *anuvyavasāya*. But according to the aforesaid moment examination *vyavasāya* is destroyed at M5 when *anuvyavasāya* is produced. So they cannot be *samānakālīna*.

Ācārya Udayana has given an answer to this objection. He said that we cannot perceive the first *vyavasāya*. *Anuvyavasāya* of the first *vyavasāya* is not possible. The first *vyavasāya* is produced at M3, the indeterminate perception of the first *vyavasāya* and *jñānatva* is produced at M4. After this indeterminate perception again a second *vyavasāya* is produced in the form ‘*ayaṁ ghaṭaḥ*’ at M5. Now, making this second *vyavasāya* as qualificandum and *jñānatva* (which is the *viśaya* of the *nirvikalpaka pratyakṣa* at M4) as *prakāra*, a determinate mental perception of *vyavasāya* (as qualified by *jñānatva*) is produced at M6. This perception of *jñānatvaviśiṣṭa jñāna* is expressed in the form, ‘*ghaṭamaham jñāmi*’. This is *anuvyavasāya*. So, the momentwise occurrence of cognitions is as follows:

M1: Sensory connection between visual sense-organ and the pitcher and pitcherhood.

M2: Indeterminate perception of pitcher and pitcherhood.

M3: First determinate perception of pitcher as being qualified by pitcherhood.

M4: The indeterminate perception of the first *vyavasāya* and *jñānatva*.

M5: A second determinate perception of pitcher as being qualified by pitcherhood.

M6: *Anuvyavasāya* of the second *vyavasāya* as being qualified by *jñānatva*.

Although the first *vyavasāya* becomes the object of indeterminate perception but the second *vyavasāya* does not become the object of any indeterminate perception. It becomes the object of determinate afterperception directly. Question may arise that if there is no *anuvyavasāya* of the first *vyavasāya*, then how the existence of the first *vyavasāya* is proved? The answer is, we should not suppose that the existence of a cognition is proved only by perception. No *anuvyavasāya* is possible about an indeterminate perception. But its existence is proved as the cause of determinate perception. Here we can say that the first *vyavasāya* becomes the object of the indeterminate perception at M4. So, as the object of indeterminate perception the existence of first *vyavasāya* is proved. And the existence of this indeterminate perception is proved as the cause of the determinate afterperception of the second *vyavasāya*.

However, Vardhamāna Upādhyāya has said that this solution of Udayanācārya is not applicable to all the cases (*asārvatrik*). Only when *vyavasāya* is perceptual then all the conditions for such a perception can be re-accumulated at M4 for the second time so that the second *vyavasāya* may be produced at M5, since the cause of perception is sense-object connection which is persistent over time. But in the case of inferential or any other cognition the causal conditions involve cognitions such as *paramarśajñāna* those exist only for two moments. So, those conditions cannot be re-accumulated at M4 for the second time; hence, production of second *vyavasāya* in those cases is impossible. Particularly in the case of inference attainment (*siddhi*) is deterrent (*pratibandhaka*) of inference for the later time. It will require 'desire to infer' (*anumitsā*) to infer again. But that will take several moments in between and the moment examination will fail.

Vardhamāna Upādhyāya has proposed two alternative solutions. Firstly he does not admit the rule of the *svasamānakālīnaviśeṣyakatva* of perception. He admits the rule of *svāvyavahitapūrvakālīnaviśeṣyakatva* of perception. The rule says that in order to be the qualificandum of a perception the object need not exist at the moment of the production of the perception; rather it has to exist at least at the immediately previous moment of the production of the perception. Our first moment examination does not violate this rule. The determinate perception or *vyavasāya* exists till M4 and *anuvyavasāya* is produced at M5. Hence there is no problem.

Secondly, Vardhamāna says that even if we admit the rule of *svasamānakālīnaviśeṣyakatva* of perception, we can make out a solution. The indeterminate perception of *vyavasāya* and *jñānatva*, which is produced at M4, is not indeterminate in the part of *vyavasāyajñāna*; because a cognition cannot be revealed neglecting its object – it is always revealed as being qualified by its object. So, in the indeterminate perception, *vyavasāya* becomes its object as being qualified by its own object ‘*ghaṭa*’. Or we can say that in the indeterminate perception of *vyavasāya* and *jñānatva*, *vyavasāya* is revealed as being qualified by the property *ghaṭaviśayakatva*, and *jñānatva* is revealed in an unrelated way. Vardhamāna says that after such indeterminate perception we have a determinate perception of the indeterminate perception as being qualified by *jñānatva*. And that is the *anuvyavasāya*, produced at M5. In this *anuvyavasāya*, the *viśeṣya* or *dharmī* is the indeterminate perception which is produced at M4 and persisting at M5; and the *prakāra* is *jñānatva* which is previously known at M4 in the indeterminate perception.

Since *ātmamaṅgala* persists throughout the whole process and *ātmā* or Self does not become an object of indeterminate perception, it becomes the object of determinate perception (*anuvyavasāya*) directly as the principal qualificandum and the *anuvyavasāya* is produced in the form, ‘*ghaṭamaham jñāmi*’.

Here one may object that indeterminate perception has been considered to be the *dharmā* or *viśeṣya* of *anuvyavasāya*, but indeterminate perception is *atīndriya*; so it cannot be an object of mental perception. In reply it may be said that the *dharmī* of *anuvyavasāya* is not indeterminate in all its parts – it is indeterminate in the part of *jñānatva* but determinate in the part of *ghaṭaviśayakatva*. In the indeterminate perception of *vyavasāya* the *viśeṣya* *vyavasāya* is not qualified by *jñānatva* but it is qualified by *ghaṭaviśayakatva*. So, this perception is not *atīndriya* since its *viśeṣya* is qualified by *ghaṭaviśayakatva* partially.

So the momentwise occurrence of the cognitions will be as follows:

- M1: Sensory connection between visual sense-organ and the pitcher and pitcherhood.
- M2: Indeterminate perception of pitcher and pitcherhood.
- M3: Determinate perception of pitcher as being qualified by pitcherhood.

M4: The perception of the *ghaṭaviṣayakatva*-qualified *vyavasāya* and non-related *jñānatva*. This perception is partially determinate and partially indeterminate. Hence it is not infrasensible.

M5: *Anuvyavasāya* of the partially indeterminate perception of *vyavasāya*, as being qualified by *jñānatva*.

Another objection is that the final *anuvyavasāya* is of indeterminate perception – not of the determinate perception or *vyavasāya*. In reply it is said that the indeterminate perception of *vyavasāya* and *jñānatva*, which was produced at M4 is the actual *anuvyavasāya* of *vyavasāya*. Because although that cognition is indeterminate in the part of *jñānatva* but determinate in the part of *ghaṭaviṣayakatva*-qualified *vyavasāya*. Since *vyavasāya* is revealed in that indeterminate perception as being qualified by *ghaṭaviṣayakatva*, we may consider it as *anuvyavasāya*. We had to imagine a next step in order to show that the *ghaṭaviṣayakatva*-qualified *vyavasāya* is qualified by *jñānatva* also.

Now the question is, how *anuvyavasāya* becomes an instance of *jñānalakṣaṇa sannikarṣa*?

According to the Naiyāyikas, determinate cognition (*vyavasāya*) reveals its object but it cannot reveal itself. A subsequent mental perception (*anuvyavasāya*) reveals it. *Jñāna* is a quality (*guṇa*), which inheres in the Self (*atmā*). The internal sense-organ, mind (*manas*), can perceive the Self-inhering qualities like cognition. Mind is related to the Self in relation of contact. Now suppose, there is a determinate cognition of pot (*ghaṭajñāna*). When mind is connected to this cognition through *saiṅyukta-samavāya sannikarṣa*, the mental perception is produced in the form – ‘*ghaṭajñānavān aham*’. In this *anuvyavasāya*, three things are cognized – the cognizer (*aham*), the determinate cognition of pot (*ghaṭajñāna*) and the pot (*ghaṭa*). Since, it is a single perceptual cognition, all these three things are supposed to be connected to the *manas*. The first two things are connected through *saiṅyoga* and *saiṅyukta-samavāya sannikarṣa* respectively. But what might be the possible relation between the pot and the *manas*? Cognition is characterized by its object. So, the pot is related to its cognition in the relation of characterization (*viśeṣaṇatā*). Such cognition is related to the *manas* through *saiṅyukta-samavāya* relation. Therefore, the pot is connected to the mind in relation of *saiṅyukta-samavāya-viśeṣaṇatā*. But mind cannot grasp external object (*bāhya-viśaya*) like pot independently of any external sense-organ (*paratantraṁ vahirmanah*). Udayana in *Nyāyakusumāñjaliḥ* (4/4) has offered a solution. He says that, here, the *viśaya* (pot) has

become the object of *anuvyavasāya* as a delimiter (*avacchedaka*) of the *vyavasāya*. *Jñānāvacchedaka* is not external or *bāhya*. One interpretation of this contention is that the *viśaya*, in virtue of being related to the *vyavasāya* in relation of *avacchedakatva*, becomes an object of internal perception. So, it is through the *vyavasāya* that the *viśaya* is connected to the *manas*. Hence, Udayana says that the mind does not at all grasp the pot independently, but in association with the previously obtained *vyavasāya* (*ghatajñāna*).<sup>262</sup> The *vyavasāya* itself helps the operating *sannikarṣa* (*sānyukta-samaveta-viśeṣaṇatā*) in establishing a connection between the pot and the mind. The later Naiyāyikas called this *vyavasāya*, ‘*jñānalakṣaṇa sannikarṣa*’.

So, we have seen that on one hand the *vyavasāya* works as the *viśaya* of *anuvyavasāya* and on the other hand it works as *jñānalakṣaṇa sannikarṣa* in order to connect the pitcher with the *manas*.

However, the Navya Naiyāyika Gadādhara Bhaṭṭācārya did not admit *anuvyavasāya* and *abhāva-pratīyogī-pratyakṣa* as the instances of *jñānalakṣaṇa sannikarṣa*. Let us discuss them accordingly.

According to the Naiyāyikas negation (*abhāva*) is invariably linked to a negatum (*pratīyogī*). Whenever a negation is known and explicated it is determined by a negatum. So, when the negation of a pitcher on the ground is perceived, the negatum, i.e., the pitcher also is perceived. That is to say, the content of the perception is negation with its negatum as an adjunct to it. Now, in the absence of the negatum, the contact between negatum (pitcher) and the visual organ cannot be established. Hence, the Navya Naiyāyika such as Harirāma proposes that the negatum is presented to the visual sense-organ through memory-cognition which is considered to be *jñānalakṣaṇa alaukika sannikarṣa*.

Now the relation between negation and its negatum is one of *pratīyogitā* – not of the relation between substratum and superstratum (*ādhārādheyabhāva*). So, since negation and negatum are not related in *ādhārādheyabhāva* the implication is that they are dissociated from each other. Hence the dissociated negatum cannot be the adjunct of negation. Moreover, since negation and its negatum cannot coexist with each other, the later cannot be said to be the adjunct to the former.

<sup>262</sup> *purvajñānopanītasyaiva manasā vedanāt – Nyāyakusumāñjaliḥ (4/4), Udayana, NKS., p.369.*

For this reason Gadādhara Bhaṭṭācārya thinks that the perception of absence can be explained without the aid of any supernormal sensory connection like *jñānalakṣaṇa sannikarṣa*. He says that negation is characterized by absencehood (*abhāvatva*) and counterpositiveness (*pratiyogitva*). The *abhāvatva* has been described by the Naiyāyika as *anuyogitva*. While the cognition of negation both these characters – *anuyogitva* and *pratiyogitva* – are comprehended. Now, *pratiyogitva* is explained by the appellation of the negatum. We can say that the concept of *pratiyogitva* is constitutive of the concept of *pratiyogī* or negatum. It is not a fact that the negatum is presented in any way as an *adjunct* to negation in the case of its perception. Therefore there is no valid ground for recognizing *jñānalakṣaṇa sannikarṣa* in the case of the perception of negation.

The same thing is true for the case of introspection (*anuvyavasāya*). According to the Naiyāyikas while the afterperception of the visual cognition of a pitcher the pitcher is connected to the mind through the visual cognition of the pitcher (*vyavasāya*). Here the pitcher enters into the content of introspection as an adjunct to the visual perception. Now a question arises. How can a visually perceivable object pitcher be comprehended by the mind? Pitcher, which is an external object, is not amenable to the mind; because mind or *manas* is an internal organ. Harirāma thinks that the visual perception officiates as the contact between its own content, i.e., the pitcher and the mind. Certainly such a connection is not an ordinary connection. It is *jñānalakṣaṇa sannikarṣa*. However, Gadādhara would say that here also we do not need any supernormal sensory connection to explain the matter. Just as negation is related to the negatum in relation of *pratiyogitā*, the content (pitcher) of a cognition (vision of pitcher) is related to that cognition in relation of *viśayatā* or contenthood/objecthood. Like *pratiyogitva* as in the case of negation, *viśayatā* also does not determine two relata as a container and it's contained (*ādhārādheyabhāva*). So, while the subsequent introspection of the visual perception, the content of visual perception cannot appear as an adjunct to the visual perception. Further, *viśayatā* relates even past and future objects to the cognition. Such inexistent objects cannot be the adjunct of cognition. In the commentary (*Vimarśinī*) of *Jñānalakṣaṇavicārahāsyā*, Anantakumar Bhattacharya says that *viśayatā* (like *jñānatva*) is a property of cognition which can be comprehended by mind. Now *viśayatā* is invariably understood and communicated in terms of the *viśaya* (content), which is here a pitcher. Hence *viśaya* must also be comprehensible by mind. So perception of the content of a perception can

be explained through the appellation of *viṣayatā*. Here also supernormal contact is not required.

However, such conclusion is not beyond question. Without the idea of pitcher supplied from memory the concept of *pratyogitā* cannot be formed. Hence, memory has an important role to play for the perception of negatum. In the second case we may say following Udayana that although mind cannot grasp external object normally, but it can do so with the help of *vyavasāya*. Hence *vyavasāya* is *jñānalakṣaṇa sannikarṣa*.

So we can say that as soon as the *vyavasāya* is produced in the Self in relation of *samavāya*, the *manas*, as the internal sense-organ, is connected with that *vyavasāya* in relation of *samyukta samavāya*. Metaphysically, *manas* is in contact with the ubiquitous Self and the *vyavasāya* inheres in the Self. Hence the relation between *manas* and *vyavasāya* is inherence-in-the conjoined or *samyukta samavāya*. Now, at this producing moment, the determinate perception or the *vyavasāya* starts working as *jñānalakṣaṇa sannikarṣa* and connects its content pitcher (as being qualified by pitcherhood and the corresponding denoting terms) to the operating sense-organ, *manas*, extraordinarily. The determinate afterperception (*anuvyavasāya*) is produced in the form ‘I know/perceive a pitcher’ (*ghaṭamahāni jñānāmilpratyakṣāmi*) or ‘I have the cognition (perception) of a pitcher’ (*ghaṭajñānavān aham*). This mental perception is extraordinary only in the part of pitcher. So this is an instance of *jñānalakṣaṇa pratyakṣa*.

### 7.3. Concluding Remark: A Reconsideration

Two important points are to be mentioned here which may compel us to reconsider and restructure the moment examinations accordingly. They are as follows.

First, Gaṅgeśa introduces a revolutionary idea in *Tattvacintāmaṇi* that since cognition is perceptible and moment or *kṣaṇa* is imperceptible, cognition exists or endures for a spread of time. Its presence is for a ‘gross’ or ‘thick’ (*sthūla*) moment – not for an infinitesimal and precise current instant (*kṣaṇa*).<sup>263</sup> So when we say that cognition exists for two *moments*, it is meant that cognition exists for two ‘thick’ or ‘gross’ moments. And it is not determined how many *current* instances are combined to make a single *thick* moment. And in Nyāya nowhere

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<sup>263</sup> *jñānāmi iti vartamānatvena sthūla upādhirbhāsate na tu kṣaṇah, tasya aīndriyatvāt. – Tattvacintāmaṇi (Pratyakṣakhaṇḍa: Anuvyavasāyavādaḥ), Gaṅgeśa, TCMP., p.603., TCMK., p.805.*

we find any procedure of measuring a *kṣaṇa*. This vagueness renders a scope for alternative interpretations and helps in answering problematic cognitive situations as also Gaṅgeśa does. However, this vagueness is not a desired one because if thin and thick moments are not precisely defined we shall tend to use the vagueness indiscriminately to account for any problematic case of moment examination. In this way the importance and seriousness of moment examination will be reduced. Hence, we should set a criterion of using thin and thick moment.

Second, there is a debate resorting to the issue whether indeterminate perception can work as *jñānalakṣaṇa sannikarṣa*. Harirāma Tarkavāgīśa says that according to the older logicians only determinate cognitions can work as supernormal contact, but according to the neo-logicians even indeterminate cognition also may work as supernormal contact. The older logicians object that if indeterminate cognition can work as *jñānalakṣaṇa sannikarṣa* then we have to admit introspection (*anuvyavasāya*) of indeterminate perception which no Naiyāyika would accept. But the neo-logicians answer that since indeterminate perception is unrelated in character, there cannot be any possibility of its mental perception (*anuvyavasāya*), although it can connect its content to the *manas*.<sup>264</sup>

Now, if we admit the neo-logicians' view then the moment examinations of the *jñānalakṣaṇa*-situations will be drastically changed. However, if we incorporate these two neo-logicians' theses that moment is 'thick' and indeterminate perception is capable to connect its content to sense-organ, it will be much easier for us to construct moment examinations of the *jñānalakṣaṇa*-situations. However, we find that the older stand is more challenging in respect of structuring moment-examination. If that can be done successfully in older version, it will be done in the newer version also.

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<sup>264</sup> *navīnāstu nirvikalpakasyāpyupanāyakatāmaṅgīkurvate. tanmate ca tadupanītabhānaṁ prati tadviśayakajñānatvenaiva hetutā. na caivam nirvikalpapratyakṣāpattiḥ, jñānapratyakṣasya viśayāmśe viśiṣṭavaiśiṣṭyāvagāhitvanyamāt..... – Jñānalakṣaṇavicārahāsyā, Pandit Harirāma Tarkavāgīśa, JVR, pp.91-93.*



## CHAPTER – 8

### Conclusion

*“Armchair thinking is a wonderful thing and produced fascinating science such as theoretical physics and mathematics. But to understand how a biological system works, a laboratory is needed and experiments have to be performed. Ideas derived from introspection can be eloquent and fascinating, but are they true? Philosophy can add perspective, but is it right? Only scientific method can move a topic along on sure footing.”*

– Micheal S. Gazzaniga, Richard B. Ivry, George R. Mangun, and Megan S. Steven, *Cognitive Neuroscience: The Biology of the Mind*, Chapter-1, Page 4.

In this work we have discussed different theories of *khyāti*; among them, only six principal theories have been chosen for further argumentation. We have noticed that more or less all of them are internally consistent with reference to their own foundational presuppositions. And we also have realized that due to this internal coherence all those alternative theories have been surviving in parallel till date. The conflict between different theories of *khyāti* ultimately boils down to the conflict between the underlying systems of presuppositions. So, we made a list of metaphysical, epistemological, psychological and semantic presuppositions for empirical test. However, in order to choose among these alternative theories we took a realist attitude and provided arguments in favour of Realism and the Nyāya theory of Anyathākhyātivāda. In doing so, we have provided counter-arguments against the other theories of *khyāti*.

The principal building block of Anyathākhyātivāda is *jñānalakṣaṇa sannikarṣa* which had been attacked by the other schools. So we have discussed this concept elaborately in order to show that it is not a mysterious and out-of-the-world sensory connection but accords with common-sense. We tried to show that the hypothesis of *jñānalakṣaṇa* is supported by modern neuroscience. An acute condition of such memory-induced or sensation-induced cross-modal activation is known as ‘synaesthesia’ which lends support to the hypothesis of *jñānalakṣaṇa*. The hypothesis of *jñānalakṣaṇa* has a great explanatory power. It explains several other cognitive cases than illusion. To show this we introduced moment examinations of those other cases and tried to understand the causal-psychological process of *jñānalakṣaṇa* within the framework of Nyāya system. Moment examinations are stepwise causal model those establish the reality of the hypothesis imagined for explaining the said cognitive situations. Within the

Nyāya framework moment-examinations are the only clue to cognitive modeling. So, in the first section of this concluding chapter we shall provide moment examination as a plausible cognitive model of the Nyāya theory of illusion. In the second section we shall try to see the psychological process of ordinary perception, memory and extraordinary *jñānalakṣaṇa* perception in the light of neuroscience on the ground of Representationalism. In the third section we shall try to organize the idiosyncratic factors of illusion and provide an outline of a mathematical model of illusion (and hallucination). However, though such modeling seems to be conceptually plausible, modern technology certainly has certain empirical limitations on the question of its practical application in real-life situation (that is to explain and predict illusory situation accurately especially regarding its content). We shall discuss it in the fourth section. And the last section will deal with the future prospect of our work.

### **8.1. The Cognitive Model of Illusion of Snake in a Rope: Moment Examination**

Perceiving snake in a rope is a paradigmatic example of illusion in Indian tradition. The Naiyāyikas explain illusion with the help of *jñānalakṣaṇa sannikarṣa*. Let us examine this phenomenon momentwise.

M1: Visual sense-organ is ordinarily connected with rope (*rajju*) and rope-inhering features like ropeness (*rajjutva*), curvedness (*vakratva*) etc. in relation of conjunction (*saṁyoga sannikarṣa*) and inherence-in-the conjoined (*saṁyukta samavāya sannikarṣa*) respectively. But due to some infelicitous condition visual sense-organ cannot grasp ropeness at the next moment. Other features of the rope, similar to the features of a snake, such as its long cylindrical shape (*dīrgha belanākṛti*), coiledness or curvedness, black or yellow colour etc., along with ‘thisness’ (*idantā*) or ‘being present as a point of reference here and now’ (*purovartitva*), are grasped at the next moment. *Idantā* (thisness) is an attribute which is not a universal or *sāmānya* although similar to it. It is an undivided adjunct of Time or *akhaṇḍa upādhi* which resides in its locus in self-relation (*svarūpa sambandha*). Hence *idantā* is perceived through *saṁyukta viśeṣaṇatā sannikarṣa*. Since the ropeness is not grasped, at the next moment the rope appears to be a point of reference in front along with the snake-similar features.

These ordinary sensory connections persist till the end of the process.

- M2: Indeterminate perception of rope (only the point of reference – ‘this’) and the qualifications such as ‘thisness’, coiledness or curvedness, long cylindrical shape, black or yellow colour etc. is produced where the qualifications (*prakāra*) and the qualificandum (*viśeṣya*) appear not as associated or related to each other but as dissociated or unrelated from one another.
- M3: Through the mediation (*vyāpāratva*) of the energization of the memory-trace of the corresponding denoting term<sup>265</sup>, the sense-object contact (and the indeterminate perception) produce a visual determinate perception of rope (as being qualified by ‘thisness’ and the snake-similar features) in the form ‘this’ or ‘this is a coiled object’ (*‘idam’* or *‘ayam kuṇḍalīkṛta vastu’*).
- M4: This is the persisting moment of the determinate perception. Determinate perception of snake-similar *idam* along with the promptness of survival system and emotions like fear or excessive desire (for the snake-catchers who are searching for a snake it is desire to see a snake that may misguide them) produces the memory of snake as being qualified by snakehood (or the memory of only snakehood) and the corresponding denoting terms, through mediacy (*vyāpāratva*) of the energization of the memory-trace of snake or snakehood. But due to the defects the temporal reference of memory of snake is erased and as a result a ‘thatness’-truncated memory or *pramuṣṭatattāka smṛti* is produced in the form, ‘snake’ or ‘snakehood’ (*‘sarpah’* or *‘sarpatva’*).

There are several factors working as the cause of this memory-trace revival. Cognitive Psychology and Theory of Evolution say that the survival system guides us right from the beginning, i.e. from M1. It always remains in the background as a default state of mind, guiding every action and cognition. The system highlights only those features which are similar to the threatening factors of the environment in which we have evolved as a species. And the system ignores the dissimilar features. This system has not been built in one day. It is the result of evolution and natural selection. It is ingrained in our biology or gene and works from the subpersonal level or unconscious domain of mind. That is why we do not understand when it misguides us. However, in the case of

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<sup>265</sup> Determinate cognition is *abhilāpayogya* – or *capable* of being articulated through language, so we may not *actually* articulate the cognition through words. We need not remember the corresponding terms.

misperception it works as a defect. But in respect of survival it is utmost necessary because it minimizes the possibility of unwanted situation. This account explains why at M1 our visual sense-organ selectively highlighted only the snake-similar features and ignored the dissimilar features. We can assume that right from the beginning bottom-up and top-down processing (reentrant mechanism) get started. Bottom-up process starts the cognitive course but as soon as the sensory connections are established the survival system starts choosing and highlighting the elements from the given data. However, at M1 nothing new is supplied from the memory. Among the features we get through the bottom-up processing only those features are highlighted which have been listed in the repertoire of the survival system as a signal for possible danger. The whole process happens unconsciously.

The survival system does not let us know consciously that snakehood or snake is a content of memory and that it is an object of past. If we realize that the cognized snake is an object of past then we shall not be afraid of it and may not be able to avoid possible danger. The identification mark of a memory is the 'thatness' (*tattā*) of its object. In memory we cognize an object as qualified by 'thatness' (the property of being in the past). Survival system erases this qualification from the content of memory and brings in the pure content without any reference of its temporality. So, the memory becomes thatness-erased or *pramuṣṭatattāka*. In such situation memory is not individuated and identified *as memory*.

We may explain this phenomenon with a neuroscientific interpretation. On a scale of the vividness of content, memory lies far behind than perception. It is all about the difference of the degree of activation during the cognitive phenomenon. Sensory activation which occurs due to external or internal stimuli naturally is much more forceful than that which occurs when the residual impression of that sensory experience is revived from within. Most importantly with time the informational richness and fine-grainedness of sensory experience withers away. It is not energized with all those informational richness stored in the form of neuronal encryption at our will in normal situation. And in this way the difference between a perception and the corresponding memory is captured in the qualia of those cognitions. That is why we say that 'thatness' is the mark of memory. These differences of memory and perception are instantly captured by our mind in normal situation by the clue of the difference of vividness of

the cognitions. But in illusory situations the survival system hyper-activates the content of memory to such a level of vividness that is closer to perception on the scale. That which was not possible by our conscious will becomes possible by an unconscious mechanism promoted by survival system. The rich perceptual information which was stored in the normally inaccessible network of neurons is revived resulting in such a memory that is phenomenally indistinguishable from perception. This is 'thatness'-truncated memory or *pramuṣṭatattāka smṛti*. And the realization that rich information is availed beyond our conscious control or will gives a feeling that it is perception, because in perception we feel ourselves as a passive receiver.

It should be mentioned here that different cognitive courses are adopted in different cases of misperception. In the case of shell-silver illusion perhaps the survival system is not so important. Among the internal factors (not the perception of similarity, which is an external condition for misperception) what is important is excessive desire for silver.

The indeterminate perception of *idam* is destroyed at this moment. However, it is the persisting moment of the determinate perception in the form '*idam*'.

Now, the visual sense-organ has already been connected ordinarily to the rope (rope-as-a-point-of-reference only) by *saiṅyoga sannikarṣa* and the snake-similar features are connected to the visual sense-organ by *saiṅyukta samavāya sannikarṣa* from M1. And the truncated memory (*pramuṣṭatattāka smṛti*) of snake (as being qualified by snakehood and corresponding denoting terms), or the *pramuṣṭatattāka smṛti* of only snakehood, is produced in this moment which connects its content to the operating visual sense-organ extraordinarily working as *jñānalakṣaṇa sannikarṣa*. Now, the contact between Self and *manas* (*ātmamanaḥsaiṅyoga*) or between *manas* and visual organ (*manaḥ-indriya saiṅyoga*) also persist throughout the moments. Self is ubiquitous. Hence it always is connected with atomic *manas*. And *manas* is connected with the visual sense-organ from the first moment. So, we can see that all the necessary conditions for producing the visual illusion have been accumulated at this moment.

M5: At this moment a determinate visual illusory (extraordinary) perception is produced in the form 'this is a snake' or 'this has snakehood' ('*idam sarpaḥ*' or '*idam sarpatvavān*') through the mediacy of the energization of the memory-traces of the relevant terms like

'*idam*'. So, at this moment, the visual sense-organ produces a visual memory-induced extraordinary determinate perception (*cākṣuṣa jñānalakṣaṇa alaukika savikalpaka pratyakṣa*) of snake.

In the case of the former form of perception ('*idam sarpaḥ*'), two different subjects or *viśeṣya* are known through two different kinds of sensory connections. Rope (as *idam*) is perceived through ordinary sensory connection and snake is perceived through extraordinary sensory connection. Here, the perceived relation is *tādātmya*, *abheda* or *ekatva*.

In the case of the latter form of perceptual cognition ('*idam sarpatvavān*'), the subject or *viśeṣya* (along with some snake-similar qualifications) is known through the ordinary sensory connection and the predicate or *prakāra* of this perception is known through cognition-induced extraordinary sensory connection. It should be kept in mind that the memory-traces of similar features also may be energized on seeing the rope and therefore they may come through extraordinary cognition-induced sensory connection. Here, the perceived relation is *samavāya*.

The Naiyāyikas may say that these relations are perceived through both of the ordinary and extraordinary sensory connections.

Some may suggest that the indeterminate perception of snake-similar features may be able to revive the memory-trace of snake without taking the help of full-fledged determinate perception of '*idam*' qualified by snake-similar features. But previously we have discussed and rejected such suggestion. If we had not perceived the object in front *as curved* or *as cylindrical*, we would not fall in illusion and perceive it *as a snake* (although there may be a counter-possibility which we shall discuss afterwards).

However, lastly we can say that there may be alternative causal accumulations responsible for the occurrence of illusion. In different situations different courses of causal steps – external and internal – are followed. Several causal factors – conscious or unconscious – are simultaneously working for a single result at each step. A little variation in them may affect the whole course. The most important is the causal conditions for the revival of the relevant memory-traces. At which moment it will be revived depends on the presence or absence of the

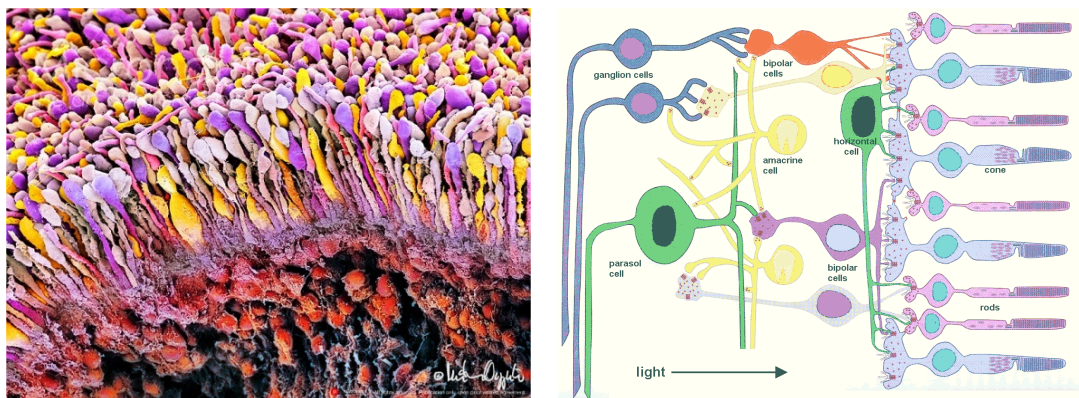
accumulation of *all* the causal conditions it requires. We shall try to organize those idiosyncratic factors of illusion and hallucination in the third section. Let us now give a neuroscientifically plausible narrative of the phenomenon of *jñānalakṣaṇa*, perception, illusion and hallucination.

## 8.2. Neuroscientific Account of Visual Perception and Memory

Without discussing the mechanism of perception and memory, the mechanism of illusion cannot be explained. As the most important, complex and predominant representative of perception we take vision for discussion.

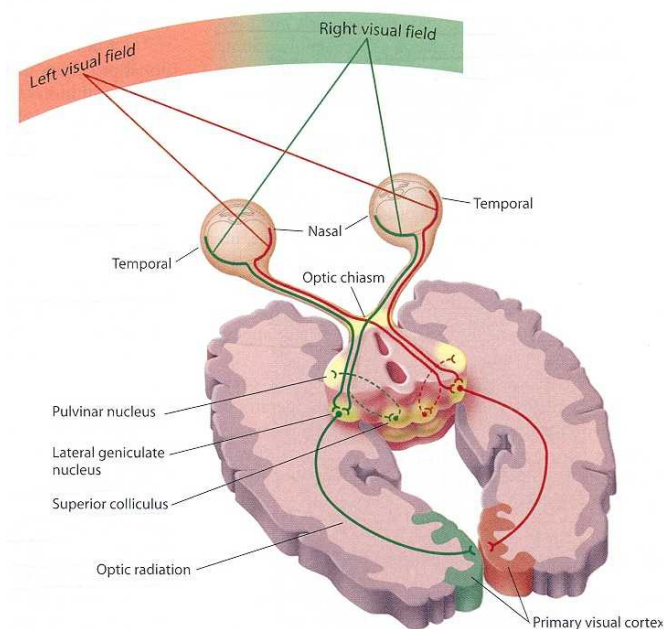
### 8.2.1. Vision

According to Neuroscience, visual information is contained in the light reflected from objects. When light passes through the lens of the eye, the image is inverted and focused to project on the back surface of the eye – the retina. The deepest layer of retina is composed of millions of photoreceptors – each containing light-sensitive molecules or photo-pigments. When exposed to light the photo-pigments become unstable and split apart. Their decomposition alters the flow of the electrical current around the photo-receptors and action potentials are triggered in downstream neurons. There are two types of photoreceptors – rods and cones. Rods are sensitive to low levels of stimulation – hence useful in lowlight vision. Cones require more intense light hence are most active during daytime vision. Cones are essential for colour vision. Cone photoreceptors are of three types – red, green and blue – depending on their sensitivity to the light of different wavelengths. Cones are densely packed near the centre of retina – fovea. In contrast rods are distributed more peripherally throughout the retina.



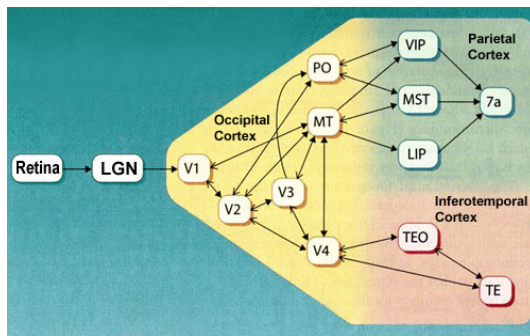
Organization of neurons in Retina

Visual information is extensively processed within the retina through a massive convergence. Human beings have 260 millions photo-receptors but only 2 million receiving ganglion cells. In between rods/cones and ganglion cells there is a layer of bipolar cells. Axons of ganglion cells form a bundle – the optic nerve – through which visual information is conveyed to central nervous system. Before entering the brain, each optic nerve splits into two parts. The temporal branch continues to traverse along the same or ipsilateral side. The nasal branch crosses over to project to the opposite (contralateral) side. The crossover place is called the optic chiasm. This structure, along with retinal curvature, ensures that information from the left visual field is projected to the right hemisphere and vice versa. Once inside the brain, each optic nerve divides into pathways that differ with respect to where they terminate in the sub-cortex. 90% of optic nerve terminates at lateral geniculate nucleus (LGN) of the thalamus (retinogeniculate pathway). 10% of optic nerve terminates at other subcortical structures like pulvinar nucleus of the thalamus and superior colliculus of the midbrain (retinocollicular pathway). This later 10% innervations play a great role in visual attention. However, in the geniculocortical pathway the bundle of axons exits the LGN and ascends to the cortex. Almost all of these nerves end at primary visual cortex or striate cortex (V1) of the occipital lobe. There are more than 30 distinct cortical visual areas doing different jobs – such as V1, V2, V3, V4, V5 (MT) and PO in the occipital cortex, VIP, MST, LIP and 7a in parietal cortex, TEO, TE in temporal cortex.

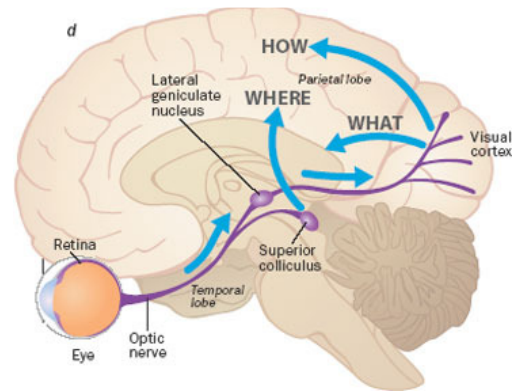


Visual Pathway





Visual Pathway in the Brain



What-Where Pathway

The dorsal processing stream or superior longitudinal fasciculus extending from occipital to parietal region processes the location of object ('where' pathway). And the ventral processing stream or inferior longitudinal fasciculus or occipitotemporal pathway ('what' pathway) determines the identity of the object we see. However, the pathways are not linear or one way connections, the lines connecting extrastriate visual areas (V2 onwards) demonstrate extensive convergence and divergence across visual areas, and some connections are reciprocal, creating feedback pathways. The areas form a hierarchy, in which each area successively elaborates on the representation derived by processing in earlier areas, representing the stimulus in a specific way. The simple cells of V1 calculate edges. Complex cells use that information to represent corners. Higher order visual neurons integrate information from complex cells to represent shapes. This organization proceeds up to a matching operation of presented object with the object of memory. V4, V8 areas are sensitive to colour, V5 (MT) is responsive to visual motion exclusively. Visual perception is a divide-and-conquer strategy. Single-cell-recording shows that neurons in V5 or MT respond similarly when either a green or red colour is presented, but it is highly sensitive to motion within its receptive field. Semir Zeki (1993) used PET to verify that different visual areas are activated when subjects process colour or motion information (using subtractive logic).

According to the hierarchical theory of object perception, cells in the initial areas of the visual cortex code elementary features such as line, orientation and colour. The outputs from these cells are then combined to form detectors sensitive to higher order features such as corners or intersections. The process continues as each successive stage codes more complex combinations. The type of neuron that can recognize a complex object is called Gnostic unit; and the ultimate processing of Gnostic unit sitting on the top of the hierarchy is called grandmother cell. This grandmother cell hypothesis has some problems. Firstly it assumes that

the final percept is coded by a single cell. Now what happens when this cell dies? Secondly, it cannot explain how we perceive novel objects. Thirdly, it does not explain how the grandmother cell adapts as its object grandmother changes over time. An alternative is ensemble hypothesis recognition is not due to one unit but to the collective activation of many units those are complex feature detectors. This theory perfectly explains why we can confuse between similar objects – because both objects activate many of the same neurons. Even after losing some neurons the remaining neurons may suffice to recognize – the mechanism does not let the ability collapse. Due to similarity we can recognize even novel objects.

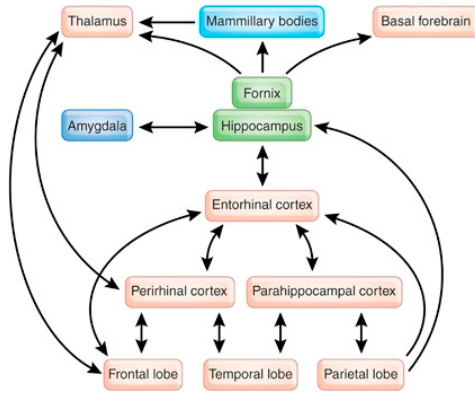
### 8.2.2. *Memory*

There are two principal types of memory – long-term and short-term memory.<sup>266</sup> From the studies of amnesic patients it is revealed that medial temporal lobe is critical for long term memory. The region covers or includes the amygdala, the hippocampus, the entorhinal cortex and the surrounding parahippocampal and perirhinal cortical areas. From fMRI scan of HM and RB's brain it was known that hippocampus is crucial for formation of new long term memory. Such long term memories remain stored in the association areas of medial temporal cortex. Diencephalon also is thought to have crucial role for declarative long term memory (thalamic nucleus and mammillary bodies). Using Event-related fMRI method such fact has been proved. The other portions of medial temporal lobe such as entorhinal cortex support recognition, based on familiarity. Long term memory is consolidated in neocortex and medial temporal lobe. Initial rapid consolidation happens at medial temporal lobes – particularly at hippocampi. Larry Squire and his colleagues have proposed that rapid consolidation in the medial temporal lobe is replaced by a permanent memory trace in the neocortex that arises from some sort of medial temporal lobe interaction with neocortex. Lynn Nadel and Morris Moscovitch suggested that neocortex stores semantic information permanently and some aspects of episodic memory continue to rely on medial temporal lobe. Temporal neocortex is the store of semantic memory. Recent evidence from neuroimaging studies suggests that memories are stored as distributed representations throughout the neocortex involving the regions that originally encoded the perceptual information and also the association regions.

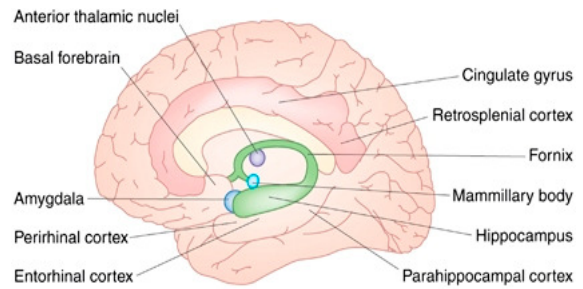
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<sup>266</sup> In the case of the perception of a long word constituted by many letters when the last word is heard, the perception of the first letter is destroyed. Hence the Naiyāyikas hold that the perception of the whole word is composed of the perception of the last letter along with the memory of the previous letters. Although the previous letters become the objects of perception through memory but *jñānalakṣaṇa sannikarṣa* is not admitted in those cases. It seems that short term memory (phonological loop, visual-spatial sketchpad or episodic buffer) is not considered to be *jñānalakṣaṇa sannikarṣa* – only long term memory is considered to be *jñānalakṣaṇa sannikarṣa*.

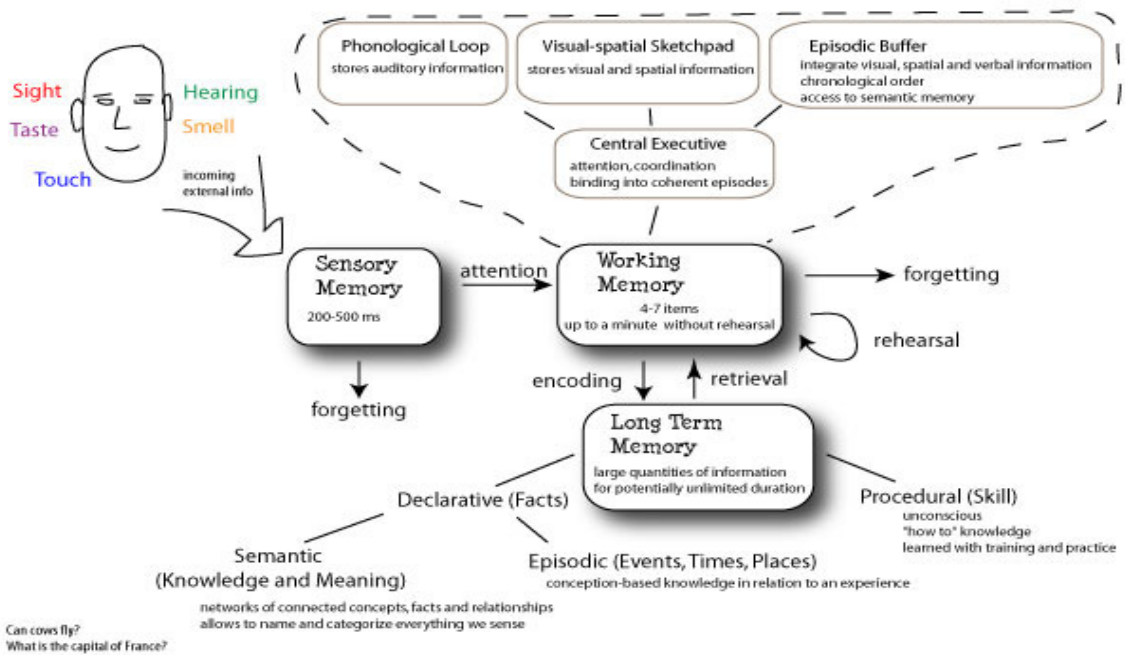
Hippocampus plays the crucial role in encoding new information as well as in retrieval of stored information from long term episodic memory.



Neural Pathways for Encoding and Retrieval of Memory



Important Memory Regions of Brain



Classification of Memory and their Relations

There are several models for explaining how memories are stored in the brain. Some suggest that memories are stored as items in a neatly filed way somewhere in the brain. Others propose that networks consisting of discrete nodes are formed. The nodes are interconnected via associative links that relate bits of information together for storage. Symbolic nodes and associated nodes become more tightly interconnected during learning. In contrast,

Connectionist models hold that memories are stored as changes in the instructions that neurons send to one another. New incoming information induces a specific pattern of activity over a population of neurons and this pattern is the representation of that information. Such models embody the concept of a distributed representation and sparse coding which is observed in sensory system or in hippocampus in neuronal recordings in animals. In a connectionist network the interconnections between units in the population can change their strength or weight to reflect the changing patterns of instructions the units send to one another. These weights change as learning occurs and connectionist models use training algorithms such as ‘back propagation’ to avail object from pattern adjusting weights in the network. Different features, say visual and olfactory features of a rose, need not be stored separately but can be represented across the same network of units. It is the pattern of activity across the same units that account for the storage of different features. And when these two patterns are superimposed one on another, the resulted summed activation pattern reflects the stored representation of the multimodal features of the rose. Left frontal cortex is often found to be involved in encoding of episodic information and retrieving semantic memory, whereas the right frontal cortex retrieves episodic memory. This lateralization is there because the left hemisphere is more involved in processing linguistic representations and the right one processes spatial memory information.

### 8.2.3. *Perception, Illusion and Jñānalakṣaṇa: In the Light of Neuroscience*

We may reconstruct the Nyāya account of illusion in the light of modern neuroscience. We propose that whether a cognition is perception or inference, or more precisely visual perception or tactual perception or the like, depends on which part of the brain is being activated and to what extent and intensity it is activated. One may say that it is not only the activation of occipital lobe that determines the visuality of the cognition – but the whole pathway from retina to cortex. The biological make of different receptive neurons are different. Optic nerves are biologically different from tactual nerves. This biological differences make the corresponding ‘feelings’ different. Even within the domain of tactual sensations feeling of pain is different from that of pleasure or from that of pressure; because the pain-receptors are morphologically different from pleasure-receptors or pressure-receptors. So, the phenomenology of, say ‘being in vision’, emerges from this whole pathway activation. At the proximal level, the input optic nerve stimulation plays an important part. It has double duty. It is responsible for the visuality of the cognition – we can say that it is the *cause* of

visual cognition. And also it is the cause of the *phenomenology* of vision. Here we certainly subscribe to a Supervenience Theory.

Now, in the case of vision, this proximal neural stage or layer is normally activated from retinal input. But sometimes this activation may come from memory-centre – following a disinhibited reverse course activation towards the retinal nerves, through interconnected neural network. There are several reasons for this disinhibition such as our survival system, emotional factors like desire, fear etc. These factors energize the memory centers so intensely that the flood of activation recedes backwards up to the visual proximal nerves. As long as the proximal level is activated we are bound to say that the resulted cognition is a visual perception. And as soon as the proximal layer is activated the phenomenal feeling corresponding to visual perception emerges, which is captured in the reflection or after-perception or *anuvyavasāya*. This happens during dream or illusion, when object of (or we can say content of) memory is connected to the proximal neural layer or *indriya* through backward activation flood, and makes it the content of perception. It is an accepted fact that while dreaming a movement of eye-ball is observed. It proves that the activation of the proximal level of neurons is necessary for *perceptual* experience – whether it is illusion or hallucination or true perception.

According to neuroscientific explanation visual information that is recognized by the cortex of the temporal lobe (e.g. the fusiform) is relayed to the amygdala, nucleus accumbens, and other parts of the limbic system (Amaral, Price, Pitman and Carmicheal, 1992; LeDoux, 1992). These structures evaluate the significance of the object so that we may speak of the amygdala and nucleus accumbens as developing an ‘emotional salience map’ of objects and events in the world. If the object is emotionally significant or salient, such as a predator, prey or mate, the message gets relayed to the hypothalamic nuclei to prepare the body of fleeing, fighting or mating. Neural signals cascade from the limbic structures down the autonomic nervous system to decrease gastric motility and increase of heart-rate and sweating (Lang, Tuovinen and Valleala, 1964; Mangina and Beurezeron-Mangina, 1996). This autonomic arousal can be measured by monitoring changes in skin conductance caused by sweat (skin conductance response or SCR) which is observed only when we look at prey, mate or predator. We may conjecture that in the case of say rope-snake illusion, half-processed visual information about snake (only its similarities with rope) is relayed to the fusiform area of the temporal lobe through ventral pathway or ‘what’ pathway for recognition. The similarity with snake makes it

to be recognized as snake. Then the limbic regions response accordingly. Perhaps before an explicit recognition of the object the limbic area becomes activated and an emotional expectancy or predominance of an emotional element, either fear of being extinct or desire or else – which one has the most effectiveness – influences fusiform to create a vivid picture of the object (snake) through activation of a preexisting associative links or by a hyperconnection with memory centre. And the hyperconnectivity with the perceptual memory of snake causes visual qualia. Since these intermediate neural connections occur without any qualia, we do not become aware of it. Now the question is how is this visual quale, which is reported in *anuvyavasāya* or after-perception, produced? On the study of brain damaged patients, it is suggested that the critical brain circuits involved in qualia are the ones that lead from sensory input to amygdala to cingulate gyrus (Ramachandran, Hirstein, 1997; Ramachandran, Hubbard and Butcher, 2004). In the case of say tone-colour synaesthesia we say that auditory information is additionally relayed to the visual cortex resulting in visual qualia. In the case of illusion also we can say that a hyperconnectivity due to disinhibition is established between visual cortex, amygdala and cingulate gyrus so that we become conscious of the stored visual information of snake along with visual qualia.

Here we can compare and differentiate perception, illusion and imagery with respect to neural activation. Perceptuality consists in being the most vivid activation – over a certain threshold – along with passiveness. While dreaming, the peripheral sensory stimulation remains absent. In the absence of the activation of external sensory receptors the internal neuron-activation becomes comparatively the most vivid. When it crosses that threshold we ascribe perceptuality to it. The difference between imagination and dream (or hallucination) is that in the case of imagination we remain conscious that we are accessing memory-store and combining those contents according to our wish; whereas while dreaming or hallucinating we do not access the memory-store consciously. Since perception is a passive process, we equate or categorize dream or hallucination with perception and ascribe perceptuality to dream and hallucination. Illusion proves that neurons may be active with almost equal vividness peripherally (long, black and cylindrical object in front) and internally (snake). That is why we merge these two passive activations forming a unique whole (the object in front is snake), and take the cognition as a single determinate perception, where, as if, the absent snake is internally connected to the operating sense-organ.

At the centre of the debate regarding the relation between perception and imagery has been the question of whether imagery uses the same neural machinery as perception uses. When we imagine some object from memory do we activate the same neural pathways, performing the same internal operation, as when we gaze upon such object with our eyes? During imagining the colour or shape of say an orange do we activate visual colour area V4/V8 or shape area? Neuropsychology provides evidence of shared processing for imagery and perception. Patients with perceptual deficits have also been shown to have corresponding deficits in imagery (Farah, 1988). Like perception it was seen that there is dissociation of what-where processing in imagery also. The patients with damage to ventral pathway or occipitotemporal lesions had difficulty in imaging faces or animals – but they can readily draw floor plan or maps. In contrast, the patient with damage to the dorsal pathway or occipitoparietal lesions produced vivid description when asked to image objects, but failed spatial imagery tasks. Farah measured the evoked potentials of subjects engaged in reading a list of words or imaging the objects while reading. It was seen that in the imaging condition the waveform representing the occipital electrodes increased, showing selective enhancement in the activation of visual areas. PET study also supports this conclusion and showed that imagery not only activates visual association areas but also primary visual cortex (Kosslyn et al., 1993). Kosslyn also used TMS procedure to understand the functional importance of primary visual cortex in imagery. When TMS coil was placed near primary visual cortex and the coil disrupted the neural activity of that visual area, subjects were slower on making imagery based judgments. The imagery research demonstrates that memory for perceptual information is not independent of perceptual processes. We need not think of perceptual processing and the memory of that processing as distinct neural entities. Perceptual memory might simply reactivate perceptual pathways. However it would be premature to conclude them to be identical. There are patients with perceptual problem or agnosia with no problem in imagery and also the other way round. These dissociations between perception and imagery can be accounted for by supposing that although imagery and perception share forms of representation, they may achieve them in distinct ways. There might be a difference in level of resultant activation of the same final neural structure, which explains the difference in prominence between a percept and imagined object.

In this way we may differentiate perception from inference or testimony or analogy depending on different natures of neuronal activation, although such project needs extensive researches on brain images.

We have seen that although our brain is generally thought to be modular, it is also designed to combine, compare and form multi-modal concepts and store them as memory. This ability had been developed as a survival strategy since it helps us in extracting such properties of object those are required to know for understanding the world better and confront or handle it (multimodal enhancement). Therefore, several regions of the brain, such as SC, LOC, AES at TPO junction, STP etc., were made to devote for this task. Now, such multi-modal concepts are linked by association or origin to several kinds of sensory information. Hence it is plausible that activation of one sensory component may energize the other component via the energization of the multi-modal concept. And the multi-modal concept processing areas may take the leading role in executing the whole mechanism. This is a humble support to the theory of *jñānalakṣaṇa sannikarṣa* on behalf of neuroscience.

Universal psychedelic synaesthesia, infantile synaesthesia, cortical plasticity and universal multimodal information processing support the hypothesis of feedback disinhibition and reentrant disinhibition. Although in some cases new neural connections are created due to genetic factors but the existence of a hidden and universal mechanism for cross-modality or multi-modality cannot be denied.

#### 8.2.4. Object-Content Dualism and Representationalism in Nyāya

The Nyāya defines *jñānalakṣaṇa sannikarṣa* or cognition-induced sensory connection as *svasaṁyukta manaḥsaṁyukta ātmasamaveta jñānaviṣayatva*. In this definition, the term ‘*viṣayatva*’ might have two alternative meanings. Either the term ‘*viṣaya*’ means *object* of cognition, or it may mean *content* of cognition. Now, in the context of *viṣayatāvāda* there are two alternative views. One is compatible with Direct Realism and the other is compatible with Representative Realism. The first one holds that as a result of an epistemological process, a corresponding metaphysical object is created (like Sense-Data?). The other view does not accept this contention. They argue that the created object cannot be incorporated in the seven categories. Secondly, it leads to the defect of superfluity (*gauravadoṣa*). If the Naiyāyikas are considered to be the Direct Realists then the term ‘*viṣaya*’ means *object*. In the framework of Direct Realism there is no scope for object-content dualism where an intermediate level of representation is admitted. But there might be an interpretation of the Nyāya theory which is compatible with Representational Realism. This tendency is predominant in later Nyāya or Navya Nyāya tradition. If we accept this interpretation then we may say that *jñānalakṣaṇa*



*sannikarṣa* connects sense-organ not with the *object* of cognition but with the *content* of cognition. The object of memory might not exist at the time of memorizing it. *Jñānalakṣaṇa sannikarṣa*, which has a psychological account approved by common-sense, is different from mysterious *yogaja sannikarṣa*. Hence, *jñānalakṣaṇa sannikarṣa* does not connect sense-organ with a non-existent object mysteriously. On the other hand even if the *object* is destroyed (*bhagnaghaṭābhāvavat*) its representation may exist in the form of the *content* of memory-trace, which is revived in memory.<sup>267</sup>

The Naiyāyikas admit universal or *jāti* in order to explain common experience or *anugata pratīti*. Without admitting an intermediate representational level it is difficult to explain similar experience or *anugata pratīti*, the logical equivalence between ‘p’ and ‘~ ~ p’, the equivalence between ‘*bhūtale ghaṭābhāva*’ and ‘*ghaṭābhāvavadbhūtaḥ*’. Moreover, we may have two different concepts or meanings having a unique reference such as ‘*Rāma, the son of Daśaratha*’ and ‘*Rāma, the son of Kauśalyā*’. In that case we have to admit that in those cases although there is only one reference or object but at the level of concept/meaning or language there is difference. Without admitting object-content dualism it is hard to explain. The Naiyāyikas admit the difference between *viśeṣaṇa* or real property and *prakāra* or the property revealed in cognition; and depending on this difference they explain and define false cognition. So, they implicitly admit internal representation and object-content duality.

If we do not acknowledge the object-content division then it will be difficult for us to analyze the nature of sense-object contact or *indriyārthasannikarṣa* in the case of illusory situation. Let us understand the problem in the background of a full exposition of the nature of illusion which discusses the mechanism of illusion as a component of philosophical arguments. On one hand it will help us to place the issue of object-content duality, and on the other hand we shall be able to understand how the Naiyāyikas came up with a mechanism of illusion through logical argumentation.

We find such an account in *Nyāyamañjarī*<sup>268</sup> where Jayanta Bhaṭṭa speculates on the import of the term ‘*avyabhicārī*’ in the definition of perception given by Gautama. In doing so he had to clarify what should be the *viśaya* of illusion. He says that the term ‘non-erroneous’

<sup>267</sup> BBPV., pp.245-248.

<sup>268</sup> *avyabhicāriḥ vyabhicāriḥ jñānavyavacchedārtham.....*

*akṣajāstadvyudāsāya sūtre padamidaṁ kṛtam// – Nyāyamañjarī*

(*Avyabhicāripadakṛtyapradarśanam*), Jayanta Bhaṭṭa, NMS I., pp.82-84.

(*avyabhicārī*) has been inserted into the definition in order to exclude erroneous perception from the field of true sense-perception. An illustration of perceptual error has been given as follows. In summer when the sun shines scorching the forehead with its heat its rays obliquely strike on the surface of the sandy soil and are thrown back. The reflected rays assume the form of waves. They appear as an ocean. The appearance of the rays as an ocean is false since what is presented to consciousness does not correspond to reality. One thing is mistaken for another. The erroneous sense-perception is excluded from the realm of true sense-perception by the adjective ‘non-erroneous’. When the visual sense-organ is connected with the object, just immediately after that initial sense-contact an indeterminate perception is produced. This indeterminate perception, at the second moment, produces the determinate perception of water. According to the Naiyāyikas, the object of the indeterminate perception is water – not the rays of sun (*marīci*), like the determinate perception. There is no *viṣayabheda*. The difference only is that in the stage of indetermination one does not judge but at the second level (of determination) the water is presented to the consciousness as a shining object – so he can judge it. So, in the erroneous case both indeterminate and determinate perceptions are erroneous.<sup>269</sup> But in the cases of true perception both of them are non-erroneous or true.

Now an objection may arise. During the said illusion when the rays of sun is known as water, the object (*viṣaya*) of the illusion, i.e. water, is absent in the place. Hence there cannot be any contact between the visual sense-organ and water. Hence the illusion is not produced by sense-object contact (*anindriyārthasannikarṣaja*). Therefore, the phrase ‘generated by the sense-object contact’ (*indriyārthasannikarṣotpannam*) can exclude all errors from sense-perception. Then what is the use of the adjective ‘non-erroneous’ (*avyabhicārī*)?

Jayanta says that such an objection does not hold good. The illusion in question is produced by the sense-object contact since it depends upon the sense-object contact for its appearance. If a man shuts his eyes he cannot cognize water in a desert. A real object is one of the conditions of this awareness since no unreal object is presented to our consciousness. No unreal object can be a support (*ālambana*) of a cognition. There are three different hypotheses, framed by the great teachers, with regard to the support (*ālambana*) of such illusory experiences. Some of them hold that the rays of the sun, the form or the specific character of

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<sup>269</sup> *tasmātsavikalpakamavikalpakam vā yadatasmiṁstaditi jñānamutpadyate, tadvyabhicāri, tacceha vyavartyamiti – Nyāyamañjarī (Avyabhicāripadakṛtyapradarśanam), Jayanta Bhaṭṭa, NMS I., p.82; NM., p.409.*

which has been concealed and which has assumed the form of water, is the support. It means that neither any sunrays nor the superimposed water is the support of the illusion. But the 'sunrays, appeared as water' is the support of such illusion. Here the support is such a cause of water-illusion with which the eyes are connected. The support is the cause and the object of illusion. So, the illusion is produced by the sense-object contact. It seems that we need not admit any extra-ordinary sensory connection in this respect. The cause of illusion is an ordinary sensory connection. Let us now explain how some rays appear as water. At first we perceive only those features which are commonly shared by the water and sunrays, i.e. the waves etc. (*taraṅgādi sādharana dharma*). Now the perception of common feature (*sādhāranadharmā darśana*) along with the absence of the perception of specific characteristic (*viśeṣadharmā adarśana*) is the cause of a doubt (such as, it is either a post or a man) also. But in the case of a doubtful knowledge the specific characters of both the alternatives come into our memory. In the case of the illusion of water in sunrays, the specific character of eye-connected sunrays does not come into our memory. Only the specific character of previously known water, which is contrarily opposed to the sunrays, comes into our memory. Here the perception of similar objects is the energizer (*udbodhaka*) of the previous effect of water. Now, under the influence of the memory of the specific character of water, the specific character of the sunrays is concealed. Thus, failing to reveal itself in its objectively real specific character, the sunrays appear as water. Due to the absorbedness into the memory of the specific character of water the specific character of sunrays is concealed. Mind then does not promote the eyes in perceiving sunrays, but makes us believe that the water, which actually is a past object, is a present object and thus promotes the eyes in perceiving water. Since eye is connected with the *ālambana*, i.e. sunrays, which has assumed the form of water, the illusion is a product of *indriyārthasannikarṣa*.

Some other teachers hold that here the support is water – not the sunrays. Here water is brought to the visual sense-organ through the memory of water which in turn is produced by the perception of similarity between water and the object present before the eyes (sunrays). So, the form which is presented to our consciousness (water) is the *ālambana*. But the object which is close at hand (sunrays) is not the *ālambana*. Here the memory of water works as the required sensory connection (extra-ordinary memory-induced sensory connection or *jñānalakṣaṇa alaukika sannikarṣa*) between the visual sense-organ and water (which is the *ālambana* or object or *artha*). Although the visual sense-organ is ordinarily connected to the sunrays but that is not *ālambana*. Only that thing is *ālambana* which is revealed in the

cognition. Moreover, such thing, in order to be an *ālambana*, must have real existence. No unreal object, e.g. a sky-flower, is presented to our consciousness. So, water, which really exists in some other part of the country, becomes the *ālambana* of the illusion being conveyed by the memory of water – that memory which is produced by the evocation of the previous effect of water which in turn is due to the perception of similarity.

The third batch of logicians holds that the support (*ālambana*) of a cognition and the object (*viṣaya* or content) of the cognition are not the same thing. Support is the objective condition of awareness but object (content) is that which is presented to or revealed in our consciousness. In this illusion of water in sunrays, sunrays are the *ālambana* whereas water is the *viṣaya*, which appears (*pratibhāsate*). An *ālambana* is such a condition of apprehension that is other than the agent and the instrument (*karṭṛkaraṇavyatiriktaṁ jñāna janakam*). A supersensible object like an atom is never an *ālambana* because a supersensible object can never be counted as a condition of perception.

The sense-illusions are causally connected with the external sense-organ and the external objects. And the causal connections are established by the joint method of agreement and difference. Such illusions are produced by the sense-object contact. Hence, such illusions cannot be excluded from the province of true sense-perception if we simply qualify the true sense-perception by the adjective phrase ‘generated by the sense-object contact’ (*indriyārthasannikarṣotpannam*). However, the subjective or mental hallucinations, those arise independently of the external sense-organs, are not *indriyārthasannikarṣotpanna*. Hence the term truly excludes mental hallucinations from the province of true perception. The adjective ‘non-erroneous’ (*avyabhicārī*) will not be required to do so. The example of such mental hallucination is as follows: A lover with his eye-sight distorted by the excessive pressure of love, excited by the pangs of separation, sees his beloved lady by (near to) himself though she actually is far away from him.

Now, a question arises in our mind as to what is the (expressible) form of such objectless or substanceless hallucination (*nirālambana vibhrama*)? Or, how does such hallucination refer to its object?

The answer to this question is given as follows. The objects which are recalled in memory are presented to our hallucinatory experience. Before the hallucination, the memory regarding the

content of hallucination occurs. And the memory supplies the content of hallucination. Hence, the content of hallucination is the same as the content of memory. Therefore, they are of the same form.

If it is held that only that object which can condition perception is cognized in perception then the causal relation between an act of perception and its object is fairly established. An absolutely unreal object (*ekānta asat*) which is incapable of conditioning awareness, is never cognized. There is a rule that only real objects are known; the knowledge of unreal object is not possible. In order to support this rule it has been said that the cause of illusion is the sensory connection between the external sense-organ and a real object. Now one may object the *indriyārthasannikarṣa* is not the cause of hallucination. There is no real object (*artha*) for such an experience. Its object is unreal or *asat*. In order to eradicate such a possible objection Jayanta says that an absolutely unreal object, which has no existence at any time, does not have the capability of producing a cognition. It implies that the object of hallucination is not absolutely unreal – it must have existence in some other time or place.

In the case of hallucination, the hallucinatory object such as a lady etc. has no chance of being perceived since it does not stand close to the person. But being recalled in our mind it is presented to our consciousness. Hence, the initial adjective, '*indriyārthasannikarṣotpannam*', excludes hallucination from the realm of true sense-perception since its origin is independent of (external) sense-object contact. But there are cases of sense-illusions. The perception of yellow conch-shell and the perception of water in desert are such cognitions those depend on sense-object contact. The term 'non-erroneous' (*avyabhicārī*) has been given to exclude these sense-illusions from the range of the true sense-perception.

In this exposition matters became unnecessarily complicated since object-content division has not been acknowledged. Secondly, the *perceptuality* of hallucination has not been explained. We know that perceptuality of a cognition emerges from sense-object contact. If hallucination is not *indriyārthasannikarṣotpanna*', then how can it be perceptual? And if it is not perceptual then why after hallucination we invariably introspect that we have *perceived* the hallucinatory object? Such discrepancies can be avoided if we admit that perceptuality consists in whole pathway activation including the stimulation of the proximal input layer of neurons. It perfectly explains why after hallucination we after-perceive that we have '*perceived*' the hallucinatory object (not *remembered*). The Navya Naiyāyikas admitted the existence of

*mānasa jñānalakṣaṇa sannikarṣa* or mental memory-induced sensory connection which is of the nature of *svasaṁyukta ātmasamaveta jñānaviṣayatva* or the property of being the content of such a memory cognition which inheres in the Self which is in contact with internal sense-organ *manas (sva)*. Dream and hallucination are the examples of the product of such sensory connection. So, dream and hallucination are perceptual in nature they are not *pramuṣṭatattāka smṛti* or thatness-truncated memory.

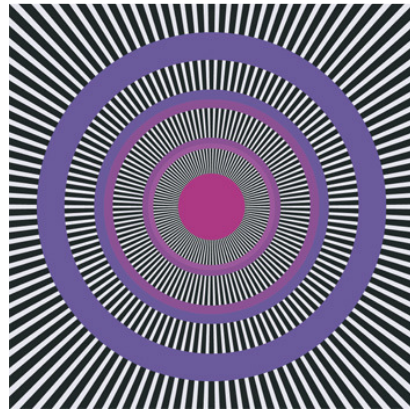
Neurophysiology hypothesizes that information is retained in neural network in the form of *ionic encryption*. When this memory centre is energized with sufficient intensity and the backward flood of activation reaches neurons in sense-organ, then we may say that the content of memory-cognition is connected to the sense-organ. This might be an acceptable neurophysiological interpretation of the Nyāya account of perception – normal and memory-induced perception.

We can think that the neuronal encryption is an intermediate level between the object and cognition. This is memory-content and sometimes, when charged with sufficient vividness, becomes the content of perception. This interpretation is consistent with object-content dualism, Representational Realism and Proximity Principle. This interpretation says that even in the cases of true perception there remains a representational level in the form of ionic encryption in the neural network. External stimuli, say a red rose, causes this neuronal representation which in turn causes perceptual cognition. And when the stored neuronal representation of the red rose (proximal cause) is charged up by some factors, other than the external red rose, illusion or hallucination occurs. So, we shall be able to explain perception, illusion and hallucination by the same model.

If we admit the existence of a *representational level* or *proximal level* as the activation of neurons which can occur either due to *distal* real object or *internally* by activation of other parts of the neuronal network, then we shall be able to explain the illusions only due to the defect of sense-organ, like the perception of double moon (*dvicandradarśanādi bhrama*), or the illusion in Amme's room, by the same model of illusion – without admitting disjunctivism in the theory of illusion.

The Proximity Principle ensures that the proximal condition of perception, i.e. the activation in the neuronal level perfectly corresponds with the emergent experience whatever be the

distal stimulus or external environment – even if there is no corresponding distal stimulus. Let us substantiate this correspondence experimentally. If you stare at the centre of the following picture you will begin to see scintillating illusory motion within the blue circles, although there is no motion.



Enigma pattern

Now, we know that moving patterns produce a strong hemodynamic response in V5 (MT). Both PET and fMRI have been used to show that even illusion of motion corresponds to pronounced activity in V5 (MT). In another experiment after staring at a green circle for 30 seconds, if someone gazes to the neighbouring grey circle, he will perceive the grey circle as tinged with a reddish purple – the complementary colour to green. Scanning of the persons in this illusion shows a high level of activation in the colour area V4. However, the illusion gradually evaporates and the V4 activation also comes to baseline correspondingly.

Hence it is experimentally proved that there is a representational proximal level in the form of brain state in between the object and the perceiver, and if it is energized by some other means we experience the corresponding sensation even if there is no distal stimulus.

#### 8.2.5. Compatibility with Direct Realism:

##### Confronting Subjective Idealism and Skepticism

This neuroscientific interpretation of Nyāya Representationalism is compatible even with Direct Realism. It may sound contradictory, but let us explain it. What we mean to say is that this Representationalism is devoid of *mysticism* because it does not assume any abstract realities like ‘form’ as the Sautrāntikas admitted at the intermediate level. Representation at

neuronal ionic encryption provides a causal account of cognition which is at per with the Nyāya temperament. Although we are calling this neurophysiological interpretation of Nyāya theory as a ‘Representationalist’ account, but all the intermediate steps are causally and *physically* determinable since they are ‘brain-states’.

So, this sort of Representationalism is different from that Representative Realism which invites Subjective Idealism. Although the Nyāya School generally is considered to be Direct Realist, we hold that at least some form of a *platform of manipulation* has to be admitted for explaining the possibility of illusion. The Nyāya theory of illusion, Anyathākhyātivāda, and the Nyāya epistemology in general, is an out and out causal account. We propose that at least some form of representationalism is determined causally and physically, and is thus compatible with even Direct Realism. We suggest that *ionic encryption in neurons* is such a manipulable proximal causal level in between Self and object that provides platform or possibility of error. But if we hold that ‘embodied Self’ is the cognizer, then the theory becomes compatible with Direct Realism also. The whole thing depends on what do we mean by the word ‘*direct*’. Perception for the Naiyāyikas is direct apprehension although they admit mediation of mind and sense-organ in between Self and object while the production of perception. We might mention that the Jainas do not admit such sense-mediated perceptions as *direct*. Since the Naiyāyikas hold that only an embodied Self is capable of having cognition, they include mind and sense-organ in the part of cognizer or subject and hold that perception is a direct apprehension. In the cases of *jñānalakṣaṇa alaukika pratyakṣa* we observe that the Naiyāyikas admit such an intermediate sensory connection between subject and object (of different time and place) that itself is a cognition ensuring a cognitive manipulation which is not attainable in normal way. In this way the contribution on the part of a cognition – whether memory or perception – is incorporated in the process of sensory connectivity in order to keep the flavour of Direct Realism alive. But if we analyze the mechanism of *jñānalakṣaṇa alaukika sannikarṣa* psychologically we shall acknowledge that a proximal causal level has been admitted. According to the Nyāya *jñānalakṣaṇa alaukika sannikarṣa*, which itself is a *cognition*, connects sense-organ with the object through conferring its own object as the object of the illusion. If we take this account literally that a supernormal mysterious sensory connection connects an object existent at some other place or time (which might have been destroyed now) with the sense-organ, then it becomes psychologically and also logically



implausible.<sup>270</sup> On the other hand the causal role played by memory as the sensory connection suggests that it is not the *object* of memory which is conferred as the *object* of illusion, but it is the *content* of memory which becomes the *content* of illusion. So, there is memory in between the subject and the external object in the name of *sensory connection*. However, although there is a full-fledged cognitive or epistemic element in between the subject and the object it is hard to avoid the vices of Representative Realism, which leads to Subjective Idealism.

Let us now see how we can get rid of this predicament. Although in the moment examination of illusion we kept a place or moment for the production of memory of snake but that the memory remains unrecognized is admitted by all the schools. Here our ionic encryption model says that the retrieval of ionic encryption goes under the threshold of consciousness. We have mentioned the interpretation of Kalikrishna Bandyopadhyaya earlier in the chapter of *Jñānalakṣaṇa Sannikarṣa*, where it was suggested that *jñānalakṣaṇa sannikarṣa* might be taken as *samskāralakṣaṇa sannikarṣa* where an unconscious retrieval of memory-trace (a special chemical or physical organization of the elements in the sub-cellular organism) is all that is important. Now, if we consider the neuronal network of our brain as an extension of sense-organ then the memory-traces also will be the properties of the extended sense-organ – not an epistemic element.

However that does not imply that the Naiyāyikas are Disjunctivists who explain veridical perception and illusion differently. They have to admit a proximal causal level in the case of veridical perceptions also which may invite Subjective Idealism through Representative Realism. However, if we admit an intermediate representational level as memory content in the form of *ionic encryption in neurons* then the problem is solved. Since the intermediate proximal level is an out and out physical state (brain-state), no intermediate mysterious non-physical metaphysical elements like Sense-Data or ‘idea’ are admitted. Moreover, ‘Argument from Parasitism’ protects Realism from Subjective Idealism. Remaining consistent with Proximity Principle, the Nyāya admits Highest Common Factor or HCF between perception and illusion. But that does not invite Idealism; because the proximal layer stimulation itself is causally grounded in real-world situation. Falsity is parasitical on truth. Hence, even without

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<sup>270</sup> *tathāca bādhakajñānam – ‘nedam rajatam’ iti viśiṣṭadeśa-kālasambandham rajatam vilopayadeveti, na deśāntarasambandhamāpādayati; tathā’navagamāt. nārthapattya; iha bhagnaghaṭābhāvavattāvanmātreṇāpi tatsiddheḥ. – Pañcapādikā, Padmapādācārya, BBPV., pp.245-248.*

resorting to Epistemic Disjunctivism, Direct Realism can save itself propounding a theory of perception that accords with Proximality Principle.

Ionic encryption model is different from Perceptual Anti-Individualism (PAI) which admits such an internal representation about which we are conscious. It is not a sub-personal level representation, but a conscious level. Otherwise PAI would not be able to refute Epistemic Disjunctivism. Now if PAI is considered to be at par with the Nyāya, then the Nyāya cannot but be considered as Representative Realist. Hence we hold that the intermediate representational ionic level is sub-personal. In spite of that the ionic encryption model is able to refute Epistemic Disjunctivism because there is a common factor between veridical and non-veridical cognitive situation – the proximal neural activation. We shall admit Proximality Principle, but shall not admit intermediate epistemic element which may invite the vices of Representative Realism. Therefore, ionic encryption model is the way out which blocks ED, avoids the vices of Representationalism rejecting intermediate conscious level and keeps the possibility of illusion intact by admitting Proximality Principle.

The important thing to notice is that the intermediate psychological steps in *jñānalakṣaṇa alaukika pratyakṣa* are not experientially recognized by the subject when he is in the situation. It is only after the analysis of the situation we hypothesize the said causal chain. We infer that there must be a memory cognition in between otherwise how an absent object is cognized is not explained. But what the Naiyāyikas and the Prābhākaras conjointly acknowledge is that such memory cognition is not recognized in its true essence. It is *pramuṣṭatattāka smṛti*. It supports the fact that in real-life situation actually we do not have a full-fledged cognition about the in between steps. Our intuition also says that while in illusion we do not go through all the epistemic steps shown in the moment examination consciously. As soon as we perceive the rope we jump instantly supposing it a snake. The intermediate epistemic steps are our construction from post-illusion analysis about which we are not at all conscious. Then why admit such epistemic steps? Let us suppose that the operating sensory connection is not *jñānalakṣaṇa sannikarṣa* but *samskāralakṣaṇa sannikarṣa* where the *samskāra* itself is the ionic encryption.

However, if we do not admit them the phenomenon remains unexplained. Here our ionic encryption model can solve the problem. It says that there is a causal chain of neural activations going on starting from the encounter with rope to the sensation of fear. But much

of the process is happening under the threshold of consciousness. If the Naiyāyikas do not agree to admit *unconscious determinate cognition* they may aloof the intermediate epistemic steps. That will not hamper in any way the neural causal mechanism. We have mentioned that the Navya Naiyāyikas tried to explain this unconscious mechanism raising question whether unintrospectable indeterminate cognition can officiate *jñānalakṣaṇa alaukika pratyakṣa*.<sup>271</sup> But we have argument against such a consideration. If we do not see the object in front *as* long and curved then how can it be taken as a snake? The ionic encryption model has the provision of admitting the existence of *unconscious determinate cognition* which can explain the real-life situation better. Of course the Naiyāyikas can say that although determinate cognition is introspectable, it may not be introspected all the times. Due to some internal or external factors it may go unintrospected. This provision is accepted in Nyāya system also because the Naiyāyikas are *paraprakāśatvavādins*, who propound introspection as a *scanning* of mental event. If so, then they will have to admit the existence of such determinate cognition about which we are not aware. Another possibility is that we need not have a full-fledged determinate cognition of the object in front for an illusion. Even the unrelated features like curvedness etc. are sufficient for bringing the memory of snake (through association, with the help of the survival mechanism and the arousal of fear for a snake) and make it a percept by vividly energizing the image.

Here also the Argument from Illusion may arise in a new form. It would say that the ionic encryption or neural energization itself is the intermediate state and exclusively for this proximal level we do have perceptual cognition. And the phenomenon of illusion proves that even without any distal stimulus it is possible to have perceptual cognition. Hence it is logically possible that there is no distal stimulus at all. All that is there is a 'brain in a vat'.<sup>272</sup> And mad scientist (or a malicious demon or God) is tampering with this neural level in an artificial way in order to make us feel as if there are external objects. Hence, even if we suppose that the representative level is a physical state, that does not save us from the Argument from Illusion, or from skepticism, or from Subjective Idealism.

In reply we would like to refer to Chisholm's reply against this brain-in-a-vat skeptic that something is *logically possible* does not prove that it is *actually true*. This 'brain-in-a-vat'

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<sup>271</sup> JVR., pp.91-93.

<sup>272</sup> Hilary Putnam, *Reason, Truth and History*, Cambridge University Press, Cambridge: England, 1981, pp.5-6.

argument does not aspire to prove that we are justified in believing that we are in the vat. Instead it tries to prove that we are *not* justified in believing that we are *not* in the vat. Chisholm<sup>273</sup> replies that one of the premises of this argument is that if it is logically possible that there is an experience without there being any external object then we are not justified in believing that there are external objects. But there is no solid ground for thinking that that premise is more reasonable than the belief that we are surrounded by familiar physical things. These skeptics do not provide any positive theory in replacement. Hence such opposition is not forceful enough to stop us. Moreover, if our every belief is unjustified then what the skeptics are trying to prove also is unjustified. Hence skepticism is self-refuting. Arguments from Parasitism save us from skepticism and Subjective Idealism. The truth of cognition is proved by a successful volition the cognition produces. And since we are unconscious about this intermediate the neural level or ionic encryption, there are no idea-like cognitive elements in between.

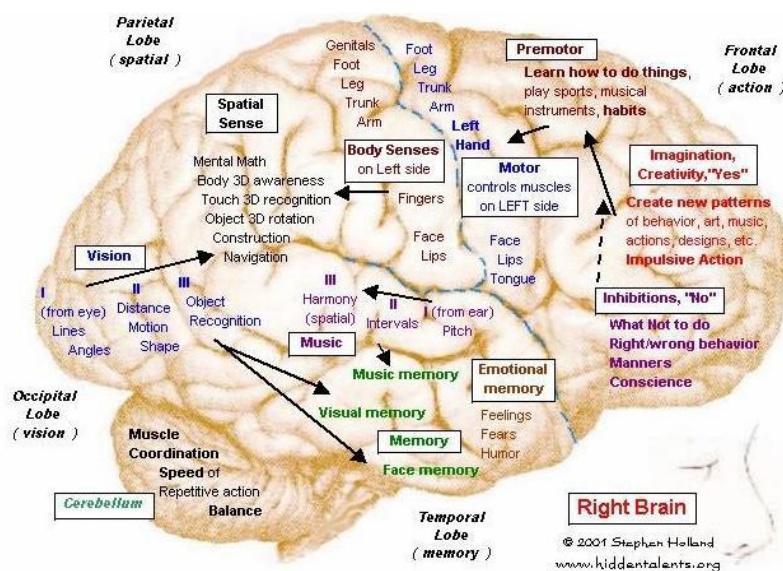
#### 8.2.6. Existence of a Proximal Neural Level – Nyāya-Prābhākara Difference

In order to understand the proposed Nyāya position better, let us now extend our neurophysiological reading over the difference between the Nyāya and Prābhākara account of perception or illusion. We may remember that in support of the Prābhākaras Kisor Kumar Chakraborti said that during illusion we ‘think’ that we perceive the illusory object. In post-illusion analysis it becomes apparent that we actually did not *perceive* the object but *remembered*. This deviation of the Prābhākara theory from the Nyāya theory can be explained by our previous conjecture. We think that the Prābhākaras do not consider the connection of *content* to the proximal layer to be *indriyārthasannikarṣa*. They hold that the true sense-object contact is the connection between the distal stimulus (the *real* object) and the seat of sense-organ. The Mīmāṃsaka concept of ‘*satsamprayoga*’ reflects this fact. We suppose that they hold that sensory connection always is a ‘front-door’ activity. The Nyāya on the other hand considers sense-organ to be what the cognitive scientists say the proximal neural layer which allows ‘front-door’ as well as ‘back-door’ activity. For them sense-organ (*indriya*) and its seat (*āśraya*) are not the same. Sense-organs are subtle objects existent in the visible bodily organs like eye-balls etc.

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<sup>273</sup> Chisholm, Roderick. M., *Theory of Knowledge* (Third Edition), Prentice-Hall of India Private Limited, New Delhi, 1994, pp.1-7.

We can compare sense-organ with the nerves present in sense-organs and brain.<sup>274</sup> The researches of Pierre Paul Broca, Korbinian Brodmann, Wilder Penfield etc. on cytoarchitecture supports this view. Their researches prove that our brain is modular. Different regions of our brain are responsible for different functions.



Modularity of Brain: The Functions of Different Regions

Penfield found a topographical correspondence between cortical regions and body surface with respect to somatosensory and motor processes. Hence, the researches prove the existence of a proximal neural layer, activation in which part results sensation even when there is no distal stimulus; that means when these cortical somatosensory areas in the brain are directly stimulated through electrical wires the patient feels sensation in corresponding body parts even when those body parts are not disturbed or touched externally.

It is now easier to stimulate a particular brain part without opening the skull. The process is called TMS or Transcranial Magnetic Stimulation. In his book '*Synaesthesia: The Strangest Thing*', John Harrison mentions about one experiment conducted by Becker and Becker where the subjects with closed eyes experienced oval shaped colours when TMS device was placed near the colour area of the occipital lobe. The experiment proves that even retinal input is not necessary for vision; that means even without the sensory nerve firing we may have perceptual experience. Brain is autonomous in producing perceptual experience. Only right part of it is to

<sup>274</sup> We can compare mind or *manas* as the electrochemical changes of ionic flow in neural network under the focus of conscious, self-reflective attention.

be stimulated. John Harrison hypothesizes that our normal conscious experience of vision is based on light affected retinal firing through the LGN (lateral geniculate nucleus) to the occipital lobe. But while dreaming electrochemical stimulation originates not from retina, but from a brainstem region deep within the brain called PONS (latin for ‘bridge’), and it arrives at occipital lobe through LGN. The visual cortex does not know that these PGO (Pons-Geniculate-Occipital) spikes are not from retina; and so it processes these spikes as RGO (Retina-Geniculate-Occipital) spikes and interprets them meaningfully with the help of memory-centres.<sup>275</sup> So, dream images are the visual cortice’s interpretation of essentially random bursts of electrical signals originating in the PONS. Dreams are narratives of visual cortex. This hypothesis reminds us of the Prābhākara insight of *bhedāgraha* which says that illusion is nothing but the ‘inability’ to differentiate between perception and memory. The Naiyāyikas on the contrary says that illusion is not the ‘inability’ in essence, although the inability is a necessary condition for a positive determinate cognition – just as Harrison says that dream is a meaningful interpretation or narration of PONS activity resulting out of the inability to differentiate between PGO spikes from RGO spike.

Extensive physiological evidences, resulting from the studies of the lesion cases and different controlled experiments, support the hypothesis that there are a number of visual areas in our visual cortex and each area are divided in several cortical layers. These areas and layers are functionally different and process different types of information that a visual scene provides such as contrast, motion, location, colour, orientation, illumination, depth etc. For instance, some neurons are sensitive to colour variation; in other areas, neurons may be movement-sensitive but colour-insensitive. This way, different visual areas process different attributes of a visual object following a divide-and-conquer strategy. Application of TMS over different regions causes a temporary lesion in the area which shows considerable deficits in the corresponding functional role of the area. In this way we can find out which area is devoted to which function. LGN has two different cellular systems. The magnocellular or **M**-system has cells with large-diameter fibre and parvocellular or **P**-system has cells with small-diameter fibre. Their processes are functionally different. **M** pathway is not colour-sensitive but movement and direction-sensitive. From LGN visual sensation goes to V1 area which is colour-sensitive, then it goes to V2, V3, V4 (colour processor), V5 and MT (motion-

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<sup>275</sup>We should mention here that there is no fixed memory-centre in the brain, except a memory converter named hippocampus which convert sensory or any other information into the form of memory. Information is retained in the accessible neural nexus in a scattered way.

processor) areas in the primary and secondary visual cortex. Then it extends to the parietal and other cortices. And the stimulation is not unidirectional but multi directional and follows a parallel processing. As an outcome of this whole pathway activation the *feeling of vision* emerges.<sup>276</sup>

Since the stimulation in the proximal layer of neurons or specific centres of the brain causes the phenomenal feeling, the Nyāya can hold that *anuvyavasāya* is the true reflector of the kind of *vyavasāya*. For them the causal account and phenomenal feeling go hand-in-hand; since both of them are the results of the same cause – proximal or cortical layer nerve stimulation. The Prābhākaras on the other hand do not enjoy the facility. Actually they rejected the possibility of *anuvyavasāya* altogether since they are *svaprakāśatvavādī*. However, the consequence the Prābhākaras have to accept is that in their theory a particular type of cognition might reveal itself as of a different type and without a post-cognition causal analysis, the Prābhākaras will not be able to confirm what is its kind. This consequence goes against their spirit of No-Error Theory or *sarvajñānayathārthavāda*.

Just as perception involves stimulation of the proximal neuronal layer and specific brain area, inference involves almost all parts of the brain. It does not have a specific area for operation. At most we can say that reasoning, which is the most important component for inference, is dependent on the prefrontal cortex. But inference requires sensory feed (*pakṣadharmatājñāna*) and memory component (*vyāptismaraṇa*) also. And as long as the main accomplishable content does not arise out of the activation of the nerves of sense-organ, but comes from the memory area along with an endorsement of reason, the resultant cognition and the emerging phenomenal feeling also will be different from perception. *Anuvyavasāya* captures this ‘feeling’. The difference between perception and inference is that perception involves passive receiving whereas inference requires active participation – because application of *vyāpti* requires our will. When image is created (in perception) or revived (in illusion) without our conscious effort, the feeling of perceptuality emerges.

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<sup>276</sup> An alternative hypothesis claims that the activation of brain for a corresponding feeling is not global but local.

### 8.3. In Search of an Explanatory and Predictive Model:

#### Organizing Idiosyncratic Factors

So far we have discussed the theoretical arguments for and against Anyathākhyātivāda and we have seen that this theory is closer to our commonsense. Many philosophers hope that the Nyāya system is able to provide such an explanatory model of illusion that is more practical and pragmatic from the psychological point of view than the other systems. In the Nyāya texts, we find causal analysis of different kinds of illusion. Bimal Krishna Matilal hopes that the Naiyāyikas' model of analysis for different types of illusion, along with the help of modern knowledge of physics, optics and physiology, might explain all the cases of illusion. However, in order to get a better explanatory model, we may invite the psychological analysis of the other philosophical schools also.

#### 8.3.1. 'Single Model Analysis' or 'Alternative Model Analysis'

Vācaspati, Udayana and Vardhamāna have analyzed all kinds of illusions in the same way. They say that, in the case of yellow-conch illusion, the person becomes aware only of yellow colour and not of the bile. Due to the defect in the jaundiced eye, the whiteness of conch is obscured although conch is perceived. Then the person remembers a similar situation in which he perceived a ripe wood-apple. Now, he ascribes the relation or connectedness (between wood-apple and its yellow colour) of the remembered situation on two unconnected objects (conch shell and yellow colour). Vācaspati has explained the illusion of bitterness in sugar similarly. Perhaps, the illusion of redness in transparent glass due to red flower (*lohitaḥ sphaṭika*) and the physiological illusions like perception of double moon due to pressing eyeball also will be explained in the same model as that of cognitive illusion with the interference of memory.

In *Nyāyavārtika* (on *Nyāyasūtra* 1.1.2) Uddyotkara introduces the problem that some cases of illusion may not occur due to similarity.<sup>277</sup> Vācaspati elaborates the point in the text *Nyāyavārtikatātparyāṭikā*<sup>278</sup> which is refreshed in *Nyāyavārtikatātparyapariśuddhi* of Udayana.<sup>279</sup> Vācaspati says that in all cases like silver-water illusion or shell-silver illusion or water-desert illusion, similarity is a cause, where the locus and the superimposed are similar. And generally we do not superimpose an object on an utterly dissimilar locus – we do not

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<sup>277</sup> *sadasatoḥ sārūpyābhāvāditi cet – Nyāyavārtika on Nyāyasūtra* 1.1.2., ND., p.71.

<sup>278</sup> NVTT., pp.64-77.

<sup>279</sup> NVTP., pp.109-111.



ascribe colour (*rūpa*) on taste (*rasa*) or elephant on mosquito. However, there are some seemingly counterexamples such as ‘illusion of yellow colour in white conch’, ‘illusion of bitter taste in molasses’ etc.

The similarity model perfectly goes with the instance of shell-silver illusion. But can we explain the other instances like ‘yellow conch’ (due to jaundice), ‘bitter molasses’ (due to jaundice), ‘circle of light’ (due to swift movement of torch), ‘bent stick’ (due to refraction of water), ‘double moon’ (due to the defect in eye), ‘red crystal’ (due to the proximity of hibiscus) etc. by this model which says that illusion is due to similarity and memory-revival? We do not find any similarity in these cases between the ascript (*aropya*) and the object on which the ascript is ascribed (*aropa-viṣaya*).

Vācaspati says that those cases also can be explained in terms of the similarity-based model,<sup>280</sup> and Udayana supports this contention.<sup>281</sup> Udayana says that although there is a little similarity between an elephant and the mosquitoes but here what is meant by the term ‘*sārūpya*’ is that similarity which is not overwhelmed by discriminating properties. Similarity may not be from all quarters. It may be partial. But then what about completely different *aropya* and *aropa-viṣaya*? It is not that all yellow objects are superimposed on white conch, because no cognition in the form ‘yellow wood-apple’ arises in the place. Neither the property yellow colour is imposed on the property white colour, because white colour is not appeared or apprehended in the situation. Neither yellow colour is imposed on the colour in general, which is the locus of whiteness, because whiteness (*śuklatva*) is not perceived and for that reason its locus colour (*rūpa*) remain unperceived. In this way Udayana rejects several possible ascriptions in the place.

Then what is ascribed in the cases like yellow conch? Udayana says that the person in illusion becomes aware only of yellow colour and not of the bile. Due to the defect in the jaundiced eye, the whiteness of conch is obscured although conch is perceived. Then the person remembers a similar situation in which he perceived a ripe wood-apple. Now, he ascribes the relation or connectedness (between wood-apple and its yellow colour) of the remembered situation on two unconnected objects (conch shell and yellow colour). The illusion of

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<sup>280</sup> *tatrāpi sārūpyasambhavāt. – Nyāyavārtikatātparyaṭīkā on Nyāyasūtra 1.1.2., ND., p.71.*

<sup>281</sup> *yadyapi hastimaśakādāvapi yathā kaścit sārūpyamastyeva, tathāpi vyavacchedakadharmenābhibhūta sārūpyamihābhipretam ..... sarvatra ca tattvāgrahaḥ saṁplavata iti. – NVTP., pp.109-111.*

bitterness in molasses also is explained similarly.<sup>282</sup> The illusion of redness in transparent glass due to red flower (*lohitaḥ sphaṭika*) and the physiological illusions like perception of double moon due to pressing eyeball also will be explained in the same model as that of cognitive illusion with the interference of memory. In the case of double moon *apekṣābuddhi* or enumerative cognition (*dvitva* or two-ness) is ascribed, in the case of circular light connections with all directions (*sarvadikasambandha*) is ascribed on the absence of intermediate connectedness (*madhyāsambandha*).

A question is raised here by Vācaspati that everything is similar to every other thing in some respect or other. Then what degree of similarity is sufficient to trigger illusory ascription? Vācaspati answers that there is no rule in this regard for it varies from case to case and person to person. This anomaly is a feature of mental phenomenon.<sup>283</sup>

In the case of yellow conch illusion, the transparent rays of the eyes remain saturated by bile which has yellow colour. Although conch is the locus of white colour and is not the locus of yellow colour but the white conch is covered by the defect of bile, and the absence of the connectedness of yellow colour with conch is not apprehended. Now, in the case of true perception of yellow wood-apple also the absence of the connectedness of yellow colour is not apprehended, because there is the absence of the connectedness with yellow colour (since wood-apple really is yellow). This non-apprehension (*bhedāgraha*) itself is the similarity, which coinhere in both the true and erroneous cases, due to which the illusion results. Vācaspati explains the other counterexamples also by the model of similarity.<sup>284</sup>

However, we should not say that wherever there is similarity there is illusion. Rather we say, wherever there is illusion, there must be some or other kind of similarity. Udayana says that it

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<sup>282</sup> *tena vyadhikaraṇagrahaṇāviśayīkṛtatvaṃ sārūpyaṃ tayoh, yatha pītimaciravilvayoh tathaiva pītimaśaṅkhayorityuktaṃ bhavati. ekendriyopanasambandhidvayaviśayaṃ sārūpyamupapādyendriyadvayopnītasambandhidvayaviśayaṃ sārūpyamupapādayati – evaṃ 'tvagindriyeti'. – NVTP., p.110.*

<sup>283</sup> Later we shall see whether we can organize these idiosyncratic features with the help of neuroscience and psychology.

<sup>284</sup> *tathā hi bahirnirgacchadatyacchanayanaraśmisaṃprkṛtapittagataṃ pītimānamāśrayarahitam, śaṅkhaṃ ca doṣācchāditasitīmānāmanubhavan pītaguṇasya ca tadasambandhamannubhavaṃstadasambandhāgrahaṇe pītaciravilvādisāmānādhikaraṇyena sārūpyat śaṅkhaḥ pīta iti viparyayastī. evaṃ tvagindriyopānītaṃ guḍa.....sārūpyamuhanīyam. – Nyāyavārttikatātparyāṭikā on Nyāyasūtra 1.1.2., ND., p.71.*

is not that only *bhedāgraha* is the similarity. An afterwards evocation of relevant memory-trace also is a point of similarity; otherwise shell-silver illusion etc. can not be explained.<sup>285</sup>

To many, the recollection of the other situation may seem to be a forced imagination. Moreover, most of the Naiyāyikas would not accept this single model analysis. There is no unique causal condition applicable to all the illusory experiences. The defects are so diverse in kind, that they cannot be categorized under one head. That is why the philosophers have classified erroneous cognitions into different kinds depending on their different sets of causal conditions. In this section we shall try to show how, even a purely physiological condition might be sufficient for illusion. However, the Naiyāyikas would say that interference of memory is an essential element for illusion. In order to see moon as ‘double’ one has to energize the concept of ‘two’ from his conceptual repertoire.

### 8.3.2. *Different Classificatory Strategies of Illusion*

In the literature, we find multifarious instances of illusion discussed by the Naiyāyikas and other philosophers. Depending on the specific causal factors responsible for specific kinds of illusion, illusions have been categorized under different heads. Several classificatory accounts are available in different texts highlighting different causal factors of illusion.<sup>286</sup> These accounts are important since a causal analysis of illusion is present there implicitly. Let us explore some of them in order to find them out.

- According to one principle of division<sup>287</sup>, illusions are classified into two kinds – those which are caused by the knowledge of similarity (*sādrśyajñāna-karaṇaka bhrama*) and those which are not so (*sādrśyajñāna-akaraṇaka bhrama*). In the case of the first variety there must be a substratum of illusion to which the illusory content is similar. So it is an illusion having a locus (*sādhiṣṭhāna bhrama*). The corresponding other variety is *niradhiṣṭhāna bhrama*, the illusion having no objective substratum. Another principle of division is whether the illusions

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<sup>285</sup> *na caivam sati tādātmyabhrame’pi bhedāgraha eva sārūpyamastu, kṛtam cākacikyādineti vācyam, tadantareṇa saṁskārānubodhāt, tena ca vinā rajatāropaniyamanupapatteḥ. iha tu saṁsr̥ṣṭatvānubhavajanitasāṁskārodbodho yāvanmātreṇa tāvadevopayuktam, saṁsargasya ca saṁsr̥jyamānāveva viśayaḥ. tau cānubhūyamānaveveti, kiṁ tadupanāyakasādr̥śyāntarāpekṣayeti sarvamavadātam.* – NVTP., p.110.

<sup>286</sup> IP I., pp.273-277.

<sup>287</sup> ‘Theories About Bhrama’, Sukharanjan Saha, *Philosophical Concepts Relevant to Sciences*.

are due to some adjunct (*upādhi*)<sup>288</sup> or not (*sopādhika* or *nirūpādhika*). The mechanism of illusion the Naiyāyikas' offered in the context of *idaṁ rajatam*, is applicable only to the cases of misplacement of *x* as *y* due to a memory revival, enforced by the perception of similarity (*sādrśyajñāna-karaṇaka sādhiṣṭhāna bhrama*). This similarity-induced model does not seem to fit well with the other kinds of *bhramas* like yellow conch shell or bitter molasses. This point becomes more evident when we take into account the other classification strategies taken by different philosophers.

- Śaṅkara Miśra refers to some illusory cases where revival of memory has no role to play. He calls it *anubhūyamānāropa viparyaya*, or those which consist in false ascription of one perceived element to another perceived element. Illusory perception of yellow conch shell and bitter sugar are such illusions. Here yellowness of bile in the visual organ and the bitterness of bile in the gustatory organ are actually perceived by us but are wrongly ascribed to conch shell and sugar respectively. The other kind of illusion where the object of ascription comes from our memory store is called by Śaṅkara Miśra, *smāyamānāropa viparyaya*. Shell-silver-illusion, rope-snake-illusion etc. are the instances of this kind. Jaysiṃhasūrī also accepts this division and illustrates both kinds of *viparyaya*. Due to the pressure on our eye-ball or excessive darkness (*timira doṣa*) in it, the ray of eye is bifurcated, issuing out of the eye-ball. As a result, we perceive two moons appearing before us. It is an example of the first kind of illusion. Centrally initiated illusions like dream and hallucination comes under the second category.

- Śrīdhara cārya divides illusions into two kinds (i) Peripherally excited illusion and (ii) Centrally excited illusion. He further divides the former kind into two types. (i) *nirvikalpaka* or indeterminate illusion which contains only presentative elements. Indeterminate illusions are solely caused by the defects in the external sense-organs. For example, when white conch-shell appears to be yellow it does not involve any representative element evoked from memory. Only the bilious visual sense-organ is the cause of this illusion. It corresponds to *anubhūyamānāropa viparyaya*. (ii) *savikalpaka* or determinate illusions are those which contain representative element. Generally, they contain both the presentative and representative elements. They are produced by defective sense organs in co-operation with

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<sup>288</sup> Here *upādhi* means some external factor in virtue of the nearness of which an object appears differently. As for example, if we place a hibiscus behind a crystal, it looks red. Here the hibiscus is the *upādhi*.

subconscious impressions those are evoked due to the perception of similarity between the real object in front and the illusory object. Shell-silver illusion, rope-snake illusion etc. are the instances of such illusion. But, the hallucinations do not involve any presentative element. They are produced by the defect of internal sense organ. Since, there is no external stimulus in the case of hallucination, it is not produced out of the perception of similarity. *Savikalpaka* illusion corresponds to *smāyamānāropa viparyaya*. Only *savikalpaka* illusion is caused by the cognition of similarity.

- *Jayanta Bhaṭṭa* divides perceptual error into two kinds: (i) *indriyajā bhrānti* or the errors caused by peripheral organs, and (ii) *mānasī bhrānti* or the errors caused by the internal organ. *Indriyajā bhrānti* is produced by the defects in the external stimuli or in the sense-organs. They always have an objective substrate (*sālabhāna*). The illusory perception of silver in shell, the mirage etc. are due to the defects in the external stimuli (*viśayadoṣa*). Bitter sugar, double moon, mass of hair are due to the defects in the peripheral organs (*indriyadoṣa*). *Mānasī bhrānti* or hallucinations are produced only by the defects of the central organ or mind (*manoṣa* or *antaḥkaraṇadoṣa*). They do not depend on any peripheral organ and have no objective substrate or locus (*niralāmbhāna* or *niradhiṣṭhāna bhrama*). For example, when a lover is overpowered by the stormy passion awakened by the pangs of separation, he perceives the semblance of his beloved lady near him, though she is far away. Hallucinations are due to the recollection of objects distant in time and space owing to the revival of their subconscious impressions. Dreams are also *mānasī bhrānti*.

*Anubhūyamānāropa viparyaya* is not due to *saṃskārodbodha* but only due to the defects in physical or physiological factors (*bāhyāśrayadoṣa*). So, this kind of illusion is evidently single and simple cognition. It is perceptual. But the *smāyamānāropa viparyaya*, which has presentative as well as representative contents, is not so evidently simple. The Prābhākaras said that it is not a single cognition but a combination of perception and recollection. The Bhāṭṭas said that it is single although not simple. It is a blend-cognition. The Naiyāyikas said that it is single as well as simple cognition. The representative element becomes presentative through an extraordinary mechanism. According to the Naiyāyikas, the internal sense-organ is the instrumental cause of *mānasī bhrānti*. So, dream and hallucination are wholly perceptual. But since the Mīmāṃsakas do not admit *jñānalakṣaṇa sannikarṣa*, they hold that the dream-

objects can in no way be connected to the internal organ, mind. Hence, dream is wholly mnemic.<sup>289</sup>

It should be noticed that the Naiyāyikas generally do not accept the existence of *niradhiṣṭhāna bhrama* (Jayanta Bhaṭṭa is an exception).<sup>290</sup> They say that in the cases of so called *niradhiṣṭhāna bhrama*, the locus is the combination of empty spaces in front of the perceiver and the present time. Kisor Kumar Chakrabarti has offered an ingenious argument in favour of the contention that, hallucination of an external object also has some locus, although it is utterly dissimilar to the hallucinated object. He argues that with the eyes closed, Macbeth would not see a dagger or the drunkard would not see pink rats.<sup>291</sup> Perhaps Macbeth was perceiving a wall and the drunkard a wine bottle. The difference between *dream* and *hallucination* is that in the latter case, external sense-organs remain active. Therefore, sensing is a necessary condition for hallucination although this peripheral stimulation does not help in selecting a particular image for revival from the memory-store; the selection is done totally by the mental and bodily conditions. Nevertheless, in the cases of illusion, the selection is done by the peripheral stimulation by observing a similarity. However, we can say that the sensation of locus is a condition for the phenomenon of hallucination in general. Therefore, although hallucination has a locus, it is not produced out of the perception of similarity between that locus and the hallucinated object. Similarly, in the case of mirage, the physical environment (the refractive properties of layers of air at different densities) may be considered to be the locus. In all the cases they play the causal role for hallucination.

The Buddhists, specifically the Vijñānavādins, are the strong opponent of such a view since they do not admit any locus of the perceptual error. For them, there is no illusion (*sādhiṣṭhana bhrama*), where one external object is misperceived for another. They say that all cases of erroneous cognition are cases of hallucination (*niradhiṣṭhana bhrama*) where there remains no external objective substratum (*ālambana*). The Vijñānavādins hold that the existence of

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<sup>289</sup> *tathā hi dvividhā bhrāntirbāhyendriyajā, mānasī ca, tatra bāhyendriyajē bhramajñāne viṣayadoṣādindriyadoṣādvā samutpadyamāne na kva cinnirāmbanatā dr̥ṣyate ..... pratibhānidrādi manodoṣajanmani svapne'pi dr̥ṣṭapūrvasyaiva tasyākārasollekhaḥ. – Nyāyamañjarī: Ahnika-8 (Asatkhyātinirāsa), Jayanta Bhaṭṭa, NMS II., pp.110-111.*

<sup>290</sup> Generally, the Indian schools do not accommodate both illusion and hallucination in their systems. Either they say that all perceptual errors are illusory or say that all of them are hallucinatory. The realist schools like Nyāya, Mīmāṃsaka and Vedāntins take the former view, whereas the Buddhists take the latter. Perhaps they try to explain all the cases of illusion by a single explanatory model and try to avoid any kind of disjunctive methodology where different explanations are provided for different instances of similar phenomena.

<sup>291</sup> PM., p.215.

external object cannot be proved. In order to prove their thesis they have taken the prominent cases of hallucination like dream (*svapna*), mirage (*mṛgatṛṣṇika*), city in the sky (*māyāgandharvanagara*) etc. those are totally mental projections. But the realist schools like Nyāya or Mīmāṃsā argue that even those cases of perceptual error are not without objective substratum (*nirālabhana*). According to Kumāriḷa Bhaṭṭa, clouds and the previously perceived houses and buildings are the *ālabhanas* of the hallucination of city-in-the-sky. In the case of mirage, the sunrays quiver like water due to the heat of the ground. This similarity with water revives the memory of previously perceived water. So, the sunrays, associated with the heat and the previously perceived water, both of them are the specific real causes of mirage. Hence, they are the *ālabhanas*. Clouds and sunrays are direct substratum whereas the previously perceived houses and water are distant or indirect substratum.<sup>292</sup> In some cases, there remains no direct or immediately present objective substratum but only an indirect or distant substratum. In the cases of dream or that of the hallucination of lover due to overpassion previously perceived objects work as distant *ālabhana*. Here, Kumāriḷa has taken the word ‘*ālabhana*’ in the sense of objective cause. It does not mean ‘the objective locus of erroneous perception’.

- *Praśastapāda* divides cognitions into *vidyā* and *avidyā*. *Avidyā* is fourfold – *saiśaya* (doubt), *viparyaya* (false belief: perceptual or non-perceptual), *anadhyavasāya* (absent mindedness or inattention) and *svapna* (dream). *Praśastapāda* has treated *svapna* as a separate category from *viparyaya* because the causal condition of dream is considerably different from that of illusion in general. Dreams are classified into three categories in respect of origination. (i) That which is generated due to excessive thought or frequent recollection of something (*saiśkārapatutājanya*); (ii) That which is generated due to phlegmatic, bilious or gastric disorder (*dhātudośajanya*) and (iii) That which is generated due to merit or demerit of action (*adrṣṭajanya*). None of these cases are due to perception of similarity. The third kind of dream is due to some divine cause, as if God is making us to see those things according to our deeds, even if we never had any previous experience of those objects.

The Buddhists also have accepted such dreams. In *Milinda Pañha*, six causes and corresponding six kinds of dreams have been admitted. Those causes are (i) flatulence, (ii)

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<sup>292</sup> *gandharvanagare’bhrāṇi pūrvajñātaṃ gṛhādi ca /  
pūrvānubhūtatoyam ca raśmitaptoṣaram tathā //110  
mṛgatoyasya vijñāne kāraṇatvena kalpyate //1/2 111// – Slokavārtika: Nirālabhanavāda, SVK II., pp.64-65.*

bilious disorder, (iii) phlegmatic disturbances, (iv) recurrent previous experiences of a particular act or fact, (v) influence of God or suggestion of spiritualistic agents, (vi) due to the force of one's character one may foresee things in the way of prognostication. These are prophetic dreams. These fifth and the sixth kind of dreams are due to some non-psychological causes that do not include previous experience. Milinda Pañha says that the first three types of dream are never true. The fifth kind of dream sometimes becomes true but the last kind is always true. It is like the perception of the future events directly in some extra-ordinary way. Nāgseña metaphorically explains that the object of prognostication itself comes in to the path of the dreamer's mind. However, the Naiyāyikas do not accept the dream of absolutely unperceived (*pūrbānanubhūta*) object.

- *Diñnāga* has mentioned three kinds of erroneous cognitions – *bhrāntijñāna*, *samvṛttijñāna* and *anumāna*. All of these are instances of conceptual construction. According to Jinendrabuddhi, Diñnāga spoke of another kind of erroneous perception – *satimiram* or the cognition due to the defect of sense-organ. It is not produced by conceptual construction. So, it is not *vikalpaja bhrānti*, rather *indriyaja bhrānti*. *Vikalpaja bhrānti* vanishes when conceptual confusion is removed. But *indriyaja bhrānti* continues even when one is conceptually convinced about the illusory nature of what he perceives. This division corresponds to the Naiyāyikas' account of *yauktika tiraskāra* (illusion which runs counter to other non-perceptual evidence) and *pratyakṣika tiraskāra* (illusion which runs counter to another perception). However, we can say that most of the instances of *bhrāntijñāna* are produced by the defects of the organ. So, here *indriyaja bhrānti* refers only to those illusions which are *solely* due to the sense defects.

### 8.3.3. Different Conditions of Illusion

From the classificatory accounts like these many important considerations might be extracted. We know that different kinds of illusion happen due to different causal factors. But the most fascinating thing is that in respect of determining the possible causes of a particular illusion, philosophers have shown a remarkable concord. With this inspiration we can try to build up such an all-inclusive model of analysis which can explain and predict all the possible varieties of illusory experiences. At the outset, we can extract the causal factors of illusions from the abovementioned classificatory accounts and list them up systematically.<sup>293</sup>

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<sup>293</sup> IP I., pp.277-282.



There are three types of those causal factors:

- (A) The defects in the conditions of perception (*doṣa*).
- (B) Wrong operation of the sense-organs with regard to their objects (*asamprayoga*).
- (C) Subconscious impression (*saṁskāra*).

(A) Doṣa:

Sense-perception is produced by several conditions taken together. These are (i) an object, (ii) an external sense-organ, (iii) the central organ or mind, (iv) the self, and sometimes (v) an external medium. Defects in any of these conditions give rise to illusion. Different kinds of *doṣa* are as follows.

1. Viśayadoṣa – It is the defect in the external stimuli or objects e.g. similarity, movement and distance. In some respect, shell is similar to silver. This similarity prompts illusion. A fast-revolving torch seems to be a circle of fire (*alātacakra*). Due to the distance, the moon seems to be a small object.
2. Bāhyāśrayadoṣa or Bāhyāśritadoṣa – Due to the fast movement of conveyance (*āsubhramaṇ*), static trees etc. seem to be moving. Western psychology calls it parallax.
3. Bāhyendriyadoṣa – These are pathological disorders in the peripheral organs. When our visual organ is affected by jaundice or preponderance of bile, we perceive a white conch shell as yellow, when gustatory organ is affected by bile, sugar or molasses seem to be bitter. In different ancient scriptures, an eye-disease has been referred by the name ‘*timira*’. Vasubandhu says that these patients see mass of hair or black insects moving in front of their eyes. Vānabhaṭṭa describes it as lack of distant-sight.<sup>294</sup> This eye-disease is not healed by the application of collyrium. Neither the suffering is reduced by medical treatment or application of dew etc. cooling substance.<sup>295</sup> It is also said that the illusion of double moon (*dvicandra bhrama*) is also due to this disease. When light rays of visual organ are bifurcated by *timira* or darkness, the moon appears to be double. However, we know that it happens even when the eye-ball is pressed with a finger. Perhaps in those days, the word *timira* would refer to any unspecified eye-disease. Other defects are *kāca* and *kāmala*. *Kāmala* is one type of jaundice which causes visual, gustatory and tactual illusion. *Kāca* is the defect of the optic nerve of *gutta serena*.

<sup>294</sup> ‘*taimirikā iva aduradarśinaḥ.*’ – *Kādamvarī (Śuknāsopadeśaḥ)*, Vānabhaṭṭa, KVS., p.62.

<sup>295</sup> ‘*kaṣṭhamaṇḍjanavartīsādhyamaparamaiśvaryatimirāndhatvam. aśiśiropacārahāryotyantatīvraḥ darpadāhajvaroṣmā.*’ – *Kādamvarī (Śuknāsopadeśaḥ)*, Vānabhaṭṭa, KVS., p.26.

4. Adhyātmagatadoṣa – According to the Indian traditional medical science human body is made of three constitutive elements – internal air (*vāyu*), bile (*pitta*) and phlegm (*śleṣmā*). In the normal condition of health, equilibrium is maintained among them. But when this balance is lost, diseases occur. Moreover, this pathological disorder (*dhātu-vikṛti* or *dhātu-saṅkṣobha*) causes certain illusions like the vision of yellow conch shell or bitter sugar. Praśastapāda and the Buddhists have explored that when a particular element is overpowered, people experience a particular kind of dream. When phlegma overpowers others, people dream of rivers, sea-swimming, snow-capped mountain. Due to the bilious disorder, dream of conflagration or golden mountain occurs. Flatulence or excessive internal air causes dreams of journey through space. So, there is a causal relation between illusion and pathological disorders.
5. Antahkaranadoṣa – It is also called *manodoṣa*. When mind becomes overpowered by *rajas* and *tamas* or by some passions, illusions occur. Dream is due to drowsiness. Hallucination of lover is due to passion.
6. Pramātrdoṣa – It is the defect in the self when it is affected by strong desire, aversion, hunger, rage, etc.
7. Defects in Environment – If the external environment of perception is deem, dirty or noisy, illusions may occur.

(B) Asamprayoga or Asamīcīna Samprayoga:

The Bhāṭṭa Mīmāṃsakas have mentioned this condition of illusion. They hold that *satsamprayoga* or contact of the sense-organ with a real object is a necessary condition for right perception. In hallucinations and dreams there remains no real object. If, in spite of the presence of the real objects there is *asamprayoga*, illusions occur, such as in the case of the silver-shell illusion. This condition of illusion has been included in the *viśayadoṣa* and *indriyadoṣa* of the Nyāya-Vaiśeṣika school. In the Nyāya context we can consider it as *asamīcīna samprayoga* rather than *asamprayoga*, because there is *jñānalakṣaṇa sannikarṣa* between the sense-organ and the illusory object.

(C) Saṁskāra:

Subconscious impression is the cause of that peripherally excited illusion which contains representative elements. It is *smāyamānāropa viparyaya*. *Sādrśyajñāna* plays an important

role in order to revive the previously acquired impression. In the case of *mānasī bhrānti*, *samskāra* itself produces illusion (hallucination), without taking help of the sense-organs.

Now, according to Jayanta Bhāṭṭa, there are several causes of the revival of memory. All those causes are not required for the revival of memory in a particular case. Any one reason (*kiñcit kāraṇa*) is sufficient in a particular occasion. In some cases the knowledge of resemblance (*sadrśa vijñānam*) revives memory. Sometimes love and grief (*kāmaśokādayaḥ*) revives the old impression. An object is recalled in our mind if we are in bad habit of perceiving it repeatedly (*kudarśanābhyaśa*). Some eye-disease which is at the root of optical illusion (*timira*), helps to revive remembrance. Sometimes sleep (*nidrā*), sometimes repeated pondering over an object (*cintā*) and sometimes the unbalanced condition of the three humours (*dhātuvikṛti*) makes us recollect the known object. If memory takes place but the known factors which revive memory are not seen then the principle of merit and demerit (*adrṣṭa*) is asserted to be the cause of memory. Nobody knows whether or not a child has the double vision of the moon (*dvicandradarśana*). If it is answered in the affirmative then the principle of merit and demerit (*adrṣṭa*) alone is responsible for the revival of the memory of double moon (*tasya indudvaya*).

#### 8.3.4. A Proposed Cognitive Model of the Nyāya Theory of Illusion

Although all the aforesaid conditions are responsible for illusion, but in a particular case only some of these conditions conjointly become sufficient. So, we have to formulate different models of illusion-mechanism representing different cases of illusion and those models should be flexible enough in reading the degrees of intensity of the psychological and physiological causal factors. In a particular case, when the accumulation of the forces of individual causal factors exceeds the required minimum force sufficient for triggering a vivid experience of something present elsewhere, illusion results. Now, which combination of causal factors (with what individual degrees of intensity) would gather sufficient force to result an illusion is like a multi-variable equation. In order to assign ratings to each conditions of illusion, first we have to set criteria and then conduct some experiments in order to scale the intensities of psychological states observing the corresponding neurological frequencies. This whole experimental procedure is highly technical and for conducting these experiments, we have to take the assistance of modern science. Then only we can arrive at an all comprehensive explanatory model of illusion which will be able to predict and explain the phenomenon of illusion accurately.

We have seen that there are several causal factors for illusion, such as the psychological factors like desire, fear, lust, aversion etc., physiological factors like defects in sense-organs, diseases etc., environmental factors like low light, angle of perception etc. In a particular situation of illusion not all but only some factors become operative. Sometimes only one factor becomes sufficient for illusion. In different situations these factors, specially the psychological ones, are emotionally charged up in different degrees of intensity. If we could quantify them neurophysiologically or in some other ways and ascribe them a rating then we could deal with the problem of illusion precisely and mathematically. After quantifying those factors we have to arrange them along a uniform scale of contribution to illusion. It is not an easy task to create that scale. Firstly, for this, one has to calculate how much a factor contributes to an instance of illusion. And for calculation, the factors are needed to be quantified. Secondly, each instance of illusion requires separate scale of contribution depending on the idiosyncrasy of the situations.

Suppose depending on empirical evidences we build up a scale of contribution of the factors of illusion. Let us arrange them from maximum ( $x_1$ ) to minimum ( $x_n$  or 0) as  $x_1, x_2, x_3 \dots x_n$  (0). Now, beside this objective parameter we have to keep in mind about a subjective factor also. Different objective factors of illusion lay different effects on different people (or on the same person in different situations). It depends on how much emotion one attaches to a particular factor in a particular situation. Let us scale them numerically from 100 to 0 or as  $y_1, y_2, y_3 \dots y_n$ . These could be rated depending on the quantifiable physiological changes corresponding to the emotions. We can quantify fear in terms of heartbeats or galvanic or electro-dermal changes; we can quantify desire in terms of the height of spike in EEG or the degree of fMRI activation for the corresponding brain part responsible for desire etc. Possibility of illusion (P) increases proportional to the amount of contribution a factor does. Hence we may say  $P \propto x$ ; and we also may say that the said possibility is directly proportional to the amount of degree of emotion one attaches to that factor. Hence,  $P \propto y$ .

$$(i) P \propto x$$

$$(ii) P \propto y$$

Therefore,  $P \propto xy$  (following the rule of joint variation)

Hence,  $P = kxy$  (where  $k$  = constant of proportionality which is equal to  $P/xy$ )

The coefficient  $k$  is multiplied with  $xy$  for two reasons. Numerically  $P$  and  $xy$  are not equal although proportional.  $k$  is the proportion of them, i.e.,  $k = P/xy$ . Since  $P$  is directly proportional to  $xy$ ,  $P/xy$  remains constant. That is why  $k$  is a constant. It is multiplied with  $xy$  in order to make  $P$  and  $kxy$  numerically equal. Secondly, the unit of  $P$  and that of  $xy$  are also not the same. The unit of  $k$  is the unit of  $P/$  the unit of  $xy$ . Hence the transition from proportionality to equality cost  $k$  which is constant for all possible situations.

Now in a particular situation the factors or the contribution of a factor to the event of illusion should be multiplied by the subjective contribution of emotional intensities. When we assign values to the factors according to its importance or contribution to the possibility of illusion along the uniform scale, then the partial contribution of a single factor  $P_1$  will be equal to  $x_1y_1$ . The total possibility  $P$  will be the sum of all partial contributions.

$$\text{Therefore, } P = P_1 + P_2 + P_3 + \dots + P_n = x_1y_1 + x_2y_2 + x_3y_3 + \dots + x_ny_n$$

Here we should keep in mind that  $x_1$  to  $x_n$  include all kinds of the factors of illusion – physiological, psychological and environmental. Among them, only the psychological factors are multiplied with the degrees of emotion ( $y_1$  to  $y_n$ ). Physiological and environmental factors work independent of any emotional charges. Jaundice itself is sufficient for yellowish perception. Emotion neither has a positive nor a negative effect on the result. So, such factors are not multiplied by  $y_1$  to  $y_n$ . Hence, in real situation the formulation might be like this:

$$x_1 + x_2y_1 + x_3 + x_4y_2 + x_5 + \dots + x_{n-1} + x_ny_n$$

Here  $x_2, x_4, \dots, x_n$  are psychological factors those are multiplied by the emotional intensity coefficient  $y_1, y_2, y_3, \dots, y_n$ . And  $x_1, x_3, x_5, \dots, x_{n-1}$  are ‘other than psychological’ factors.

We can express the formulation more clearly symbolizing these factors of illusion separately. Suppose, psychological factors are symbolized by the letter ‘ $x$ ’; physiological factors are symbolized by the letter ‘ $a$ ’; environmental factors are symbolized by the letter ‘ $b$ ’. And this way the letter ‘ $c$ ’ to, say ‘ $k$ ’, symbolizes different kinds of factors. Now, the formulation will be like the following:

$$(a_1 + a_2 + \dots + a_{n1}) + (b_1 + b_2 + \dots + b_{n2}) + \dots + (x_1y_1 + x_2y_2 + \dots + x_ny_n)$$

However, as a result we shall get a number. We may call it **Added Contribution** or **AC**. From the formulation it is clear that AC is directly proportional to how much emotion one attaches to the psychological factors of illusion and how much intense the other conditions are. Now we propose that there is a threshold in the number line. If AC is equal to or greater than that threshold, illusion occurs. We may call it **Golden Number** or **GN**. As long as  $AC < GN$ , there will not be illusion and when  $AC \geq GN$ , illusion will result.

This modeling of Added Contribution or AC is inspired by the neuroscientific account of the flow of electrical signal through neuron. When action potential is accumulated at the end of the axon of a presynaptic neuron, there is an influx of positive ion  $Ca^{++}$  into the terminal region through depolarization of the terminals. The increased  $Ca^{++}$  concentration causes small vesicles containing neurotransmitters to fuse with the presynaptic membrane and release the neurotransmitters into synaptic cleft. The neurotransmitters are then bound to the protein molecules of the receiving neuron at the postsynaptic membrane of the Dendron of the receiving neuron. It causes increment or decrement of action potential of the receiving signal depending on whether the received signal is excitatory or inhibitory. When a synapse is activated, active electrical currents are generated across the cell membrane near the synapse, generating synaptic potentials. This current flows across the postsynaptic membrane in a localized region, rendering in the current that is passively conducted throughout the neuron. This passive current conduction is called electrotonic or decremental conduction in the case of which the potential or voltage decreases with the distance from the soma or with the increase of culminative resistance following ohm's law. These passive currents can be depolarizations (excitatory postsynaptic potentials) which make the inside of the cell more positive and more likely to generate an action potential, or hyperpolarization, i.e. inhibitory postsynaptic potentials, which make the inside of the cell less positive and less likely to generate an action potential. Now, a single neuron is likely to be innervated by or receives inputs from large numbers of other neurons and its axon is distributed to many other regions. So there is a tremendous convergence as well as divergence in which a single neuron receives inputs from many other neurons and/or project to multiple target neurons in different regions. So, a neuron may have several dendrites – each of which receives different potentials those are accumulated or summed up electrically at axon hillock or spike-triggering zone where action potential is generated and carried through the long axon channel by electrotonic conduction where current voltage reduces with the forward movement of current. When it (the summation of received

potentials) arrives at the distant end of the axon, if it remains sufficiently strong (beyond a threshold), only then it can trigger a signal or synaptic transmission to the next neuron through the release of neurotransmitter. Generally passive electrotonic conduction, which is solely due to passive physical properties of neurons, is not sufficient to allow long distance communication, if not the original current is sufficiently high and less leak and low resistance in the axon-membrane. Long distance communication needs active or regenerative electric signals called action potentials created by the active intervention of the ion channels. The action potential is a rapid depolarization and repolarization of the membrane in a localized area. The changes in axon membrane potential can ultimately lead to action potentials if the depolarizations are large enough. The value of the membrane potential to which the axon must be depolarized to initiate an action potential is a 'threshold'. Depolarizations that do not reach threshold will not elicit action potentials; and those that do reach threshold lead to action potentials or 'spikes' as seen in oscilloscope. Action potentials are an all-or-none phenomenon. As long as the depolarization reaches the threshold for initiating the action potential, it triggers a spike. The combined action potentials – when crosses a threshold – passes the electrical signal to the next neuron. Illusion also is an all-or-none phenomenon and follows the same mechanism – within a model of a gated and cascaded causal architecture.

It perfectly explains why only one overpowering emotional factor may trigger illusion and why in the same situation one falls in illusion and others do not and why a single physiological condition compels us to fall in illusion even against our will. It is because how much emotion one attaches to the factors of illusion or which factor is of what force or importance to a particular person. In the Charles Chaplin movie 'The Gold Rush', big Jim did not perceive the 'little fellow', i.e. Chaplin, as a cock, until he became hungry over a certain threshold. Now the factors like 'hunger' have a physiological and also a psychological component (feeling of hunger). We should separate them carefully and ascribe contribution ratings to them.

We also have to concede that the physiological and environmental factors are of different degrees or intensities. In a particular situation we have to evaluate them and arrange them accordingly in terms of 'importance' or 'amount of the contribution to illusion' from the most to least following a universal scale of contribution. Moreover, although we are calling the physiological and environmental factors as 'objective' parameters depending on real measurable conditions, but we have to keep in mind that the same objective condition affects

different people differently. So, our ascription of rating should be based on specific situation or the status of a particular person at a given time. The contribution of a factor may change from person to person and from time to time for the same person. We can introduce a rating for subjectivity also. Among the psychological factors some are unconscious, which a person cannot alter as per his wish and – therefore less subjective; while others are consciously manipulable – therefore more subjective.

This approach corresponds to the Nyāya intuition that *guṇa* or the special cause of true cognitions can be defined – they have separate common characteristics for separate kinds of cognition like perception, inference etc., but *doṣa* or causes of false cognition are different for different specific situations. They are non-common (*ananugata*).

However, even GN is not a fixed number. To have illusion different persons (and the same person at different times) bear different thresholds. The multivariate equation representing illusion should be established by statistical data which will provide probability although not certainty. However, we expect sufficient generality regarding the causal parameters of illusion – subjective and objective. Hence, though GN is not fixed for all situations, for a particular situation, it is fixed. And even if there is not a fixed GN with respect to all persons, it is likely to fall within a range in the number line. We may call it **Golden Range** or **GR**.

Different causes of illusion become operative through or in terms of electric impulse of different kinds of parallelly processing neurons. In this is connectionist network each neuronal chain processes information or transmit impulse to the next neuron only when the accumulated impulse crosses a threshold. So we can conjecture that contribution of each factor ( $\mathbf{x}$ ) multiplied by emotional coefficient ( $\mathbf{y}$ ) should also have a preliminary level threshold. This cascaded network of thresholds determines the ultimate output and if this output crosses the golden number illusion results. The whole causal network follows the principle of neural (plastic) logic gate.

The story does not end here. On the contrary, this is just the beginning. In order to predict about illusion we have to explore one's cognitive architecture – the mapping of one's memories, concepts, emotions, their forces and interconnections and the bond strength of those interconnections. These mappings are subject-specific and it would take years to explore only one person's cognitive map. But the task is not impossible. In daily life we see that often



years of observation (or empathetic readings) some member of a family (specially, mother and wife!) can anticipate other's (specially, son and husband!) behavior or thinking pattern almost accurately. We expect that scientifically designed situations and experiments would help us to formulate a complete cognitive architecture and structure of emotion of a person from which we shall be able to predict the person's cognitive and emotional life – of which 'illusion' is a tiny part. We also hold that there is likely to be species-specific generality regarding the psychological *rules* – although not regarding the *contents*. The work of a cognitive scientist is to find out those general rules. Deception specialists or the magicians exploit those rules in order to deceive people. That they become successful in deceiving us is a strong proof in favour of the existence of general rules for illusion.

However, the matter is subject to empirical investigation rather than speculation. Here the Vijñānavādins may object that empirical investigation cannot give us right knowledge because it is possible that all our cognition is false. Hence, our view requires further justification.

We wanted to enquire into the phenomenon of illusion that people come across in daily life. In most cases we can formulate empirical causal rules relating a specific factor like defect and a specific illusion. Our empirical investigation starts from here. Since, no metaphysical commitment is guiding us there is no need to make an *a priori* logically coherent system. Against this empirical enterprise the main block is skepticism. But, the theoretical problem of skepticism is that it has a beginning but has no assignable finishing point and it is very difficult to fix a criterion for the optimization of doubt. The Naiyāyikas had set a criterion for determining where to stop doubting in the context of formulating universal proposition about *vyāpti*-relation. They have suggested – 'Do not ask further questions where your practical need is fulfilled'.<sup>296</sup> The Sautrāntikas took this pragmatic outlook. But, the Vijñānavādins did not. They admitted the existence of cognition, but could not explain the differences between veridical and non-veridical cognition. The Ānupalambhikas accepted full-fledged skepticism and as a result failed to give *any* positive account of anything. This is not a desirable end of a philosophical enterprise.

We know that Indian philosophical schools differ from each other in their methodologies. But the specialty of Indian philosophy is that it always was related to life. Even the Buddhists and

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<sup>296</sup> *vyāghātāvadhirāśaṅkā tarkaḥ śaṅkāvadhirmataḥ//7(Sūtra).3(Stavaka)// – Nyāyakusumāñjaliḥ, Udayana, NKS., pp.249-250.*

the Vedāntins are not theoretically indifferent to this world of appearance. Both schools admit somewhat qualified existence of this empirical world and declared that it has its own rule. The Buddhists call it *samvṛtisat* and the Vedāntins call it *vyavahārikasat*. According to the Vedāntins until you are one with *Brahman*, this empirical world appears real to you. It has a pragmatic and practical value. It is true that they give the most importance to a higher level of existence. But, both of them hold that it is not through our discursive logic – but by an *immediate experience* that we can realize the ultimate reality. So, as a source of cognition, experience has never been disregarded or ignored in Indian tradition. In order to know the rules of this empirical world, empirical means of cognition are necessary. Illusion is an empirical phenomenon where we have noticed that it follows certain rules. We want to find these rules out and subsequently form an explanatory structure or model that will be able to explain all such phenomenon.

Although there are idiosyncratic factors of illusion which vary person to person and situation to situation, those factors can be organized in a multivariate model. In Praśastapādabhāṣya it has been recognized that due to phlegmatic disorder people dream river, sea-swimming and snow-capped mountain. Due to bilious disorder people dream conflagration, golden mountains etc. Due to flatulence people dream journey through space. We all know that while sleeping if somehow our breathing is disturbed we dream of being choked. So, we find some rules held between the condition and the content of a dream. The physical condition is an empirical phenomenon and the content of dream can be considered as ephemeral. On the contrary, Sthiramati, while commenting on Vasubandhu's *Viṃśatikārikā*, acknowledges that the content of dream affects our physiology also. These rules held between the empirical facts and the ephemeral contents should be discovered through empirical experiments.

Empirical tests are sure shots. Logical speculation does not lead to any determinable end. If alternative systems start speculation with their specific motivation and commitment, they will never reach any consensus. On the other hand, psychological account tries to make out the empirical rules by which we can correlate ephemeral phenomenon with empirical phenomenon. Within this empirical world this is the most reasonable enterprise. And if we have to carry on an empirical investigation then why not take help from those disciplines which have made some progress? Hence, in order to complete this empirical theory, we need to borrow tools from cognitive sciences and brain sciences. It is possible, albeit difficult, to devise some test modules in order to verify selected psychological presuppositions of illusion

which we intend to corroborate through cognitive modeling. The whole enterprise is a new outlook to the Indian theories of illusion. If we become successful in formulating a complete account of illusion borrowing from the insights of Indian philosophy, it will be a substantial contribution to the mainstream philosophy and sciences too.

#### 8.4. Limitations

Illusion is a vast topic. We have mentioned fifteen different *khyātivāda* in Indian tradition. But in this short span it was not possible to discuss all of them in full length; so we selected only the most important six *khyātivādas* and discussed further. We tried to extract the underlying presuppositions behind different theories of *khyāti* and list them for empirical test. While doing so we noticed that each system is more or less consistent within its own superstructure. But, the practical limitation is that in this work we only abstracted the important supporting columns of each superstructure for empirical tests; but could not design the tests. We only raise some questions resorting to which the experiments could be devised. The result will help us to select among the competing Indian theories of illusion. However, we analyzed these six theories and presented some important arguments against Ātmakhyāti, Asatkhyāti, Akhyāti and Anirvacanīyakhyāti from the Nyāya point of view. In Nyāya tradition the discussion on illusion underwent changes in course of evolution. The Old Naiyāyikas explained illusion without recourse to the concept of *jñānalakṣaṇa*, which would be introduced afterwards by the Navya Naiyāyikas. We have concentrated only on the Navya-Nyāya mechanism of *jñānalakṣaṇa* while discussing Anyathākhyāti supposing that it is the most plausible psychological explanation of illusion that may help us in constructing the cognitive model. As a representative of the Old Naiyāyikas we discussed only Jayanta Bhaṭṭa's view. He explained the cases of *jñānalakṣaṇa* as ordinary mental perception. In moment-examination we have shown why the view is inadequate. However, this approach is an injustice to the intricacies of the logical arguments provided by the Old Naiyāyikas.

The theoretical limitation of this work is that it is always difficult to find a thorough correlation between two systems which are entirely different in their fundamental structures, motives and methodologies. One of the major differences between Nyāya and Neuroscience centers on the existence of Self or *ātmā*. According to the Nyāya, consciousness (*caitanya*) is an adventitious property (*āgantuka dharma*) of Self (*ātmā*). Although it reminds of the Supervenience Theory of Mind, which is supported by Neuroscience, the difference is that the Nyāya admits the existence of an extra metaphysical entity – Self or *ātmā* as the locus of that

adventitious property. The Supervenience Theorists do not admit such spiritual entity because they are staunch materialists. For them consciousness also is an emergent property of brain. They hold that brain is the seat of consciousness and morphologically similar brain cortex areas might indicate a homogeneous area of the cortex that represents, perhaps, an individual functional area. So the activation of different brain areas is exhaustive explanation for a particular cognitive task: for any discriminable difference in brain-activation there must be a corresponding discriminable difference between cognitive, conative or affective function. Causality is inferred from correlation of brain activation. But the Nyāya holds that correlation may not indicate causality. Perhaps Self or *ātman* expresses or produces consciousness with the help of an additional tool: the activation of brain regions.

Neuroscience deals with the *easy problem* of consciousness. The *easy problem* is that the solution of which we may not know, but we have certain idea about the solution. And the *hard problem* is that the solution of which is beyond our guess. Establishing correlation between a mental state and a neural state is an answer to the *easy problem*. And the detection of a concrete causal relation between the brain and the mind would be an answer to the *hard problem*. It is now a widely accepted hypothesis that the sites and types of neural processing in the brain are the closest correlate of particular conscious experiences. According to Dennett (1991), it is only over the activity of the whole brain that serves as a neural correlate of consciousness. On the other hand Barbur, Watson, Frackowiak and Zeki (1993) hold that for, say, visual consciousness, it is necessary and sufficient to have activity in relatively small regions (V4/V8) of the visual system in which particular features such as colour, motion, contours, faces etc. are computed. So far is the answer of the 'easy' problem of consciousness. The 'hard' problem is regarding the causal mechanism: How do the seemingly utterly disparate realms of 'brain process' on one hand and 'consciousness' on the other hand interact with one another? Correlation does not establish cause or causal mechanism. So, some hold that there is no answer to the 'hard' question. But Grey (2005) holds that consciousness is not an exceptional phenomenon but is a *natural* phenomenon or feature of natural world. So natural science obviously should answer it – at least can try. Conscious experiences are perceptual in nature which has 'qualia'. So, the rephrased hard question is: How does brain produce or create qualia? Functionalism explains away this question saying that there is nothing as qualia over and above the functions or behavioral output of the brain mechanism. Grey holds that functionalism has never been exposed to empirical test – rather it is simply taken for granted as a foundational axiom. Since functionalism is a general account of how

consciousness meshes with brain and behavior, one clear empirical demonstration of counter-instance can invalidate the functionalist doctrine – and coloured-hearing synaesthesia is such a counter-instance. The contrary approach to functionalism is that Grey calls a '*tissue approach*'. Functionalism implies that if a system displays behavior that, in us, is associated with conscious experience, then the component out of which the system is made are irrelevant. So the computers or robots which discharge high-level functions also have conscious experience. *Tissue approach* holds on the contrary that there is something special about the *actual components of brain* that is necessary for consciousness. The best known version of this view stresses the physics of the components, as in the *Quantum Gravitational Theory of Consciousness* proposed by Penrose and Hameroff.

In the cross-talk hypothesis the phenomenon of synaesthesia is explained by a hard-wired projection in synaesthetic brain. This is an instance of *tissue approach*. The fMRI data showed that in the case of coloured-hearing synaesthesia audio or visual representations of words activate colour selective regions such as V4 or V8 without activating V1 or V2 etc. earlier points of visual pathways or primary visual areas those are activated in normal visual perception. Similar results were found in the studies of coloured afterimages (Hadjikhani et al., 1998), motion after-effects (Totell et al., 1995), and illusory motion (Zeki et al., 1993). In contrast imagining colours was found to be insufficient to activate either of those regions V1/V2 or V4/V8 (Gray et al., 2002; Howard et al., 1998; Nunn et al., 2002). The results support Zeki's hypothesis in suggesting that activation of modules in the visual system specialized for the analysis of particular visual features such as colour (V4/V8) or motion (V5), is both necessary and sufficient for conscious experience of that visual feature. The whole visual pathway need not be activated. It supports the data on hallucinatory experiences in the Charles Bonnet syndrome. In this syndrome the patient experiences vivid involuntary visual hallucination due to sudden deterioration in normal vision resulted from detached retina or glaucoma. In the experiment of ffytche et al. (1998) the fMRI scan data of such patients show excellent correlations between the content of hallucinations and the region of visual system activated. Hallucinations of colours were accompanied by activity in area of V4/V8 in fusiform gyrus; hallucination of faces, by activity in area adjacent to fusiform gyrus specialized for face perception etc. In no case there was activity in V1. Grey brackets illusion with the phenomenon of synaesthesia and explains them by the same mechanism (as the Nyāya explains both of them by the hypothesis of *jñānalakṣaṇa*). Another important observation is that in the cases of coloured-hearing synaesthetes only left V4/V8 were

activated when they listened to the words. Now left hemisphere contains cortical language system which implies that only speech sound (and not any sound) elicits colour experience (Nunn et al., 2002; Paulesu et al., 1995). So, we may hypothesize that the neural projection for such synaesthetes travels from left-lateralized cortical language systems directly to left V4/V8 – without involving lower visual system. In another experiment of Nunn et al. (2002), when colour is shown in non-synaesthetes and synaesthetes there was good agreement in activation only in V4/V8 of right hemisphere. V4/V8 of left hemisphere was activated by showing coloured Mondrians only in the cases of non-synaesthetes; but this region of the synaesthetes were activated only when they listened to the spoken words. So, in the cases of coloured-hearing synaesthetes left V4/V8 is devoted to synaesthetic colours and right V4/V8 is devoted to visually detected colours. It suggests that the neural projection from left cortical language systems to left V4/V8 prevents normal dedication of the latter regions to colour vision. It explains why modularity is broken in such cases. These data support the thesis that synaesthesia is due to abnormal, probably genetically determined, projection, hardwired into the brain – and not due to associative learning. The experiment on ‘alien colour effect’ (ACE) by Gray (1999) further weakens associative learning hypothesis. Some coloured-hearing synaesthetes experience such synaesthetic colours when they hear the words, those are not experienced by them non-synaesthetically in any occasion – hence those colours do not have any name. It proves that there is no scope for learning association hypothesis to explain synaesthesia. ACE is proved experimentally through Stroop interference test by Mattingley et al. (2001) and Grey et al. (2002) when degree of or percentage of ACE was calculated depending on the delay of colour-naming due to Stroop interference. So, ‘tissue’ hypothesis is evidentially more plausible than learned association theory which borrows the spirit of functionalism. The complementary inference from functionalism is that for any discriminable functional difference there must be a corresponding discriminable difference between qualia. In the case of coloured-hearing synaesthesia if we do not probe into the internal neuronal firing pattern, which has clear correspondence with qualia, only the behaviours or the external functions, such as ‘seeing colour’ and ‘comprehension of spoken language’, can not explain why these two functions evoke the same qualia of colour. It cannot explain various cognitive experiences of different synaesthetes in a similar cognitive situation. However, in order to prove the adequacy of ‘*tissue approach*’ in this problem it has to be confirmed that different processing areas produce different qualia exclusively. Functionalists may say that left V4/V8 is devoted to synaesthetic colour; and right V4/V8 is devoted to visually detected colour. Hence two different areas are activated followed by similar qualia. So, ‘*tissue approach*’ is

equally inadequate. There is no one-one correspondence. One might reply that the synaesthetic colour qualia are different from normal visual colour qualia. So activation of different brain areas result different qualia. Hence, there is one-one correspondence. But the experiments of Grey (2002) involving synaesthete painters prove that the qualia of synaesthetic colour and real colour are the same or closely alike. The qualia of after-image and real colour also are alike. So, the ‘*tissue approach*’ does not receive support from this answer. Now the supporters of the ‘*tissue approach*’ would say that left V4/V8 and right V4/V8 are homologue; that is why they are called by same name ‘V4’ and ‘V8’. So there is one-one correspondence in kind. So synaesthesia, along with *Naturalism* advocated by the ‘*tissue approach*’ can be a window to the *hard problem* where causality is inferred from correlation.

The Nyāya metaphysics may offer a solution to the *hard problem*. The Naiyāyikas stipulated the cause of consciousness. For them Self, which is a ubiquitous substance, is the inherent cause (*samavāyikāraṇa*) of cognition or consciousness. But Neuroscience does not admit the existence of such a substance which is not empirically testable. Hence, it is hard to bridge these two realist systems. However, in the Nyāya the importance of body (or we can say, brain) has been admitted, where it is said that only embodied Self is capable to have cognition – disembodied Self has no cognition.<sup>297</sup> That is why a liberated soul has no difference with an inert object. Consciousness is an adventitious property of Self. It is generated only when there is body. But this parallelism with Supervenience Theory breaks when the Nyāya admit the existence of God who has no physical body but has cognition or consciousness. We may argue that there is a level-distinction between the cognition of empirical Self and that of God. God’s cognition is eternal (*nitya*) whereas the cognition of empirical Self is generated (*janya*). Body is required only for the production of *janya jñāna*. But that does not establish Supervenience. Moreover, the Naiyāyikas have spilt much ink in order to disprove materialist Supervenience Theory of the Cārvākas (*bhūtacaitanyavāda*),<sup>298</sup> whereas neuroscience is more akin to Cārvāka materialism. Both of them hold that consciousness supervenes on body – or on brain state.<sup>299</sup>

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<sup>297</sup> *upabhogāyatanaṁ puruṣasya jñātuḥ śarīraṁ, na tato niścatīrasya manas ātmasaṁyogamātraṁ jñānasukhādīnāmutpattiyai kalpate, kuptau ca śarīra vaiyarthyamiti.* – Vātsyāyana’s *Nyāyabhāṣya on Gautama’s Nyāyaūtra* 30.301., NDP II., p.250.

<sup>298</sup> *Nyāyasūtra* 35.306. to 55.326. and *Vātsyāyanabhāṣya* on them; NDP II., pp.269-325.

<sup>299</sup> One may say that although the perception by God (*Īśvarapratyakṣa*) does not require body, but such perception is beyond the scope of this discussion, because it does not have any causal mechanism or psychological account. However, if we take the issue holistically – comparing two metaphysical systems as a whole – the problem emerges.

In spite of the presence of such metaphysical debates, at least the experiments in Neuroscience can substantiate the truth of certain phenomenon such as *jñānalakṣaṇa* or cross-modal experience which otherwise could be considered to be counter-intuitive and absurd.

There are several levels of description and explanations of the same mental event. The order of higher (macro) to lower (micro) level descriptions are as follows:

Personal or Psychological → Behavioural → Neural → Cellular physiological → Molecular biological → Chemical → Quantum physical.

Nyāya provides only a personal level description and tries to explain mental events with the help of metaphysical posits such as *ātmā* or Self, *manas* or mind, *icchā* or desire, *samskāra* or previous effect, *prayatna* or volition etc. Now a Reductionist would reduce the higher level theories to the lower level theory. A non-Reductive Materialist may object that mind cannot be reduced to matter because our mental life is holistic but matter is not so. The building blocks of our mental life, i.e. the beliefs, desires etc. are connected to each other constructing such a network that change in one part of the network makes changes in the other parts also leading to a reorganization of the whole network. Physical objects do not show such holistic properties. Hence Reductive Physicalism is unacceptable. But a Neuroscientist will answer that our brain is sufficiently complex to sustain holistic structure of the mental in terms of network of chemical processes. Then should we say that the explanations and posits of a higher theory are sacrificed in front of the explanations and posits of a lower theory?

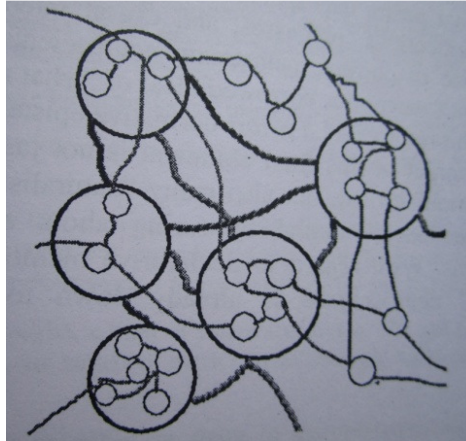
Several answers may be given to the question depending on how much 'sacrifice' one thinks to be necessary. At the extreme end of the continuum there are the Eliminativists like Churchland (1994) who say that we should eliminate the higher level theories altogether in front of the lower level theories. John Bickle (2003) says that explanation of a mental event at the Personal or Psychological level is so 'explanatorily impotent', 'empty' and blind to important causal processes in comparison to, say a molecular biological explanation, that we should reject the former as *Wittgenstein's ladder*. However, Bickle does not propose to eliminate higher level theories altogether. He says that we may take the help of the methodologies of the higher level theories also to explain the event in terms of the theoretical posits of the lower level theory. We may take help of fMRI technology (which is a method of



Cognitive Neuroscience) for establishing Molecular level explanation. This transdisciplinary approach in respect of methodology saves the *methodological autonomy* of the higher level theory. Here we also may say that the personal level metaphysical posits, which have been hypothesized depending on speculation and reflective intuition, may guide us in constructing experimental set up in order to establish the lower level theory. The Instrumentalists like Dennett (1991) would acknowledge that the higher level theories have some pragmatic value.

The non-Reductive Materialist would now point out that although neural network sustain holistic feature of mental life, purely chemical or physical objects do not have such feature. Mental properties emerges out of the complexity of the matters, and the complexity of organization is not captured in constituent components. So, higher level explanation is necessary. A mental event might be explained in terms of the chemical processes going on in the neurons but the organization of the neurons in the brain cannot be captured in the chemical processes, because that explains which connection produces what other connections. So, the description at the level neuronal anatomy captures something important which is beyond the reach of the chemical description.

J.N. Mohanty (2003) speaks about multileveled philosophical truth. He refers to Weinberg (1992) who says that Quantum Mechanics cannot answer even the simple questions of consciousness such as why A falls in love with B, why animals acquire special features in a particular environment etc. In order to get the answer we have to depend on Psychology, Ecology and Biology. Mohanty believes that Reductionism has failed. We can give an account of red colour either at the personal level, or in terms of Atomic Physics, or in terms of Quantum Mechanics. All these are different descriptive and ontic levels of the same truth and all of them are true. We should not choose between them. Such kind of multileveled ontology is preached by the Jainas. But Bickle does not admit multiple ontic levels since he is an Ontological Reductionist. Neither does he admit completely separate non-interactive independent levels of description. Through a visual metaphor he explains how all the levels of theories can be superimposed one upon another.



Visual Metaphor of Inter-theoretic Reduction: The circles represent the posits of a hypothesis. The nexus of the bigger circles connected through thicker lines represent the Reduced Theory which is coarse-grained, and the nexus of the smaller circles connected through thinner lines represent the Reducing Theory which is fine-grained. The lines represent causal connections. The superimposition of one nexus upon another indicates ontological identity of the subject matter. (figure 2.11 of Bickle, 2003; p.101).

In his book 'Philosophy and Neuroscience: A Ruthlessly Reductive Account', he tried to establish that memory consolidation or Long Term Potentiation (LTP), which is a cognitive phenomenon, can be explained by purely physical mechanism at the cellular and molecular level. And in comparison to that explanation, mere psychological explanation is 'empty'. This new wave in Reductionism, i.e. the wave of molecular biology, aspires to solve the problem of consciousness or answer to the *hard problem* without positing a non-material Self or Personal level description. It repudiates Functionalism providing a proper answer stating the cause of multiple realizability and explains the purely physical basis of consciousness or subjective feeling or *qualia*. These answers are two complementary facets of the '*tissue approach*' mentioned earlier.

Experiments on the molecular biological process of memory consolidation of *Drosophila* (a fruit fly) and *Aplysia Californica* (a sea slug) proved that although they possess different kinds of neurons but both of them possess a shared molecular mechanism. So, the answer to the question as to why should we consider s-fibre stimulation (of silicon-based species) also as 'pain' like c-fibre stimulation (of carbon-based species) is that at the molecular biological level both of them share similar mechanism (chemico-biological mechanism). We can validly

hypothesize that same molecular mechanism produces same qualia<sup>300</sup>; and difference (besides the similarity) also should be reflected in the psychological differences in capability across the species – from *Drosophila* to Human beings. Evolutionary conservation of molecular mechanisms also supports this fact of shared molecular mechanism. In some cases even human cognitive phenomenon and the corresponding molecular mechanism is speculated from that of the *Drosophila* or *Aplysia*. Barstch et al. (1995) speculate that CREB2 inhibition of *Drosophila* and *Aplysia* might be a mechanism for human ‘flashbulb memory’ effect.

Many philosophers like Chalmers think that consciousness or subjective experience is a psychological phenomenon which lies beyond the explanatory reach of cellular and molecular neuroscience. However, the cognitive scientists, even those are emergent property dualists hold that consciousness emerges from unspeakable complexity of neuronal organization. Liu and Newsome (2000) claim that our personal experiences result solely from patterned electrical activity among the several billion neurons that comprise the central nervous system, and we can create realistic experiences or qualia and mental operation artificially, by directly activating those circuits of neurons such as working memory, attention etc. through microstimulation by tungsten electrode. Wilder Penfield and P. Perot (1963) has been a pioneer in inducing phenomenology. During open brain surgery of the epileptic patients (when the patients are awake) it was noticed by Penfield and his associates at Montreal Neurological Institute that electrical stimulation in brain regions produced experiential responses in those patients. And those experiences were more than mere buzzing sounds or colour flashes or motor jerking (those are routinely elicited in patients by electrical stimulation to corresponding sensory or motor cortical regions). Stimulation in temporal lobe elicited clear hallucination or dreamy states, recognizable meaningful sounds, sentences, events from past, voices, music even audio-visual vivid memory and also emotion. Penfield and Perot writes that, “... their vividness or wealth of detail and the sense of immediately that goes with them serves to set them apart from the ordinary process of recollection which rarely displays such qualities” (Penfield, Perot, 1963; p.679).

This supports the neuronal basis of phenomenal consciousness. In William Newsome’s lab it was experimented that microstimulation in specific regions on Middle Temporal Cortex or

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<sup>300</sup> Even if the chemical components are different, say one is carbon and the other is silicon, but their chemical properties may be similar. Periodic table shows us this fact. We may have to look into a quantum level explanation to ensure this fact.

MT creates phenomenology of motion and this artificially created phenomenology competes with natural motion phenomenology created by perception of moving things. Ranulfo Romo's lab proved that such truism is not confined to vision but other sensory fields like somatosensation also. Extending Romo's experiments Liu and Newsome (2000) have raised the possibility of microstimulating appropriate neurons involved in working memory and decision making capacity. These experimental findings repudiate phenomenal externalism answering Ned Block's 'Inverted Earth' argument. They point out that phenomenology is a direct and immediate product of neural stimulation – nothing else. Same brain-state (proximal stimulus) always produces same phenomenology, whatever is the distal stimulus or external environment. And subjective qualia across microstimulation and natural stimulation share the same features. Nowhere in these reductionist Neuroscientific accounts appears Self which the Nyāya supposes to be the inherent cause of cognition or the agent-knower-enjoyer. If stimulation in neurons is sufficient condition of subjective experience, then the hypothesis of the causal efficacy of Self becomes superfluous.

However, one may object that there is a difference between the memory evocation by microstimulation and by will. How does neuroscience explain volition or the freedom of choice? Are not they the properties of Self? The Neuroscientist would answer that the causal chain need not be considered to be started from immaterial Self. Volition or the sense of the freedom of choice is the resultant personal level qualia of an unconscious resolution taken through a complex value calculation in the neuronal circuit of the brain. Since we are unaware of the unconscious processes going on in our brain we falsely posit an immaterial Self as the holder of volition or will. The phenomenology of Self or the sense of 'me' also is generated from the activation of a particular neuronal circuit. Insular cortex, which is situated in the deep fold of lateral sulcus (the fissure separating the temporal lobe from the parietal and frontal lobes) of each hemisphere, is supposed to be responsible for *bodily self-awareness*, *sense-of agency*, the *sense-of body ownership*. The deception-specialists are well aware of these unconscious calculations which they can exploit in order to impose their own decisions on the other persons. Since the whole process is unconscious the persons cannot even realize that what they are doing is not according to their own will.

One may further question that if a decision for an action, say a murder, and execution is nothing but an organized series of neural stimulations or chemical processes at the cellular level, then who will take the responsibility of an action? So, personal level description also is

important for the sake of society. Otherwise we have to sacrifice moral responsibility at the feet of naturalism. Although theoretically that also is acceptable (Bertrand Russell taught us that philosophers must learn not to be frightened by absurdities), or following the visual metaphor of Bickle we may say that all the higher and lower level descriptions simultaneously survive. We choose among them according to our necessity – which one has the maximum survival value. Moral decisions in some way maximize our conjoined survival possibility in a utilitarian way. In this way morality may meet naturalism. It also solves the problem of causal dualism/pluralism which says that a single effect (murder of Y by X) may have two different sufficient conditions – one is personal (X murdered Y) and other is natural (molecules in X's neurons went through certain chemico-biological processes that resulted Y's murder through the muscle contraction of X's arm or the like), because in reality higher and lower level theories are superimposed on one another: a posit of personal level theory (big circle) actually incorporate several posits of natural level theory (small circles) in the causal network. In this way if we consider them holding positions in a continuous spectrum of theories – extending from higher end to lower end, we can relate Nyāya and Neuroscience although only approximately.

Till now it is beyond the reach of neuroscience and molecular biology as to how do we exploit the *content* of a mental state and accordingly conduct a *sequential* mental operation. The neuronal firings can be ascribed a binary property – either they are fired (one) or not fired (zero). But how can they acquire meaning (*semantics*) from a particular structure (*syntax*) of firing-network? The AI theorists say that *semantics* is nothing but an arrangement of (an unthinkable complexity of) *syntax*. And since the object outside is causally connected to a particular structure of firing-network, the *syntax* is causally grounded in that object. In this way that particular syntax (along with an *emergent individual quale*) becomes the *representative* of the object outside – which we call *content*. In this way Neuroscience tries to solve the problem of interpretation. They say that the corresponding quale is produced only in a *living* organism that has come through an evolutionary process for eras. So it cannot be produced artificially. In this respect the '*Tissue Approach*' of the Neuroscientists differs from the '*Functionalist approach*' of the AI Theorists. But in that case the mystery of qualia is not solved – it actually is transferred to the previous level, i.e. what is *life*? This is one of the basic quests of Philosophy. The Physicalists take resort to the Evolutionary Biologists in order to explain how a purely physical component became a *closed input-output system* and learned for the first time to *sustain* and *replicate*. Philosophers also tried to address this issue in its own

way. And as long as the issue is the same, we believe that Philosophy and Neuroscience can march on in the new territories of the uncharted land hand-in-hand in spite of their internal differences.<sup>301</sup>

### 8.5. Glimpses Beyond

We should remember that in the third section of Chapter – III we had enlisted certain testable hypotheses. We may test the truth of them through experiments with the help of modern tools. As for an outline, let us take the following five hypotheses:

1. Illusion is a single qualified false cognition.
2. Illusion is a pair of two distinct incomplete but true cognitions.
3. Blend cognitions are possible. Illusion is partly perceptual and partly mnemonic.
4. Memory-intervened distant perception is possible. The corresponding sense-object contact is of the nature of memory cognition (*jñānalakṣaṇa sannikarṣa*).
5. Whether there is a recollection-perception-continuum at the phenomenal level in terms of an increasing degree of vividness of the content.

Let us see how we can test them with the help of modern technology.

Modern brain imaging technology like functional Magnetic Resonance Imaging technique (fMRI) or Electro Encephalograph (EEG) may help us to determine what actually happens during illusion. fMRI technique will show what regions become activated during a cognitive state and EEG will show an overall activation graph of the brain. Reaction time experiments

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<sup>301</sup> In our discussion we have selected Bickle (2003) because he seems to represent one of the extreme opposites of the Nyāya-Neuroscience spectrum. Of course his ruthless Reductionism is criticized by others (see ‘Ruthless Reductionism: ‘A Review Essay of John Bickle’s Philosophy and Neuroscience: A Ruthlessly Reductive Account’, by Huib Looren de Jong & Maurice K. D. Schouten, Published in *Philosophical Psychology*, Vol. 18, No. 4, August 2005, pp. 473–486.). The review says that Bickle’s mind-to-molecule reductionism suffers from ‘overstretching’, ‘too ruthless’, ‘naturalistically fundamental’ and ‘too rash to jettison philosophical questions, and to sell out philosophy to neuroscience’. The authors raise the question as to what should be the correct level of description of mind. Why should we think that a lower level description always prevails - simply because it gives more detail account? They say that a link is not a Reduction. Bickle has changed the meaning of Reduction and did not address the issue of ‘multiple supervenience’. They opine that no matter how intricate a lower level description is, there always remains a question namely what are these causal mechanisms for, what is it that these mechanisms of neural plasticity are supposed to accomplish? Such questions can only be dealt with from a functional perspective. Hence Philosophy not only has *methodological* autonomy, but enjoys full-fledged autonomy.

utilize the chronometric methodology, where reaction-time is measured in respect to a cognitive task; and this measurement permits a finer analysis of internal processes.

It is difficult to identify a particular graph segment corresponding to a particular cognition. First of all it is not at all clear whether cognition is countable or uncountable. Even if it is countable, it is not clear what determines different cognition's identity. One may say that content determines (some will say 'form') the uniqueness of a cognition. Unfortunately EEG can not show the content of a cognition. Graph only shows increase or decrease of overall activation of the brain moment by moment. Event related fMRI also can provide timeline of a cognitive situation.

Here we presuppose that content is somehow correlated with activation and we get different contents by individuating different activations of the brain. In our daily life cognitions are produced in our mind so seamlessly that we cannot differentiate one cognition from another. EEG may help us in this regard. If the overall activation of our brain is surged (that is the graph is amplified and becomes more dizzy) at one moment and then drops down to almost zero level and again is surged to another top, then we can say that the two tops are two different cognitions and in between those two tops there is a drop zone which differentiates those cognitions. The EEG device may be set in such a way that these two cognitions are shown in two windows. The device also may identify the moments of the production of those cognitions. The EEG device and parallel fMRI pictures may tell us which part of the brain has become activated at those given moments. And accordingly we shall be identify the kind of those cognitions – whether they are perceptual or mnemonic.

The Prābhākaras say that during illusion two cognitions occur: one is perceptual and another is memory. If it is true then we expect to get two surges of activation in EEG graph. And the activation location will tell us that they are perceptual and mnemonic respectively. If the cognition is a visual perception then the occipital lobe is expected to be activated along with lateral geniculate nucleus and for a mnemonic cognition hippocampus and prefrontal cortex is expected to be activated. The Naiyāyikas also admit this mechanism up to this step. But ahead of this they speak about a third step where the memory turns its content into a percept. In terms of neurology we can say that somehow the memory becomes so forceful that the activation touches or crosses the threshold of perception. We may posit here a memory → perception vividness continuum in respect of increasing brain activation. The Naiyāyikas may

say that we cannot determine the nature of a cognition through its force or vividness of content but it is determined causally. But when they say that after-perception identifies the nature of a cognition, then indirectly they accept such a thesis. However, if the Naiyāyikas are right then we expect a third surge of activation in EEG and a parallel BOLD activation in occipital lobe. The Bhāṭṭas say that illusion is a blend cognition partially perceptual and partially mnemonic. If so then both the visual and memory zone will be found to be activated in BOLD response.

Now it has been found that almost all parts of brain become activated during any kind of cognition. So, it is difficult to determine the kind of cognition from the activation picture. We have to set a new criterion for being perceptual or mnemonic. Being inspired by the Advaita insight we may suggest that perception affects us physically whereas memory does not do so. Smelling tamarind causes watering of mouth. This physical change proves that it is not the memory of the taste of tamarind – but the gustatory perception of tamarind has occurred somehow. The said threshold has been crossed somehow. Memory is less vivid and perception more vivid. Here, the intensity of the cognition has become sufficient to cause a particular physical state which mere memory cannot ensure. Although tamarind is not physically connected to our taste-bud, but the memory has enhanced corresponding taste sensation in the brain causing salivation. However, the new interpretation of Nyāya says that proximal layer or sensory input neurons are activated during perception but not in the case of memory.

Regarding the kind of produced cognition subjective report also is considered to be reliable now-a-days. We may show some pictures to the subjects and observe the EEG graph as well as get their feedback on seeing those pictures. This way we may know whether perceiving a picture of fragrant flower evokes its fragrance in the perceiver's mind. Does the subject really get the scent of the flower or not. The same experiment might be arranged with different fruits, cakes, ice tea, pizza, smoky tea or coffee where we shall see whether perception of those pictures evokes particular taste in the subject. Another experiment may be that the subject will be presented with the picture of cold and vapouring ice. We shall see whether the subject feels cold on seeing that picture. These experiments will be arranged in the following way. The subject will be presented with a particular picture of, say, fragrant flower (onset of stimulus 1) for 4 seconds. He will press a button whenever he feels that he has got the fragrance of that flower on seeing its picture. We shall compare the subject's feedback with the corresponding EEG graph. After the offset of stimulus 1, 8 seconds will be given to bring the subject down to the normal state. Then the second stimulus, say, the picture of fruit will be



presented. Here also we shall compare the subject's feedback (whether he has got the taste of the fruit on seeing its picture) with the EEG graph. In the same way we shall see whether picture of ice can produce a sense of cold in the perceiver or the picture of smoky tea or coffee or lemon ice tea can produce corresponding taste in the perceiver.

These experiments will help us to decide whether memory intervened distant perception is possible or not and see whether the hypothesis of memory-imagination-perception continuum has any ground or not. In this way the last two points will be checked. The first three points will be checked while observing EEG graphs corresponding to illusory experiences – whether there are two or three different tops in the graph. Corresponding fMRI pictures will say whether they are memory or perception. The physical changes due to the stimulus onset will say that the subject has got a perceptual state.

In this regard our moment examinations of different cases of *jñānalakṣaṇa pratyakṣa* plays another important role. They not only increase the explanatory value of the hypotheses of *jñānalakṣaṇa sannikarṣa*, but also provide a timeline which will help in designing empirical tests in future research for determining the truth or falsity of the alternative psychological presuppositions. Moreover, the moment examinations show that although the Naiyāyikas do not admit simultaneous production of more than one cognition at a fixed moment but they admit that several cognitions may persist or exist in the Self simultaneously. Furthermore persistence of a cognition and evocation of memory-trace may be at the same time. It indicates that Nyāya model is not a Serial or Turing model – rather it is a Parallel Processing Model. According to the Naiyāyikas, since *manas* is atomic, attention cannot be divided. The Nyāya is concerned about the *span of attention* – not about *parallel processing*. Several cognitive processes can simultaneously run in parallel at sub-personal level.

However, we can raise questions even against the Nyāya system and may design the experiments in order to get the answer. We have to remain prepared for sacrificing the rigidity of the Nyāya system whenever new evidences crop up. Some of the questions are as follows:

1. How should we define 'moment' or '*kṣaṇa*' according to the Naiyāyikas?
2. Whether we always require a conscious memory-cognition in order to link the sense-organ with its content (or, to transform its content into a percept), or only the evocation of memory-trace (*sainṣkāra*) is sufficient? It seems that the Naiyāyikas have to admit

unconscious cognitive processing. If we could consciously know that during rope-snake illusion the memory cognition of snake is produced then we would not suppose it to be a perceived element; as a consequence there would not be any illusion at all.

3. Some synaesthetes experience Martian colours (which they have never seen before) while looking at a particular grapheme. It evokes a question, is *jñānalakṣaṇa* always memory-induced? Or it can be sense-induced also?
4. 'surabhi candanam' is considered to be a true cognition. But is the shade of previously experienced fragrance identical with that of the present sandal?
5. Is there any corresponding physiological change with the psychological factors? In other words, whether the causal process is entirely physical or not?
6. Is there any measurable way by which the proposed thresholds can be determined?
7. What is the physiological status of memory?
8. Is there any possibility of blend cognition?
9. Is there any possibility of simultaneous cognition?
10. Is cognition countable or uncountable? How should we count a cognition – according to its content, or causal assemblage, or counting moments?

It is expected that future researches will help in understanding the process and consequently we shall be able to understand the mechanism of perception and illusion in general.

## BIBLIOGRAPHY

- Aghajanian, G.K., 'Neurophysiologic properties of psychotomimetics.' *Handbook of Experimental Pharmacology*, ed. R. Hoffmeister and G. Stille, 55, 2, 1981, Berlin, Springer-Verlag, pp. 89-110.
- Aguirre, G.K., and D'Esposito, M.E. 'Topographical disorientation: A synthesis and taxonomy.' *Brain*, 122, 1999, pp. 1613-1628.
- Allison, T., McCarthy, G., Nobre, A., Puce, A., and Berger, A., 'Human extrastriate cortex and the perception of faces, words, numbers and colours.' *Cerebral Cortex*, 5, 1994, pp. 1047-3211.
- Amaral, D.G., Price, J.L., Pitman, A., and Carmichael, S.T., 'Anatomical organization of the primate amygdaloid complex.' *The amygdale: Neurobiological aspects of emotion, memory and mental dysfunction*, eds. J.P. Aggelton, New York, Wiley, 1992, pp. 1-66.
- Amedi, A., Malach, R., Hendler, T., Peled, S., and Zohary, E., 'Visuo-haptic object-related activation in the ventral visual pathway.' *Nature Neuroscience*, 4, 2001, pp. 324-330.
- Amir, Y., Harel, M. and Malach, R., 'Cortical hierarchy reflected in the organization of intrinsic connections in Macaque monkey visual cortex.' *Journal of Comparative Neurology*, 334, 1993, pp. 19-46.
- Annam̐bhāṭṭa, *Tarkasaṅgraha*, Edited, translated and elucidated in Bengali with Annam̐bhāṭṭa's commentary *Tarkasaṅgraha-dīpika* by Narayan Chandra Goswami, Calcutta, Sanskrit Pustak Bhandar, 1984.
- Annam̐bhāṭṭa, *Tarkasaṅgraha*, Edited, translated and elucidated in English with Annam̐bhāṭṭa's commentary *Tarkasaṅgraha-dīpika* by Gopinath Bhattacharya, Calcutta, Progressive Publishers, 2006.
- Armel, K.C., and Ramachandran, V.S., 'Acquired Synesthesia in Retinitis Pigmentosa.' *Neurocase*, 5, 4, 1999, pp. 293-296.
- Armstrong, D.A., 'Is Introspective Knowledge Incorrigible?' *The Philosophical Review*, LXXII, 4, October, 1963, pp. 417-432. Reprinted in *The Nature of Mind*, ed. David. M. Rosenthal, Oxford, New York, Oxford University Press, 1991, pp. 126-132.
- Armstrong, D.M., *Perception and the Physical World*, New York, Humanities Press, 1961.
- Aung, S.Z., (Tr.), *Compendium of Philosophy (Abhidhammattha-saṅgaha)*, Revised and edited by Mrs. Rhys Davids, London, Henry Frowde (for the Pali Text Society), 1910.
- Bādarāyaṇa, *Brahmasūtra*, Edited with Śāṅkarācārya's commentary *Śāṅkarabhāṣya*, and the subcommentaries Vācaspati Miśra's *Bhāmatī*, Amalānanda Sarasvatī's *Kalpataru* and Appaydikṣita's *Parimal* by K.L. Joshi, (Part-I), Delhi, Parimal Publications, 1987.
- Bailey, M.E.S., and Johnson, K.J., 'Synesthesia: Is a genetic analysis feasible?' *Synaesthesia: Classic and contemporary readings*, eds. S. Baron-Cohen and J.E. Harrison, Oxford, Blackwell, 1997, pp. 182-207.

- Bair, K., 'Smart on Sensation.' *Australian Journal of Philosophy*, 40, 1962, pp. 57-58.
- Bandyopadhyaya, K., *Nyāyatattva Parikramā*, Calcutta, Papyrus, 1986.
- Banissy, M.J., Walsh, V., and Ward, J., 'Enhanced sensory perception in synaesthesia.' *Experimental Brain Research*, 196, 2009, pp. 565-571.
- Bar, M., and Biederman, I., 'Localizing the cortical region mediating visual awareness of object identity.' *Proceedings of the National Academy of Sciences of the United States of America*, 96, 1999, pp. 1790-1793.
- Barbur, J.L., Watson, J.D.G., Frackowiak, R.S.J., and Zeki, S., 'Conscious visual perception without V1.' *Brain*, 116, 1993, pp. 1293-1302.
- Baron-Cohen, S. and J.E. Harrison, eds. *Synaesthesia: Classic and Contemporary Readings*, Oxford and Cambridge, Blackwell Publishers Ltd., 1997.
- Baron-Cohen, S., Burt, L., Laittan-Smith, F., Harrison, J.E. and Bolton, P., 'Synaesthesia: prevalence and familiarity.' Unpublished manuscript, University of Cambridge, 1995.
- Baron-Cohen, S., Harrison, J., Goldstein, L.H., and Wyke, M., 'Coloured speech perception: is synaesthesia what happens when modularity breaks down?' *Perception*, 22, 4, 1993, pp. 419-426. doi:10.1068/p220419. PMID 8378132.
- Baron-Cohen, S., Wyke, M. and Binnie, C., 'Hearing Words and Seeing Colours: An Experimental Investigation of a Case of Synaesthesia.' *Perception*, 16, 1987, pp. 761-767.
- Bartsch, D., Ghirardi, M., Skehel, P., Karl, K., Herder, S., Chen, M., Bailey, C., and Kandel, E.R., 'Aplysia CREB2 represses long-term facilitation: Relief of repression converts transient facilitation into long-term functional and structural change.' *Cell*, 83, 1995, pp. 979-992.
- Basu, Rajshekhar, Cikitsāsaṅkaṭ, *Parashuram Granthavali*, vol. I, 5<sup>th</sup> edn., 14, Bankim Chatujye Street, Kolikata-73, M.C. Sarkar and Sons Pvt. Ltd., 1987.
- Bernstein, L.J., and Robertson, L.C., 'Independence between illusory conjunctions of colour and motion with shape following bilateral parietal lesions.' *Psychological Science*, 9, 1998, pp. 167-175.
- Bhāsarvajña, *Nyāyasāra*, Edited with Vāsudeva Sūri's *Padapañcikā* by K. Śāmbaśiva Śāstrī, Trivandrum Sanskrit Series No. 110, Sri Setu Lakṣmī Prasādamālā No. 21, Government of Her Highness the Maharani Regent of Travancore, Trivandrum, 1931.
- Bhatt, Govardhan P., *Epistemology of the Bhāṭṭa School of Pūrva Mīmāṃsā*, Varanasi, Chowkhamba Sanskrit Series Office, 1962.
- Bhattacharya, S., 'Theories of Error in Indian Philosophy or Five Types of Khyāti', *Concepts of Knowledge*, Kolkata, Ramakrishna Mission Institute of Culture, 1995, pp. 93-106.
- Bhattacharya, Visvabandhu, *Anuvyavasaya*, Sanskrit Pustak Bhandar, Kolikata.

Bhattacharyya, S., *Gaṅgeśa's Theory of Indeterminate Perception*, Part II, New Delhi, Indian Council of Philosophical Research, 1993.

Bhīmācārya Jhalakīkar, *Nyāyakośa*, Revised and Re-edited by Vāsudeva Śāstrī Abhyaṅkara, Poona, Bhandarkar Oriental Research Institute, 1978.

Bhutanatha Saptatirtha, (Tr.), *Śrīmadbhagavadgītā*, Translated and explained in Bengali with Madhusūdana Sarasvatī's Commentary *Gūḍārthadīpikā* by Nalinikanta Brahma, Kolkata-9, Nababharat Publishers, January, 2006.

Bickle, J., *Philosophy and Neuroscience: A Ruthlessly Reductive Account*. Dordrecht, Boston, London, Kluwer Academic Publishers, 2003.

Biederman, I., 'Recognition by components: A theory of human image understanding.' *Psychological Review*, 94, 1987, pp. 115-147.

Biederman, I., and Gerhardstein, P.C., 'Recognizing depth-rotated objects: Evidence and conditions for three-dimensional viewpoint invariance.' *Journal of Experimental Psychology: Human Perception and Performance*, 19, 1993, pp. 1162-1182.

Blake, R., Palmeri, T.J., Marois, R., and Kim, C-Y., 'On the Perceptual Reality of Synesthetic Color.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 47-73.

Blakemore, S.J., Bristow, D., Bird, G., Frith, C. and Ward, J., 'Somatosensory Activations During the Observation of Touch and a Case of Vision-Touch Synaesthesia.' *Brain*, 28, 2005, pp. 1571-1583.

Bliss, T.V.P., and Lømo, T., 'Long-lasting potentiation of synaptic transmission in the dentate area of the anaesthetized rabbit following stimulation of the perforant pathway.' *Journal of Physiology*, 232, 1973, pp. 331-356.

Botvinick, M., and Cohen, J., 'Rubber hands 'feel' touch that eyes see.' *Nature*, 391, 1998, p. 756.

Bouma, H., 'Interaction effects in parafoveal letter recognition.' *Nature*, 226, 1970, pp. 177-178.

Boysson-Bardies, B. de, S. de Schonen, P. Juszyk, P. McNeilage, and J. Morton, eds. *Developmental Neurocognition: speech and face processing in the first year of life*, Dordrecht, Kluwer, 1993.

Brahmachari, Silananda, *An Introduction to Abhidhamma (Buddhist Philosophy and Psychology)*, 2<sup>nd</sup> edn., Tapan Brahmachari, Jadab Barua Publications, Kolkata, May, 1990.

Buhl, E.H. and Lubke, J., 'Intracellular Lucifer yellow injection in fixed brainslices combined with retrograde tracing, light and electron microscopy.' *Neuroscience*, 28, 1, 1989, pp. 3-16.

Burge, Tyler, 'Individualism and self-knowledge.' *Journal of Philosophy*, 85, 1988, pp. 649-663.

- Burge, Tyler, 'Individualism and Self-knowledge', *The Journal of Philosophy*, 85, 11, 1988, pp. 649-663.
- Burton, H., Snyder, A.Z., Conturo, T.E., Akbudak, E., Ollinger, J.M., and Raichle, M.E., 'Adaptive changes in early and late blind: a fMRI study of Braille reading.' *Journal of Neurophysiology*, 87, 2002, pp. 589-607.
- Calkins, M.W., 'A statistical study of pseudo-chromesthesia and of mental-forms.' *American Journal of Psychology*, 5, 1893, pp. 439-466.
- Calvert, G.A., Bullmore, E.T., Brammer, M.J., Campbell, R., Williams, S.C., McGuire, P.K., et al., 'Activation of auditory cortex during silent lipreading.' *Science*, 276, 1997, pp. 593-596.
- Calvert, G.A., C. Spence and B.E. Stein, eds. *The Handbook of Multisensory Processes*, Cambridge, MIT Press, 2004.
- Carruthers, P., *The Opacity of Mind*, Oxford, Oxford University Press, 2011.
- Chakrabarti, A., 'I Touch What I Saw.' *Philosophy and Phenomenological Research*, 52, 1, March, 1992, pp. 103-116.
- Chakrabarti, A., 'Mrgatṛṣṇikā Ityādi.' *Mananer Madhu*, Kolkata, Gangchil, 2008, pp. 223-234.
- Chakrabarti, A., 'Perception, Apperception and Non-Conceptual Content.' *Perspectives on Consciousness*, ed. Amita Chatterjee, New Delhi, Kolkata, Munshiram Manoharlal Publishers Pvt. Ltd. in association with Jadavpur University, 2003, pp. 89-107.
- Chakrabarti, A., *Mananer Madhu*, Kolkata, Gangchil, 2008.
- Chakrabarti, K.K., 'The Truth about Perceptual Error.' *Essays in Indian Philosophy*, ed. Sukharanjan Saha, Calcutta, Allied Publishers Limited in collaboration with Department of Jadavpur University, 1997, pp. 297-311.
- Chalmers, David J., 'The content and epistemology of phenomenal belief.' *Consciousness: New Philosophical Perspectives*, eds. Quentin Smith and Aleksandar Jokic, Oxford, Oxford University Press, 2003, pp. 220-272.
- Chatterjee, A., 'Kumārila's Refutation of the Argument from Illusion.' *Essays in Indian Philosophy*, ed. Sukharanjan Saha, Calcutta, Allied Publishers Limited and Jadavpur University, 1997.
- Chatterjee, S. and Datta, D., *An Introduction to Indian Philosophy*, Calcutta, University of Calcutta, 2004.
- Chatterjee, S.C., *The Nyāya Theory of Knowledge*, Calcutta, University of Calcutta, 1978.
- Chattopadhyay, M., *Walking Along the Paths of Buddhist Epistemology*, New Delhi, D.K. Printworld (P) Ltd., 2007.
- Christou, C.G., and Bülthoff, H.H., 'View dependence in scene recognition after active learning.' *Memory and Cognition*, 27, 1999, pp. 996-1007.

Churchland, P.M., *Matter and consciousness: a Contemporary Introduction to the Philosophy of Mind*, United States of America, MIT Press, 1994.

Cohen, L., Dehaene, S., Naccache, L., Lehericy, S., Dehaene-Lambertz, G., Henaff, M.-A., and Michel, F., 'The visual word form area: spatial and temporal characterization of an initial stage of reading in normal subjects and posterior split-brain patients.' *Brain*, 123, 2000, pp. 291-307.

Cowey, A. and Stoerig, P., 'Reflections on blindsight.' *The Neuropsychology of Consciousness*, eds. D. Milner and M. Rugg, London, Academic Press, 1991, pp. 11-37.

Crick, F., and Koch, C., 'Cortical areas in visual awareness.' *Nature*, 377, 6547, 1995, pp. 294-295.

Cunningham, William A., et al., 'Separable neural components in the processing of Black and White faces.' *Psychological Science*, 15, 2004, pp. 806-813.

Cynader, M.S., Andersen, R.A., Bruce, C.J., Humphrey, D.R., Mountcastle, V.B., Niki, H., Palm, G., Rizzolatti, G., Strick, P., Suga, N., von Seelen, W. and Zeki, S., 'General principles of cortical operation.' *Neurobiology of Neocortex*, eds. P. Rakic and W. Singer, New York, John Wiley, 1988, pp. 353-371.

Cytowic, R.E. and Wood, F.B., 'Synaesthesia. I: A review of theories and their brain basis.' *Brain and Cognition*, 1, 1982, pp. 23-35.

Cytowic, R.E., 'Synaesthesia: Phenomenology and Neuropsychology A Review of Current Knowledge.' *Psyche*, 2, 10, July, 1995. <http://www.theassc.org/files/assc/2346.pdf>

Cytowic, R.E., 'Synaesthesia: phenomenology and neuropsychology.' *Synaesthesia: Classic and Contemporary Readings*, eds. S. Baron-Cohen and J.E. Harrison, Oxford and Cambridge, Blackwell Publishers, 1997, pp. 17-39.

Cytowic, R.E., 'Touching tastes, seeing smells - and shaking up brain science.' *Cerebrum*, July 01, 2002, [www.dana.org/Cerebrum/Default.aspx?id=39297](http://www.dana.org/Cerebrum/Default.aspx?id=39297). Retrieved on 13 December, 2015.

Cytowic, R.E., 'Touching Tastes, Seeing Smells – and Shaking Up Brain Science.' *The Dana Forum on Brain Science*, 14, pp. 7-26.

Cytowic, R.E., and Eagleman, D.M. *Wednesday is Indigo Blue: Discovering the Brain of Synesthesia*, Cambridge, MIT Press, 2009.

Cytowic, R.E., *Synaesthesia: A Union of Senses*, 2<sup>nd</sup> edn., Cambridge, MIT Press, 2002.

Cytowic, R.E., *The Man Who Tasted Shapes*, Cambridge, MIT Press, 2003.

Das, B.C., *The Supernormal Means of Knowing: A Navya Nyāya Approach*, Delhi/Varanasi, Bharatiya Vidya Prakashan, 2011.

Dasgupta, S., *A History of Indian Philosophy*, vol. 1, Delhi, Motilal Banarasiidass Publishers Private Limited, 2006.

Dasti, M.R., 'Parasitism and Disjunctivism in Nyāya Epistemology.' *Philosophy East and West*, 62, 1, January, 2012, pp. 1-15.

Datta, D.M., *The Six Ways of Knowing*, Calcutta, University of Calcutta, 1997.

Day, S., 'Some Demographic and Socio-cultural Aspects of Synaesthesia.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 11-33.

Day, Sean A., 'Trends in synaesthetically coloured graphemes and phonemes.' *Iconicity in Language*, 2001.

Dehaene, S., Naccache, L., Cohen, L., Le Bihan, D., Mangin, J.-F., Poline, J.-B., et al. 'Cerebral mechanisms of word masking and unconscious repetition priming.' *Nature Neuroscience*, 4, 7, 2001, pp. 752-758.

Dehay, C., Bullier, J. and Kennedy, H., 'Transient projections from the fronto-parietal and temporal cortex to areas 17, 18 and 19 in the kitten.' *Experimental Brain Research*, 57, 1984, pp. 208-212.

Dehay, C., Kennedy, H. and Bullier, J., 'Characterization of transient cortical projections from auditory, somatosensory, and motor cortices to visual areas 17, 18 and 19 in the kitten.' *Journal of Comparative Neurology*, 272, 1988, pp. 68-69.

Deibert, E., Kraut, M., Kremen, S., and Hart, J., Jr., 'Neural pathways in tactile object recognition.' *Neurology*, 52, 7, 1999, pp. 1413-1417.

Dennett, D.C., 'The case for rorts.' *Rorty and his critics*, ed. R.B. Brandom, Malden, MA: Blackwell, 2000, pp. 91-101.

Dennett, D.C., *Consciousness explained*. Boston, Little, Brown and Co., 1991.

Dharmakīrti, *Nyāyavindu*, Translated and elucidated in Bengali with Dharmottara's commentary *Nyāyabinduṭīkā* by Sanjit Kumar Sadhukhna, Calcutta, Sadesh, 2006.

Dharmakīrti, *Pramānavārttika*, Allahabad, Kitab Mahal, 1943.

Dharmarājadhvarīndra, *Vedānta Paribhāṣā*, Translated, edited and elucidated in Bengali by Panchanan Bhattacharya Sastri, Calcutta, Sanskrit Pustak Bhandar, 1971.

Dharmottarācārya, *Nyāyabinduṭīkā* (on the *Nyāyavindu* of Dharmakīrti), Edited by Peter Peterson, Bibliotheca Indica, Printed by G.H. Rouse at the Baptist Mission Press, Calcutta, 1889.

Di Lollo, V., Enns, J.T., and Rensink, R.A., 'Competition for consciousness among visual events: The psychophysics of reentrant visual pathways.' *Journal of Experimental Psychology: General*, 129, 2000, pp. 481-507.

di Pellegrino, G., Fadiga, L., Fogassi, L., Gallese, V., and Rizzolatti, G., 'Understanding motor events: A neurophysiological study.' *Experimental Brain Research*, 91, 1, 1992, pp. 176-180.



- Diwadkar, V.A., and McNamara, T.P., 'Viewpoint dependence in scene recognition.' *Psychological Science*, 8, 1997, pp. 302-307.
- Dixon, M.J., Smilek, D., Cudahy, C., and Merikle, P.M., 'Five plus two equals yellow: Mental arithmetic in people with synaesthesia is not coloured by visual experience.' *Nature*, 2000, pp. 406-365.
- Dixon, M.J., Smilek, D., Wagar, B., and Merikle, P.M., 'Grapheme-colour synesthesia: When 7 is yellow and D is blue.' *The Handbook of Multisensory Processes*, eds. Gemma A. Calvert, Charles Spence and Barry E. Stein, Cambridge, Massachusetts, London, England, MIT Press, 2004, pp. 837-850.
- Dretske, F., 'Knowing what you think vs. knowing that you think it.' *The externalist challenge*, ed. Richard Schantz, Berlin, Walter de Gruyter, 2004, pp. 389-399.
- Dretske, F., *Naturalizing the mind*, Cambridge, MA: MIT, 1995.
- Easton, R.D., Srinivas, K., and Grenne, A.J., 'Do vision and haptics share common representations? Implicit and explicit memory within and between modalities.' *Journal of Experimental Psychology: Learning, Memory and Cognition*, 23, 1997, pp. 153-163.
- Edelman, S., *Representation and recognition in vision*, Cambridge, MIT Press Bradford Books, 1999.
- Enns, J.T., and DeLollo, V., 'Object substitution: A form of masking in unattended visual locations.' *Psychological Science*, 4, 1997, pp. 135-139.
- Epstein, R., and Kanwisher, N., 'A cortical representation of the local visual environment.' *Nature*, 392, 1998, pp. 598-601.
- Ernst, M.O., and Banks, M.S., 'Humans integrate visual and haptic information in a statistically optimal fashion.' *Nature*, 415, 6870, 2002, pp. 429-433.
- Fadiga, L., Fogassi, L., Gallese, V., and Rizzolatti, G., 'Visuomotor neurons: Ambiguity of the discharge or 'motor' perception?' *International Journal of Psychophysiology*, 35, 2-3, 2000, pp. 165-177.
- Farah, M.J., 'Is visual imagery really visual? Overlooked evidence from neuropsychology.' *Psychological Review*, 95, 1988, pp. 307-317.
- Felleman, D.J., and Van Essen, D.C., 'Distributed hierarchical processing in the primate cerebral cortex.' *Cerebral Cortex*, 1, 1991, pp. 1-47.
- Feynman, R.P., *What do you care what other people think?* New York, Norton, 1988.
- ffytche, D.H., Howard, R.J., Brammer, M.J., David, A., Woodruff, P., and Williams, S., 'The anatomy of conscious vision: an fMRI study of visual hallucinations.' *Nature Neuroscience*, 11, 1998, pp. 738-742.
- Finney, E.M., Fine, I., and Dobkins, K.R., 'Visual stimuli activate auditory cortex in the deaf.' *Nature Neuroscience*, 4, 2001, pp. 1171-1173.

Fish, W., *Philosophy of perception: A contemporary introduction*. New York, Routledge, 2010.

Fodor, J.A., *Concepts: Where cognitive science went wrong*, Oxford, Oxford University Press, 1998.

Friedman-Hill, S.R., Robertson, L.C., and Treisman, A., 'Parietal contributions to visual feature binding: Evidence from a patient with bilateral lesions.' *Science*, 269, 1995, pp. 853-855.

Frith, C.D. and Paulesu, E., 'The physiological basis of synaesthesia.' *Synaesthesia: Classic and Contemporary Readings*, eds. S. Baron-Cohen and J.E. Harrison, Oxford and Cambridge, Blackwell Publishers, 1997, pp. 123-147.

Frost, D.O., 'Axonal growth and target selection during development: retinal projections to the ventrobasal complex and other 'nonvisual' structures in neonatal Syrian hamsters.' *Journal of Comparative Neurology*, 230, 1984, pp. 576-592.

Gaṅgeśopādhyāya, *Tattvacintāmaṇi (Pratyakṣakhaṇḍa)*, vol. I, Edited with extracts from the Commentaries of Shri Mathuranatha Tarkavagisha and Shri Jaydeva Mishra by Pt. Kamakhyanath Tarkavagish, Delhi, Oriental Book Centre, 1990.

Gaṅgeśopādhyāya, *Tattvacintāmaṇi (Anyathākhyātivāda)*, Translated and elucidated in Bengali by Biswabandhu Bhattacharya, Edited by Rama Chakrabarti, Dinanatha Tripathi Nabatirtha and Jyotiprasad Bhattacharya, Kolkata, Dasgupta and Co. (Private) Limited, 2009.

Galton, F., 'Visualized Numerals.' *Nature*, 22, 1880, pp. 494-495. doi:10.1038/021494e0.

Galton, F., *Inquiries into Human Faculty and its Development*, London, Dent, 1883.

Ganeri, J., 'Cross-Modality and the Self.' *Philosophy and Phenomenological Research*, 61, 3, November, 2000, pp. 639-657.

Ganeri, J., *The Self: Naturalism, Consciousness, and the First-Person Stance*, New York, Oxford University Press, 2012.

Gautama Muni, *Nyāyadarśanam*, Edited with Vātsyāyana's *Bhāṣya*, Uddyotkara's *Vārttika*, Vācaspati Miśra's *Tātparyaṭīkā* and Viśvanatha's *Vṛtti* by Taranath Nyāya-Tarkatirtha and Amarendramohan Tarkatirtha, Calcutta, Munshiram Manoharlal Publishers Private Limited, 2003.

Gautama Muni, *Nyāyasūtra*, Edited with Vātsyāyana's *Bhāṣya*, and Visvanātha's *vṛtti* by Digambara Shastri, Ānandāśrama Saṁskṛita Granthāvalī, Granthāṁka 91, Vinayak Ganesh Apte, Ānandāśrama Mudranālaya, 1922.

Gauthier, I., Tarr, M.J., Anderson, A.W., Skudlarski, P., and Gore, J.C., 'Activation of the middle fusiform 'face area' increases with expertise in recognizing novel objects.' *Nature Neuroscience*, 2, 1999, pp. 568-573.

Gazzaniga, M.S., 'Consciousness and the cerebral hemispheres', *The Cognitive Neurosciences*, ed. Michael S. Gazzaniga, Cambridge, MA: MIT, 1995, pp. 1391-1400.

Gazzaniga, M.S., Richard B. Ivry and George R. Mangun, eds. *Cognitive Neuroscience: The Biology of the Mind*, 2<sup>nd</sup> edn., New York, W. W. Norton and Company, 2002.

Gazzaniga, M.S., Richard B. Ivry, George R. Mangun with Megan S. Steven, *Cognitive Neuroscience: The Biology of the Mind*, 3<sup>rd</sup> edn., London, New York, W. W. Norton and Company, 2009.

Gerlach, C., Law, I., and Paulson, O.B., 'When action turns into words. Activation of motor-based knowledge during categorization of manipulable object.' *Journal of Cognitive Neuroscience*, 14, 2002, pp. 1230-1239.

Giard, M.H., and Peronnet, F., 'Auditory-visual integration during multimodal object recognition in humans: A behavioural and electrophysiological study.' *Journal of Cognitive Neuroscience*, 11, 1999, pp. 473-490.

Gibson, J.J., 'Observations on active touch.' *Psychological Review*, 69, 1962, pp. 477-491.

Goodale, M.A., and Milner, A.D., 'Separate visual pathways for perception and action.' *Trends in Neurosciences*, 15, 1992, pp. 22-25.

Gray, J., 'A Window on the Hard Problem of Consciousness.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 127-146.

Gray, J.A., 'The hard question of consciousness: Information processing versus hard wiring.' *Neuronal bases and psychological aspects of consciousness*, vol. 8, eds. C. Taddeo-Ferretto and C. Musio, Singapore, World Scientific, 1999, pp. 450-457.

Gray, J.A., Chopping, S., Nunn, J., Parslow, D., Gregory, L., Williams, S., Brammer, M.J., and Baron-Cohen, S., 'Implications of synesthesia for functionalism: theory and experiments.' *Journal of Consciousness Studies*, 9, 2002, pp. 5-31.

Gray, R., 'Cognitive modules, synaesthesia and the constitution of psychological natural kinds.' *Philosophical Psychology*, 14, 2001, pp. 65-82.

Graziano, M.S.A., Yap, G.S. and Gross, C.G., 'Coding of visual space by premotor neurons.' *Science*, 266, 5187, 1994, pp. 1054-1057.

Greenough, W.T., Black, J.E., and Wallace, G.S., 'Experience and Brain Development.' *Child Development*, 58, 1987, pp. 539-559.

Gross, C., Rocha-Miranda, C.E., and Bender, D.B., 'Visual properties of neurons in inferotemporal cortex of the macaque.' *Journal of Neurophysiology*, 35, 96-111, 1972, pp. 802-805.

Grossenbacher, P.G. and Lovelace, C.T., 'Mechanisms of Synaesthesia: Cognitive and Physiological Constraints.' *Trends in Cognitive Sciences*, 5, 1, January, 2001, pp. 36-41.

Grossenbacher, P.G., 'Perception and sensory information in synaesthetic experience.' *Synaesthesia: Classic and Contemporary Readings*, eds. S. Baron-Cohen and J.E. Harrison, Oxford and Cambridge, Blackwell Publishers, 1997, pp. 148-172.

Grunwald, M., Weiss, T., Krause, W., Beyer, L., Rost, R., Gutberlet, I., et al., 'Theta power in the EEG of humans during ongoing processing in a haptic object recognition task.' *Cognitive Brain Research*, 11, 2001, pp. 33-37.

Gupta, B., *Cit Consciousness*, New Delhi, Oxford University Press, 2003.

Gupta, B., *Perceiving in Advaita Vedanta: Epistemological Analysis and Interpretation*, Delhi, Motilal Banarasidass Publishers Private Limited, 1995.

Gupta, R., 'The Buddhist Theory of Arthasārūpya as Pramāṇa.' *Essays in India Philosophy*, ed. Sukharanjan Saha, Allied Publishers Limited and Jadavpur University, 1997.

Habib, M., and Sirigu, A., 'Pure topographical disorientation: A definition and anatomical basis.' *Cortex*, 23, 1987, pp. 73-85.

Hadjikhani, N., and Roland, P.E., 'Cross-modal transfer of information between the tactile and the visual representations in the human brain: A positron emission tomography study.' *Journal of Neuroscience*, 18, 1998, pp. 1072-1084.

Hadjikhani, N., Liu, A.K., Dale, A.M., Cavanagh, P., and Tootell, R.B.H., 'Retinotopy and color sensitivity in human visual cortical area V8.' *Nature Neuroscience*, 1, 1998, pp. 235-241.

Halligan, P., Hunt, M., Marshall, J. and Wade, D.T., 'When seeing is feeling: acquired synaesthesia or phantom touch?' *Neurocase*, 2, 1996, pp. 21-29.

Hamilton, R., Keenan, J.P., Cotala, M., and Pascual-Leone, A., 'Alexia for Braille following bilateral occipital stroke in an early blind woman.' *NeuroReport*, 11, 2002, pp. 237-240.

Harirāma Tarkavāgīśa, *Jñānalakṣaṇavicārahāsyā*, Edited with Anantakumar Bhattacharyya's *Vimarśini* by Gopikamohan Bhattacharyya, Calcutta Sanskrit College Research Series No. 3, Calcutta, Sanskrit College, 1958.

Harman, K.L., Humphrey, G.K., and Goodale, M.A., 'Active manual control of object views facilitates visual recognition.' *Current Biology*, 9, 1999, pp. 1315-1318.

Harrison, J., *Synaesthesia: The Strangest Thing*, New York, Oxford University Press, 2007.

Harrison, J.E. and Baron-Cohen, S., 'Synaesthesia: a review of psychological theories.' *Synaesthesia: Classic and Contemporary Readings*, eds. S. Baron-Cohen and J.E.

Harrison, J.E. and Baron-Cohen, S., 'Synaesthesia: a review of psychological theories.' *Synaesthesia: Classic and Contemporary Readings*, eds. S. Baron-Cohen and J.E. Harrison, Oxford and Cambridge, Blackwell Publishers, 1997, pp. 109-122.

Harrison, J.E. and Baron-Cohen, S., 'Synaesthesia: an introduction.' *Synaesthesia: Classic and Contemporary Readings*, eds. S. Baron-Cohen and J.E. Harrison, Oxford and Cambridge, Blackwell Publishers, 1997, pp. 3-16.

Haxby, J.V., Grady, C.L., Ungerleider, L.G., and Horwitz, B., 'Mapping the functional neuroanatomy of the intact human brain with brain work imaging.' *Neuropsychologia*, 29, 6, 1991, pp. 539-555.

He, S., Cavanagh, P., and Intriligator, J., 'Attentional resolution and the locus of visual awareness.' *Nature*, 383, 6598, 1996, pp. 334-337.

Heer, J., 'A Review of Synaesthesia.' unpublished paper, Psychology Department, University of California, Berkeley, 2000. <http://homes.cs.washington.edu/~jheer/files/2000-Synaesthesia-Psych127.pdf>, Accessed on 19 January 2016.

Heller, M.A., 'Haptic dominance in form perception: Vision versus proprioception.' *Perception*, 21, 1992, pp. 655-660.

Hikosaka, K., Iwai, E., Saito, H., and Tanaka, K., 'Polysensory properties of neurons in the anterior bank of the caudal superior temporal sulcus of the macaque monkey.' *Journal of Neurophysiology*, 60, 1988, pp. 1615-1637.

Holcombe, A.O., Alschuler, E.L., and Over, H.J., 'A Developmental Theory of Synaesthesia, With Long Historical Roots: A Comment on Hochel and Milan (2008).' *Cognitive Neuropsychology*, 26, 2, 2009, pp. 227-229.

Hubbard, E.M., 'Neurophysiology of Synaesthesia.' *Current Psychiatry Reports*, 9, 2007, pp. 193-199.

Hubbard, E.M., and Ramachandran, V.S., 'Neurocognitive Mechanisms of Synaesthesia.' *Neuron*, 48, 3, 2005, pp. 509-520.

Hubbard, E.M., Arman, A.C., Ramachandran, V.S., and Boyton, G.M., 'Individual Differences among Grapheme-Color Synaesthetes: Brain-Behaviour Correlations.' *Neuron*, 5, March, 2005, pp. 975-985.

Humphreys, G.W., Cinel, C., Wolfe, J., Olson, A., and Klempen, N., 'Fractionating the binding process: Neuropsychological evidence distinguishing binding of form from binding of surface features.' *Vision Research*, 40, 2000, pp. 1569-1596.

Humphreys, G.W., Riddoch, M.J., and Quinlan, P.T., 'Cascade processes in picture identification.' *Cognitive Neuropsychology*, 5, 1988, pp. 67-104.

Huttenlocher, P.R., 'Synaptic Density in Human Frontal Cortex – Developmental Changes and Effects of Aging', *Brain Research*, 163, 2, 1979, pp. 195-205.

Innocenti, G. and Clarke, S., 'Bilateral transitory projections to visual areas from auditory cortex in kittens.' *Developmental Brain Research*, 14, 1984, pp. 143-148.

Īśvara Kṛṣṇa, *Sāṁkhyakārikā*, Edited, transliterated and annotated with Vācaspati Mīśra's *Tattvakaumudī* by Swami Virupakshananda, Madras, Sri Ramakrishna Math Myslapore, 1995.

Jacobs, L., Karpik A., Bozian, D. and Gothgen, S., 'Auditory-visual synaesthesia: sound induced photisms.' *Archives of Neurology*, 38, 1981, pp. 211-216.

Jaimini, *Mīmāṁsādarśanam (Śabarabhāṣyasahitam)*, vol. I and II, Edited and Published by Sri Jibananda Vidyasagar Bhattacharya, Kalikata, 1883.

James, T.W., Humphrey, G.K., Gati, G.S., Servos, P., Menon, R., and Goodale, M.A., 'Haptic study of three-dimensional objects activates extrastriate visual areas.' *Neuropsychologia*, 40, 2002, pp. 1706-1714.

Jayanta Bhaṭṭa, *Nyāyamañjarī (Part-I)*, Edited and annotated by Pt. Sūrya Nārāyaṇa Śukla, Kashi Sanskrit Series 106, Varanasi, Chaukhambha Sanskrit Sansthan, 1998.

Jayanta Bhaṭṭa, *Nyāyamañjarī (Part-II)*, Edited by Pt. A. Madhyācārya Ādya, Annotated by Pt. Sūrya Nārāyaṇa Śukla, Kashi Sanskrit Series 106, Varanasi, Chaukhambha Sanskrit Series Office, 1969.

Jayanta Bhaṭṭa, *Nyāyamañjarī (Pratyakṣakhaṇḍa)*, Translated and elucidated in Bengali by Panchanan Tarkavagish, Edited by Amit Bhattacharya, Kolkata, Sanskrit Book Depot, 2006.

Jayanta Bhaṭṭa, *Nyāyamañjarī*, Translated by Janaki Vallabha Bhattacharyya, Delhi, Motilal Banarasisdass, 1978.

Jowett, B. (Tr.), *The Dialogues of Plato*, Encyclopaedia Britannica, Inc., Chicago, Oxford University Press, 1978.

Kapila, *Sāṃkhyapravacanasūtra*, Edited and translated in English with extracts from Vijñānabhikṣu's Commentary *Sāṃkhyapravacanabhāṣyam* by J.R. Ballantyne, Calcutta, Asiatic Society of Bengal (Bibliotheca Indica: Collection of Original Works, New Series, No. 32 and 81), 1862, 1865.

Kellenbach, M. L., Brett, M., and Patterson, K., 'Actions speak louder than functions: The importance of manipulability and action in tool representation.' *Journal of Cognitive Neuroscience*, 15, 2003, pp. 30-46.

Kennedy, H., Batardiere, A., Dehay, C., and Barone, P., 'Synaesthesia: implications for developmental neurobiology.' *Synaesthesia: Classic and Contemporary Readings*, eds. S. Baron-Cohen and J.E. Harrison, Oxford and Cambridge, Blackwell Publishers, 1997, pp. 243-256.

Kerzel, D., 'Visual short-term memory is influenced by haptic perception.' *Journal of Experimental Psychology: Learning, Memory and Cognition*, 27, 2001, pp. 1101-1109.

Keśaba Miśra, *Tarkabhāṣā*, vol. I, Translated and elucidated in Bengali by Gangadhar Kar Nyāyācārya, Kolkata, Jadavpur University, 2008.

Keśaba Miśra, *Tarkabhāṣā*, vol. II, Translated and elucidated in Bengali by Gangadhar Kar Nyāyācārya, Kolkata, Jadavpur University, 2009.

Kilgour, A.R., and Lederman, S.J., 'Face recognition by hand.' *Perception and Psychophysics*, 64, 2002, pp. 339-352.

Kim, C-Y., Blake, R., Palmeri, T., Marois, R., and Whetsell, W., 'Synaesthetic colours act like real colours and interact with real colours.' *Cortex*, 42, 2, February, 2006, pp. 195-203.

Köhler, W., *Gestalt Psychology*, New York, Liveright, 1929.

Kosslyn, S.M., Alpert, N.M., Thompson, W.L., Maljkovic, V., Weise, S.B., Chabris, C.F., et al., 'Visual mental imagery activates topographically organized visual cortex: PET investigations.' *Journal of Cognitive Neuroscience*, 5, 1993, pp. 263-287.

Kosslyn, S.M., Pascual-Leone, A.Q., Felician, O., Camposano, S., Keenan, J.P., Thompson, W.L., et al., 'The role of area 17 in visual imagery: Convergent evidence from PET and rTMS.' *Science*, 284, 5411, 1999, pp. 167-170.

Kubovy, M., and van Valkenburg, D., 'Auditory and visual objects.' *Cognition*, 80, 2001, pp. 97-126.

Kujala, T., Huottilinen, M., Sinkkonen, J., Ahonen, A.I., Alho, K., Hamalainen, M.S., et al., 'Visual cortex activation in blind humans during sound discrimination.' *Neuroscience Letters*, 183, 1995, pp. 143-146.

Kumārila Bhaṭṭa, *Mīmāṃsāślokaṅgikā*, Part I, Edited with the Commentary *Kāśikā* of Sucarita Miśra by K. Sāmbaśiva Śāstrī, Trivandrum, University of Travancore, 1926. Reprinted by CBH Publications, 1990.

Kumārila Bhaṭṭa, *Mīmāṃsāślokaṅgikā*, Part II, Edited with the Commentary *Kāśikā* of Sucarita Miśra by K. Sāmbaśiva Śāstrī, Trivandrum, University of Travancore, 1929. Reprinted by CBH Publications, 1990.

Kumārila Bhaṭṭa, *Mīmāṃsāślokaṅgikā*, Part III, Edited with the Commentary *Kāśikā* of Sucarita Miśra by V. A. Rāmasvāmi Śāstrī, Trivandrum, University of Travancore, 1943.

Kumārila Bhaṭṭa, *Ślokaṅgikā*, Edited and annotated with Pārthasārathi Miśra's Commentary *Nyāyaratnākaraṅgikā* by Swāmī Dwārikādāsa Śāstrī, Varanasi, Tara Publications, 1978.

Kumārila Bhaṭṭa, *Ślokaṅgikā*, Edited with Pārthasārathi Miśra's Commentary *Nyāyaratnākaraṅgikā* by Ramashastrī, Kashi, Chowkhamba Sanskrit Granthamala, Granthasamkhya 3, Chowkhamba Sanskrit Series, 1894.

Kumārila Bhaṭṭa, *Ślokaṅgikā*, Translated and elucidated with extracts from Sucarita Miśra's *Kāśikāṅgikā* and Pārthasārathi Miśra's *Nyāyaratnākaraṅgikā* by Gangānāth Jhā, Calcutta, Asiatic Society of Bengal (Bibliotheca Indica: Collection of Original Works, New Series, Nos. 965, 986, 1017, 1055, 1091, 1157 and 1183), Printed by the Baptist Mission Press, 1909.

Lamberts, K., (ed.), *Cognitive Science Vol.III (Memory)*, Los Angeles, Sage Publications, 2008.

Lang, A.H., Tuovinen, T., and Valleala, P., 'Amygdaloid after-discharge and galvanic skin response.' *Electroencephalography and Clinical Neurophysiology*, 16, 1964, pp. 366-374.

Lederman, S.J., and Klatzky, R.L., 'Hand movements: A window into haptic object recognition.' *Cognitive Psychology*, 19, 1987, pp. 342-368.

LeDoux, J.E., 'Brain mechanisms of emotion and emotional learning.' *Current Opinion in Neurobiology*, 2, 2, 1992, pp. 191-197.

Leuck, C.J., Zeki, S., Friston, K.J., Deiber, M.P., Cope, P., Cunningham, V.J., Lammertsma, A.A., Kennard, C., and Frackowiak, R.S., 'The colour centre in the cerebral cortex of man.' *Nature*, 340, 1989, pp. 386-389.

Levay, S., Wiesel, T.N., and Hubel, D.H., 'The development of ocular dominance columns in normal and visually deprived monkeys.' *Journal of Computational Neurology*, 191, 1980, pp. 1-51.

Lewkowicz, D.J., and Turkewicz, G., 'Cross-modal equivalence in early infancy: auditory-visual intensity matching.' *Developmental Psychology*, 16, 6, 1980, pp. 597-607.

Ligeti, G., *Ligeti in conversation*. London, Eulenburg Books, 1981/1983.

Liu, J., and Newsome, W., 'Somatosensation: Touching the mind's fingers.' *Current Biology*, 10, 16, 2000, pp. R598-R600.

Locke, J., *An Essay Concerning Human Understanding: Book 3*, London, Basset, Oxford: Clarendon Press, 1690, reprinted in 1984.

Logie, R.H., and Marchetti, C., 'Visuo-spatial working memory: Visual, spatial or central executive?' *Mental images in human cognition*, eds. R.H. Logie and M. Denis, Amsterdam, Elsevier, 1991, pp. 105-115.

Loomis, J.M., Klatzky, R.L., and Lederman, S.J., 'Similarity of tactual and visual picture recognition with limited field of view.' *Perception*, 21, 1991, pp. 167-177.

Luria, A., *The mind of a mnemonist*, New York, Basic Books, 1968.

Lycan, W., 'Representational theories of consciousness.' *The Stanford Encyclopedia of philosophy*, ed. E.N. Zalta, 2000. <http://plato.stanford.edu/archives/win2006/entries/consciousness-representational/>. Retrieved on April 17, 2007.

Mādhavācārya, *Sarvadarśanasamgrahaḥ*, Edited with the Commentary *Darśanāṅkura* by Vāsudeva Śāstrī Abhyaṅkara, Rājakīya Prācya (Hindu) Granthaśreṇiḥ, Anukramāṅka-1, Mumbai, Prācya Vidyā Saṁśodhana Mandir, Nirṇaya Sāgara Press, 1924.

Mādhavācārya, *Sāyana Mādhvīya Sarvadarśanasamgraha*, Translated in Bengali by Satyajyoti Chakravarti, Kolikata, Sahityashri, June, 1996.

Madhusūdana Sarasvatī, *Advaitasiddhi*, Edited by Pt. N.S. Ananta Krishna Shastri with the Commentaries *Gauḍabrahmānandī*, *Viṭṭhaleśopādhyāyī* and *Siddhivyākhyā* of Balabhadra and Ananta Krishna Shastri's critical summary *Caturgranthikā*, Delhi, Parimal Publications, 1988.

Madhusūdana Sarasvatī, *Advaitasiddhi*, Translated, edited and elucidated by Śrī Yogendranāth Tarkasāṁkhyavedāntatīrtha, Shri Khetrpal Ghosh, Kolikata, 1931.

Mahrer, P., and Miles, C., 'Recognition memory for tactile sequences.' *Memory*, 10, 2002, pp. 7-20.



Mangina, C.A., and Beurezeron-Mangina, J.H., 'Direct electrical stimulation of specific brain structures and bilateral electrodermal activity.' *International Journal of Psychophysiology*, 22, 1996, pp. 1-8.

Māṇikyanandī, *Parīkṣāmukham*, Sacred Books of the Jainas: Vol. XI, Edited, translated, commented and annotated with *Prameyaratnamālā* and *Anantavīrya* by S. C. Ghoshal, Ajitasram, Lucknow, The Central Jaina Publishing House, 1940.

Margolis, E., and S. Laurence, eds. *Concepts: Core Readings*, Cambridge, MIT Press, 1999.

Markowitsch, H.J., Kalbe, E., Kessler, J., von Stockhausen, H.M., Ghaemi, M., and Heiss, W.D., 'Short-term memory deficit after focal parietal damage.' *Journal of Clinical and Experimental Neuropsychology*, 21, 1999, pp. 784-797.

Marks, L.E., 'Bright sneezes and dark coughs, loud sunlight and soft moonlight.' *Journal of Experimental Psychology: Human Perception and Performance*, 8, 2, 1982a, pp. 177-193.

Marks, L.E., 'On Coloured-Hearing Synaesthesia.' *Psychological Bulletin*, 82, 3, 1975, pp. 303-331.

Marks, L.E., 'On cross-modal similarity: auditory-visual interactions in speeded discrimination.' *Journal of Experimental Psychology*, 13, 3, 1987, pp. 384-394.

Marks, L.E., 'Synaesthetic perception and poetic metaphor.' *Journal of Experimental Psychology: Human Perception and Performance*, 8, 1, 1982b, pp. 15-23.

Marks, L.E., Hammeal, R.J. and Bornstein, M.H., 'Perceiving similarity and comprehending metaphor.' *Monographs of the Society for Research in Child Development*, 52, 1, 1987, pp. 1-102.

Marks, L.E., *The Unity of the Senses: Interrelations among the Modalities*, New York, Academic Press, 1978.

Martin, M.G.F., 'The Reality of Appearances.' *Thought and Ontology*, ed. M. Sainsbury, Milano, Franco Angeli, 1997, pp. 91-115. Reprinted in *Disjunctivism: Contemporary Readings*, eds. A. Byrne and H. Logue, 2009, pp. 271-317.

Matilal, B.K., *Perception: An Essay on Classical Indian Theories*, Oxford, Clarendon Press, 1986.

Mattingley, J.B., and Rich, A.N., 'Behavioral and brain correlates of multisensory experience in synesthesia.' *The Handbook of Multisensory Processes*, eds. Gemma A. Calvert, Charles Spence and Barry E. Stein, Cambridge, Massachusetts, London, England, MIT Press, 2004, pp. 851-866.

Mattingley, J.B., Rich, A.N., Yelland, G., and Bradshaw, J.L., 'Unconscious priming eliminates automatic binding of colour and alphaneumeric form in synaesthesia.' *Nature*, 410, 2001, pp. 580-582.

Maund, B., 'The illusory theory of colours: An anti-realist theory.' *Dialectica*, 60, 2006, pp. 245-268.

- Maurer, D., 'Neonatal synaesthesia: implications for the processing of speech and faces.' *Synaesthesia: Classic and Contemporary Readings*, eds. S. Baron-Cohen and J.E. Harrison, Oxford and Cambridge, Blackwell Publishers, 1997, pp. 224-242.
- Maurer, D., and Maurer, C., *The World of the Newborn*, New York, Basic Books, 1988.
- Maurer, D., and Mondloch, C.J., 'Neonatal Synesthesia: A Reevaluation.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 193-213.
- McCarthy, G., Puce, A., Gore, J.C., and Allison, T., 'Face-specific processing in the human fusiform gyrus.' *Journal of Cognitive Neuroscience*, 9, 1997, pp. 605-610.
- McGurk, H., and McDonald, J., 'Hearing and seeing voices.' *Nature*, 264, 1976, pp. 746-748.
- Meltzoff, A.N. and Borton, R.W., 'Intermodal matching by human neonates.' *Nature*, 282, 1979, pp. 403-404.
- Meltzoff, A.N. and Borton, R.W., 'Intermodal matching by human neonates.' *Nature*, 282, 1979, pp. 403-404.
- Melzer, P., Morgan, V., Pickens, D., Price, R., Wall, R., and Ebner, F., 'Cortical activation during Braille reading is influenced by early visual experience in subjects with severe visual disability: A correlational fMRI study.' *Human Brain Mapping*, 87, 2001, pp. 589-607.
- Miller, M.W. and Vogt, B.A., 'Direct connections of rat visual cortex with sensory, motor, and association cortices.' *Journal of Comparative Neurology*, 226, 1984, pp. 184-202.
- Mills, C.B., Boteler, E.H., and Oliver, G.K., 'Digit synaesthesia: A case study using a Stroop-type test.' *Cognitive Neuropsychology*, 16, 2, 1999, pp. 181-191.
- Mohanty, J.N., 'Perspectives on consciousness.' *Perspectives on Consciousness*, ed. Amita Chatterjee, New Delhi, Kolkata, Munshiram Manoharlal Publishers Pvt. Ltd. in association with Jadavpur University, 2003, pp. 1-10.
- Mohanty, J.N., *Lectures on Kant's Critique of Pure Reason*, eds. Tara Chatterjee, Sandhya Basu and Amita Chatterjee, New Delhi, Munshiram Manoharlal Publishers Pvt. Ltd. 2014.
- Morris, R.G., Bullmore, E.T., Baron-Cohen, S., and Gray, J.A., 'Functional Magnetic Resonance Imaging of Synesthesia: Activation of V4/V8 by Spoken Words.' *Nature Neuroscience*, 5, 4, 2002, pp. 371-375.
- Motluk, A., 'The Sweet Smell of Purple.' *New Scientist*, 143, 1994, pp. 32-37.
- Murray, E.A., and Mishkin, M., 'Amygdectomy impairs crossmodal association in monkeys.' *Science*, 228, 1985, pp. 604-606.
- Nabokov, V., *Speak, memory: an autobiography revisited*. New York, Putnam, 1966.
- Navon, D., 'Forest before trees: The precedence of global features in visual perception.' *Cognitive Psychology*, 9, 1977, pp. 353-383.

Neville, H.J., and Lawson, D.L., 'Attention to central and peripheral visual space in a movement detection task. III. Separate effects of auditory deprivation and acquisition of visual language.' *Brain Research*, 405, 1987, pp. 284-294.

Newell, F., Woods, A.T., Mernagh, M., and Bülthoff, H.H., 'Visual, haptic and crossmodal recognition of scenes.' *Experimental Brain Research*, 161, 2, 2004, pp. 233-242.

Newell, F.N., 'Cross-modal Object Recognition.' *The Handbook of Multisensory Processes*, eds. Gemma A. Calvert, Charles Spence and Barry E. Stein, Cambridge, Massachusetts, London, England, MIT Press, 2004, pp. 123-139.

Newell, F.N., Sheppard D.M., Edelman S., and Shapiro K.L., 'The interaction of shape- and location-based priming in object categorisation: evidence for a hybrid 'what + where' representation stage.' *Vision Res.*, 45, 16, 2005, pp. 2065-2080.

Nunn, J.A., Gregory, L.J., Brammer, M., Williams, S.C.R., Parslow, D.M., Morgan, M.J., Morris, R.G., Bullmore, E.T., Baron-Cohen, S., and Gray, J.A., 'Functional Magnetic Resonance Imaging of Synesthesia: Activation of V4/V8 by Spoken Words.' *Nature Neuroscience*, 5, 4, 2002, pp. 371-375.

Nyayatarkatirtha, Anantakumar, *Vaibhāṣika Darśana*, Calcutta, Orient Book Company, 1955.

Ogdard, E.C., Flowers, J.H., and Mradman, H.L., 'An investigation of the cognitive and perceptual dynamics of a colour-digit synaesthete.' *Perception*, 28, 1999, pp. 651-664.

Palmeri, T.J., Blake, R., Marois, R., Flanery, M.A., and Whetsell, W., 'The perceptual reality of synaesthetic colors.' *Proceedings of the National Academy of Sciences USA*, 99, March 19, 2002, pp. 4127-4131.

Pandurangī, K.T., *Prakaraṇapañcikā of Śālikanātha: with an exposition in English*, New Delhi, Indian Council of Philosophical Research, D.K. Printworld (P) Limited, 2011.

Papineau, D., *Thinking about consciousness*, Oxford, Oxford University Press, 2002.

Parker, A., and Easton, A., 'Cross-modal memory in primates: The neural basis of learning about the multisensory properties of objects and events.' *The Handbook of Multisensory Processes*, eds. Gemma A. Calvert, Charles Spence and Barry E. Stein, Cambridge, Massachusetts, London, England, MIT Press, 2004, pp. 333-342.

Pārthasārathi Miśra, *Śāstradīpikā*, Edited with the Commentary *Yuktisnehaprapūrāni* of Pandit Ramakrishna Miśra by Pandit Laxman Shastri Dravid, Benaras, Chowkhamba Sanskrit Series Office, 1916.

Patañjalī, *Pātañjalayogadarśanam*, Edited and annotated with Vācaspati Miśra's *Tattvavaiśārādī*, Vijñānabhikṣu's Commentary *Yogavārttika* on Vyāsadeva's Scholium (*bhāṣya*) by Śrī Nārāyaṇa Miśra, Vārānasī-1, Bhārāṭīya Vidyā Prakāśana, 2<sup>nd</sup> edn., 1983.

Patañjalī, *Yogasūtra*, Edited with the Scholium (*bhāṣya*) of Vyāsadeva and Vācaspati Miśra's Commentary *Tattvavaiśārādī* on *Vyāsabhāṣya* by Rājārām Śāstrī Bodas, Bombay Sanskrit Series No. 46, Bombay, Government Central Book Depot, 1892.

Paulesu, E., Harrison, J., Baron-Cohen, S., Watson, J. Goldstein, L., Heather, J., Frakowiak, R., and Frith, C., 'The Physiology of Coloured Hearing: A Positron Emission Tomography Activation Study of Coloured-Word Synaesthesia.' *Brain*, 118, 3, 1995, pp. 661-676.

Peacock, Kenneth, 'Instruments to Perform Color-Music: Two Centuries of Technological Experimentation.' *Leonardo*, 21, 4, 1988, pp. 397-406.

Penfield, W., and Perot, P., 'The brain record of auditory and visual experience: A final summary and discussion.' *Brain*, 86, 1963, pp. 595-696.

Pesenti, M., Thioux, M., Seron, X., and De Volder, A., 'Neuroanatomical substrates of Arabic number processing, numerical comparison, and simple addition: A PET study.' *Journal of Cognitive Neuroscience*, 12, 3, 2000, pp. 461-479.

Phanibhusan Tarkavagish, *Nyāyadarśana: Gautama-sūtra (Vātsyāyanabhāṣya-sahita)*, vol. 1, Kolkata, Paschimbanga Rajya Pustak Parshat, September, 2003.

Phanibhusan Tarkavagish, *Nyāyadarśana: Gautama-sūtra (Vātsyāyanabhāṣya-sahita)*, vol. 2, Kolkata, Paschimbanga Rajya Pustak Parshat, January, 2000.

Phanibhusan Tarkavagish, *Nyāyadarśana: Gautama-sūtra (Vātsyāyanabhāṣya-sahita)*, vol. 3, Kolkata, Paschimbanga Rajya Pustak Parshat, September, 2000.

Phanibhusan Tarkavagish, *Nyāyadarśana: Gautama-sūtra (Vātsyāyanabhāṣya-sahita)*, vol. 5, Kolkata, Paschimbanga Rajya Pustak Parshat, July, 1989.

Philips, S.H. and Tatacharya, N.S.R., *Epistemology of Perception (The Perception Chapter)* (Transliterated Text, Translation, and Philosophical Commentary on Gaṅgeśa's *Tattvacintāmaṇi, Pratyakṣa Khaṇḍa*), Delhi, Motilal Banarasidass Publishers Private Limited, 2009.

Phillips, S., 'Perceiving Particulars Blindly: Remarks on a Nyaya-Buddhist Controversy.' *Philosophy East and West*, 54, 3, pp. 389-403.

Polk, T.A., and Farah, M.J., 'Functional MRI evidence for an abstract, not perceptual, word-form area.' *Journal of Experimental Psychology*, 131, 2002, pp. 65-72.

Polk, T.A., Stallcup, M., Aguirre, G.K., Alsop, D.C., D'Esposito, M., Detre, J.A., and Farah, M.J., 'Neural specialization for letter recognition.' *Journal of Cognitive Neuroscience*, 14, 2002, pp. 145-159.

Prabhācandra, *Prameyakamala-mārtaṇḍa*, Edited by Pt. Mahendra Kumar Shastri, 3<sup>rd</sup> edn., Delhi-6, Sri Satguru Publications, 1990.

Prabhācandra, *Prameyakamalamārtaṇḍa*, Edited, translated and elucidated by Pandit Mahendrakumar Shastri, Bombay, Nirnaya Sagara Press, 1841.

Praśastapādācārya, *Praśastapādabhāṣya (Padārthadharmasaṅgraha)*, Edited with Śrīdhara Bhaṭṭa's Commentary *Nyāyakandalī* by Dr. Bhagirathprasad Tripathi, Translated and edited in Hindi by Pandit Durgadhar Jha, Varanasi, Sampurnananda Sanskrit Visvavidyalaya, 1900.

Prescott, J., 'Flavor as a psychological construct: Implications for perceiving and measuring the sensory qualities of foods.' *Food Quality and Preference*, 10, 1999, pp. 1-8.

Prinz, J.J., *Furnishing the Mind: Concepts and Their Perceptual Basis*, Cambridge, MIT Press, 2004.

Radhakrishnan, S., *Indian Philosophy, Vol. I and II*, New Delhi, Oxford University Press, 2008.

Rāghavabhaṭṭa, *Nyāyasārahicārah: Commentary on Bhāsarvajña's Nyāyasāra*, Edited by Uma Ramana Jha, Jammu, Sri Ranavir Kendriya Samskrita Vidyapith, 1976.

Ramachandran, V.S. and Hubbard, E.M. 'Synaesthesia – A Window into Perception Thought and Language.' *Journal of Consciousness Studies*, 8, 12, 2001, pp. 3-34.

Ramachandran, V.S. and Hubbard, E.M., 'Number-Colour Synaesthesia Arises from Cross-Wiring in the Fusiform Gyrus.' *Society for Neuroscience Abstracts*, 30, 2000, pp. 1222.

Ramachandran, V.S., and Gregory, R.L., 'Does colour provide an input to human motion perception?' *Nature*, 275, 5675, 1978, pp. 55-56.

Ramachandran, V.S., and Hirstein, W., 'Three laws of qualia: What neurology tells us about the biological functions of consciousness.' *Journal of Consciousness Studies*, 4, 5-6, 1997, pp. 429-457.

Ramachandran, V.S., and Hubbard, E.M., 'Synesthetic colors support symmetry perception, apparent motion, and ambiguous crowding.' Lecture presented at the 43<sup>rd</sup> Annual Meeting of Psychonomics Society, Kansas City, MO, November, 2002.

Ramachandran, V.S., and Hubbard, E.M., 'The Emergence of the Human Mind: Some Clues from Synaesthesia.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 147-190.

Ramachandran, V.S., and Hubbard, E.M., 'The Phenomenology of Synaesthesia.' *Journal of Consciousness Studies*, 10, 8, 2003, pp. 49-57.

Ramachandran, V.S., Hubbard, E.M., and Butcher, P.A., 'Synesthesia, cross-activation, and the foundations of neuroepistemology.' *The Handbook of Multisensory Processes*, eds. Gemma A. Calvert, Charles Spence and Barry E. Stein, Cambridge, Massachusetts, London, England, MIT Press, 2004, pp. 867-884.

Rāmānujācārya, *Śrībhāṣya*, Edited with notes in Sanskrit by Vāsudeva Śāstrī Abhyaṅkara, Bombay Sanskrit and Prakrit Series No. 68, Bombay, The Department of Public Instruction, 1914.

Rauschecker, J.P., 'Compensatory plasticity and sensory substitution in the cerebral cortex.' *Trends in Neurosciences*, 18, 1995, pp. 36-43.

Reales, J.M., and Ballesteros, S., 'Implicit and explicit memory for visual and haptic objects: Cross-modal priming depends on structural descriptions.' *Journal of Experimental Psychology: Learning, Memory and Cognition*, 25, 1999, pp. 644-663.

- Reed, C.L., Caselli, R.J., and Farah, M.J., 'Tactile agnosia: Underlying impairment and implications for normal tactile object recognition.' *Brain*, 119, 1996, pp. 875-888.
- Rich, A.N., and Mattingley, J.B., 'Anomalous perception in synesthesia: A cognitive neuroscience perspective.' *Nature Reviews Neuroscience*, 3, 2002, pp. 43-52.
- Rich, A.N., and Mattingley, J.B., 'Can Attention Modulate Color-Graphemic Synesthesia?' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 108-123.
- Rizzolatti, G., Fogassi, L., Gallese, V., 'Neurophysiological mechanisms underlying the understanding and imitation of action.' *Nature Reviews Neuroscience*, 2, 9, 2001, pp. 661-670.
- Robertson, L.C., and Noam Sajiv, eds. *Synaesthesia: Perspectives from Cognitive Neuroscience*, New York, Oxford University Press, 2005.
- Röder, B., Sock, O., Bien, S., Neville, H., and Rösler, F., 'Speech processing activates visual cortex in congenitally blind humans.' *European Journal of Neuroscience*, 16, 2002, pp. 930-936.
- Rolls, E.T., 'Multisensory neuronal convergence of taste, somatosensory, visual, olfactory, and auditory inputs.' *The Handbook of Multisensory Processes*, eds. Gemma A. Calvert, Charles Spence and Barry E. Stein, Cambridge, Massachusetts, London, England, MIT Press, 2004, pp. 311-332.
- Rolls, E.T., 'Neurophysiological mechanisms underlying face processing within and beyond the temporal cortical visual areas.' *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 335, 1992, pp. 11-20.
- Romo, R., Hernández, A., Zainos, A. and Salinas, E., 'Somatosensory discrimination based on microstimulation.' *Nature*, 392, 1998, pp. 387-390.
- Romo, R., Hernández, A., Zainos, A., Brody, C. and Lemus, L., 'Sensing without touching: Psychophysical performance based on cortical microstimulation.' *Neuron*, 26, 2000, pp. 273-278.
- Roodurmun, P.S., *Bhāmatī and Vivaraṇa Schools of Advaita Vedānta: A Critical Approach*, ed. Kanchi Ram, Delhi, Motilal Banarasi Dass Publishers Private Limited, 2010.
- Rorty, R., 'Incorrigibility as the mark of the mental.' *Journal of Philosophy*, 67, 1970, pp. 399-424.
- Rorty, R., 'Mind-Body Identity, Privacy and Categories.' *The Review of Metaphysics*, XIX, I, 5, September, 1965, pp. 41-48. Reprinted in *The Nature of Mind*, ed. David. M. Rosenthal, Oxford, New York, Oxford University Press, 1991, pp. 133-136.
- Rouw, R. and Scholte, H.S. 'Increased Structural Connectivity in Grapheme-Color Synesthesia.' *Nature Neuroscience*, 10, 6, 2007, pp. 792-797.
- Sacks, O., and Wasserman, R.L., 'The Painter Who Became Colour Blind.' *New York Review of Books*, 34, 18, 1987, pp. 25-33.

Sacks, O., Wasserman, R.L., Zeki, S. and Siegel, R.M., 'Sudden Colour Blindness of Cerebral Origin.' Paper presented at the Society for Neuroscience Abstracts, 1988.

Sadānandayogīndra Sarasvatī, *Vedāntasārah*, Translated and elucidated in Bengali by Bipadbhanjan Pal, Kolkata-6, Samskrita Pustak Bhandar, 2009.

Saetti, M.C., De Renzi, E., and Comper, M., 'Tactile morphagnosia secondary to spatial deficits.' *Neuropsychologia*, 37, 1999, pp. 1087-1100.

Sagiv, N., 'Synesthesia in Perspective.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 3-10.

Sagiv, N., and Robertson, L.C., 'Synaesthesia and the Binding Problem.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 90-107.

Saha, S., 'The Case for Anirvacanīyakhyaṭi.' *Mind, Language and Necessity*, Jadavpur Studies in Philosophy, vol. 3, ed. K.K. Banerjee, New Delhi, Macmillan India Limited, 1981, pp. 71-134.

Saha, S., 'Theories about Bhrama', 'Chapter-15', *Philosophical Concepts Relevant to Sciences*, ed. Pranab Sen, Delhi, Motilal Banarasidas, 2006.

Saha, S., *Studies in Advaita Vedanta: Towards an Advaita Theory of Consciousness*, Kolkata, Jadavpur University, 2004.

Śāṅkarācārya, *Brahmasūtra Śāṅkara Bhāṣya*, Edited and annotated with *Bhāmatī* of Vācaspati Miśra, *Kalpataru* of Amalānanda Sarasvatī and *Parimala* of Appayadīkṣita by Anantakṛṣṇa Śāstrī, Re-edited by Bhārgav Śāstrī, Bombay, Pāṇḍuraṅg Jāwajī (Proprietor of Nirṇaya Sāgar Press), 1938.

Śāṅkarācārya, *Brahmasūtra-Śāṅkarabhāṣyam (Vedānta-Darśanam: vol. I)*, Edited with Vācaspati Miśra's *Bhāmatī*, Rāmānanda Sarasvatī's *Bhāṣya-Ratnaprabhā*, Amalānanda Sarasvatī's *Śāstradarpaṇa* and Vidyāraṇya Munīśvara's *Vyāsādhikaraṇamālā* by Rajendranath Ghosh, Translated and elucidated in Bengali by Pramathanath Tarkabhushan, Calcutta, Paschimanga Rajya Pustak Parshat, December, 1991.

Śāṅkarācārya, *Brahmasūtra-Śāṅkarabhāṣyam*, Edited with *Bhāṣya-Ratnaprabhā* of Govindānanda, *Bhāmatī* of Vācaspati Miśra, *Nyāyanirṇaya* of Ānandagiri, by Mahādev Śāstrī Bārke, Revised by Vāsudev Laxmaṅ Śāstrī Paṅṣīkar, Bombay, Pāṇḍuraṅg Jāwajī (Proprietor of Nirṇaya Sāgar Press), 1934.

Śāṅkarācārya, *Brahmasūtra-Śāṅkarabhāṣyam: Bhāmatyādivyākhyopavyākhyā-navakopetam (vol.I)*, Edited by Srimat Ananta Krisna Shastri, Delhi, Chowkhamba Samskrita Pratisthana, 1995.

Sapir, E., 'The status of linguistics as a science.' *Language*, 5, 1929, pp. 207-214.

Sathian, K., Zangaladze, A., Hoffman, J.M., and Grafton, S.T., 'Feeling with the mind's eye.' *NeuroReport*, 8, 1997, pp. 3877-3881.

Saussure, F.D., *Saussure's Third Course of Lectures on General Linguistics (1910-1911)*, New York, Pergamon Press, 1910/1993.

Schwitzgebel, E., 'Introspection.' *The Stanford Encyclopedia of Philosophy*, Summer 2014 Edition, ed. Edward N. Zalta. <http://plato.stanford.edu/archives/sum2014/entries/introspection/>. Retrieved on 18.04.2015 at 5:26 pm.

Sedato, N., Okada, T., Honda, M., and Yonekura, Y., 'Critical period for cross-modal plasticity in blind humans: A functional MRI study.' *Neuroimage*, 16, 2002, pp. 389-400.

Sedato, N., Pascual-Leone, A., Grafman, J., Ibanez, V., Deiber, M.P., Dold, G., et al., 'Activation of the primary visual cortex by Braille reading in blind subjects.' *Nature*, 380, 6574, 1996, pp. 526-528.

Shallice, T., and Warrington, E., 'Independent functioning of verbal memory stores: A neuropsychological study.' *Quarterly Journal of Experimental Psychology*, 22, 1969, pp. 261-273.

Shams, L., Kamitani, Y., and Shimojo, S., 'Visual illusion induced by sound.' *Cognitive Brain Research*, 14, 1, 2002, pp. 147-152.

Shanon, B., *The antipodes of the mind: Charting the phenomenology of the ayahausaca experience*. Oxford, Oxford University Press, 2002.

Sharma, B.N.K., *Philosophy of Śrī Madhvācārya*, Bombay-7, Bharatiya Vidya Bhavan, 1962.

Shoemaker, S., 'Self-reference and self-awareness.' *Journal of Philosophy*, 65, 1968, pp. 555-567.

Simons, D.J., Wang, R.F., and Roddenberry, D., 'Object recognition is mediated by extraretinal information.' *Perception and Psychophysics*, 64, 4, 2002, pp. 521-530.

Singer, W., and Gray, C.M., 'Visual feature integration and the temporal correlation hypothesis.' *Annual Review of Neuroscience*, 18, 1995, pp. 555-586.

Sinha, J.N., *Indian Epistemology, Vol. I, II and III*, Varanasi, Motilal Banarasidas, 1963.

Sinha, J.N., *Indian Philosophy, Vol. I, II and III*, Delhi, Motilal Banarasidass Publishers Private Limited, 2006.

Sinha, J.N., *Indian Psychology Perception*, London, Kegan Paul Trench Trubner and Co. Ltd., 1934.

Sinha, J.N., *Indian Psychology, Vol. I, II and III*, Delhi, Varanasi, Putna, Bangalore, Madras, Calcutta, Motilal Banarasidass, 1996.

Smilek, D., and Dixon, M.J., 'Towards a synergistic understanding of synaesthesia: Combining current experimental findings with synaesthetes' subjective descriptions.' *Psyche*, 08, 2002. <http://journalpsyche.org/files/0xaa9d.pdf>, accessed on 29.01.2016.



Smilek, D., Dixon, M.J., and Merikle, P.M., 'Binding of Graphemes and Synesthetic Colors in Color-Graphemic Synesthesia.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 74-89.

Smilek, D., Dixon, M.J., Cudahy, C., and Merikle, P.M., 'Synesthetic photisms influence visual perception.' *Journal of Cognitive Neuroscience*, 13, 2001, pp. 930-936.

Smith, E.E., Jonides, J., and Koeppel, R.A., 'Dissociating verbal and spatial working memory using PET.' *Cerebral Cortex*, 6, 1996, pp. 11-20.

Sollberger, M., 'Rethinking synesthesia.' *Philosophical Psychology*, Routledge: Tylor and Francis Group, 1-17, iFirst, 2011. doi:10.1080/09515089.2011.627539.

Soteriou, M., 'The Disjunctive Theory of Perception.' *The Stanford Encyclopedia of Philosophy*, Summer 2014 Edition, ed. Edward N. Zalta. <http://plato.stanford.edu/archives/sum2014/entries/perception-disjunctive/>. Retrieved on 19.03.2015 at 10:05 pm.

Spalding, J.M.K., and Zangwill, O., 'Disturbance of Number-form in a Case of Brain Injury.' *Journal of Neurology, Neurosurgery, and Psychiatry*, 12, 1, 1950, pp. 24-29.

Śrīdhara Bhaṭṭa, *Nyāyakandalī*, Translated, edited and elucidated by Bhagirathaprasad Tripathi and Pandit Durgadhar Sharma, Varanasi, Sampurnananda Samskrit Visvavidyalaya, 1877.

Śrīnivāsa Dāsa, *Yatīndramatadīpikā*, Edited and elucidated with the Commentary *Prakāśa* by Abhyaṅkara Vāsudeva Śāstrī, Anandāśrama Saṁskṛta Granthāvalī, Granthasamkhyā 50, Vinayak Ganesh Apte, Anandāśrama Mudraṅālaya, 1934.

Śrīnivāsa, *Yatīndramatadīpikā*, Edited, translated and commented in Hindi by Śivaprasāda Dvivedī, Vārāṇasī, Caukhambā Surabhārātī Prakāśana, 1989.

Stein, B.E., Jiang, W., and Stanford, T.R., 'Multisensory integration in single neurons of the midbrain.' *The Handbook of Multisensory Processes*, eds. Gemma A. Calvert, Charles Spence and Barry E. Stein, Cambridge, Massachusetts, London, England, MIT Press, 2004, pp. 243-264.

Stevenson, R.J., and Boakes, R.A., 'Sweet and sour smells: Learned synesthesia between the senses of taste and smell.' *The Handbook of Multisensory Processes*, eds. Gemma A. Calvert, Charles Spence and Barry E. Stein, Cambridge, Massachusetts, London, England, MIT Press, 2004, pp. 69-84.

Stoerig, P., and Cowey, A., 'Visual Perception and Phenomenal consciousness.' *Behavioral Brain Research*, 71, 1995, pp. 147-156.

Stout, G.F., *Analytic Psychology*, vol. 14, London, Routledge, 2002.

Stroop, J., 'Studies of interference in serial verbal reaction.' *Journal of Experimental Psychology*, 18, 1935, pp. 643-662.

Sur, M., Murray, E.A., and Leamey, C., 'Development and plasticity of cortical areas and networks.' *Nature Reviews Neuroscience*, 2, 2001, pp. 251-262.

Svāmī Viśvarūpānanda, (Tr.), *Vedāntadarśanam*, vol. I, ed. Svāmī Cidghanānanda Purī and Śrī Ānanda Jhā Nyāyācāryya, Kalikata, Udbodhan Karyalaya, January, 1996.

Svāmī Viśvarūpānanda, (Tr.), *Vedāntadarśanam*, vol. II, ed. Svāmī Cidghanānanda Purī and Śrī Ānanda Jhā Nyāyācāryya, Kalikata, Udbodhan Karyalaya, March, 1989.

Swami Sivananda, and Sri Swami Chidananda, *Śikhāmaṇi, Maṇiprabhā, Commentator, Vedānta Paribhāṣā, Vedānta in a nutshell*, Rishikesh, Yoga Vedanta Forest University, 1958.

Tanaka, K., 'Inferotemporal cortex and object vision: Stimulus selectivity and columnar organization.' *Annual Review of Neuroscience*, 19, 1996, pp. 109-139.

Tarr, M.J., and Bülthoff, H.H., 'Is human object recognition better described by geon structural descriptions or by multiple views? Comment on Biederman and Gerhardstein (1993).' *Journal of Experimental Psychology: Human Perception and Performance*, 21, 1995, pp. 1494-1505.

Tootell, R.B.H., Reppas, J.B., Dale, A.N., Look, R.B., Sereno, M.I., Malach, R., Brady, T.J., and Rosen, B.R., 'Visual motion aftereffect in human cortical area MT revealed by functional magnetic resonance imaging.' *Nature*, 375, 1995, pp. 139-141.

Treisman, A., 'Synesthesia: Implications for Attention, Binding, and Consciousness – A Commentary.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 239-254.

Treisman, A., and Gelade, G., 'A feature integration theory of attention.' *Cognitive Psychology*, 12, 1980, pp. 97-136.

Tsao, D.Y., Feriwal, W.A., Tootell, R.B., and Livingstone, M.S., 'A cortical region consisting entirely of face-selective cells.' *Science*, 311, 2006, pp. 670-674.

Tyler, C.W., 'Varieties of Synesthetic Experience.' *Synaesthesia: Perspectives from Cognitive Neuroscience*, eds. Lynn C. Robertson and Noam Sajiv, New York, Oxford University Press, 2005, pp. 34-44.

Udayanācāryya, *Kiraṇāvalī*, Kashi, Benaras Sanskrit Series, Samvat 1941.

Udayanācāryya, *Kiraṇāvalī*, vol. I, II and III, Edited, translated and elucidated by Sri Gourinath Sastri, Kalikata, Paschimanga Rajya Pustak Parshad, July, 1991.

Udayanācāryya, *Nyāyakusumāñjali*, Edited with an elucidation named *Kusumāñjaliparimal* (based on *Haridasī-tīka*) by Acarya Vishveshvar Siddhanta Shiromani, Varanasi, Chowkhamba Vidyabhawan, 1978.

Udayanācāryya, *Nyāyakusumāñjali*, Translated and elucidated by Srimohan Bhattacharya, Calcutta, Paschimanga Rajya Pustak Parshat, March, 1995.

Udayanācārya, *Nyāyavārttikatātparyapariśuddhiḥ*, Edited by Anantalal Thakur (*Nyāyacaturgranthikā* Volume-IV), New Delhi, Indian Council of Philosophical Research, 1996.

Udyotkara, *Nyāyabhāṣyavārttika*, Edited by Anantalal Thakur, Indian Council of Philosophical Research, New Delhi, 1997.

Vācaspati Miśra, *Bhāmatī*, Edited, translated and elucidated by Srimohan Bhattacharya Tarkavedantatirtha, Kolikata, Sanskrit Pustak Bhandar, 1973.

Vācaspati Miśra, *Bhāmatī*, Translated and elucidated by Pramathanath Tarkabhushan, Edited by Rajendranath Ghosh, Calcutta, Paschimbanga Rajya Pustak Parshat, December, 1991.

Vācaspati Miśra, *Nyāyavārttikatātparyāṭikā*, Edited by Anantalal Thakur (*Nyāyacaturgranthikā* Volume-III), New Delhi, Indian Council of Philosophical Research, 1996.

Vācaspati Miśra, *Sāṁkhyatattvakaumudī* (a Commentary on Īśvara Kṛṣṇa's *Sāṁkhyakārikā*), Translated and elucidated in Bengali by Narayan Chandra Goswami, Kalikata, Samskrita Pustak Bhandar, 2010.

Vaidya, A.J., 'Nyāya Perceptual Theory: Disjunctivism or Anti-Individualism?' *Philosophy East and West*, 63, 4, October, 2013, pp. 562-585.

Valenza, N., Ptak, R., Zimine, I., Badan, M., Lazeyras, F., and Schnider, A., 'Dissociated active and passive tactile shape recognition: A case study of pure tactile apraxia.' *Brain*, 124, 2001, pp. 2287-2298.

Van Essen, D.C., Lewis, J.W., Drury, H.A., Hadjikhani, N., Topotell, R.B., Bakircioglu, M., and Miller, M.I., 'Mapping visual cortex in monkeys and humans using surface-based atlases.' *Vision Research*, 41, 10-11, 2001, pp. 1359-1378.

Vāṇabhāṭṭa, *Kādamvarī (Śukanāśopadeśah)*, Edited, translated and discussed by Sri Jadupati Tripathy, Kalikata-9, B.N. Publication, 2008.

Vāsudeva Śāstrī Abhyaṅkara, *Advaitāmōda*, Ānandāśrama Saṁskṛita Granthāvalī, Granthāṁka 84, Edited and Annotated by Kāśinātha Vāsudeva Abhyaṅkara and Pandit Ganeśa Śāstrī Jośī, Mahadev Bhimaji Apte, Ānandāśrama Mudranālaya, 7<sup>th</sup> June, 1975.

Vasuvandhu, *Vijñapti-mātratā-siddhi*, Edited and translated with Sthiramati's Commentary *Vṛtti* by Dr. K.N. Chatterjee, Varanasi, Kishor Vidya Niketan, 1980.

Venkatanātha, *Nyāyapariśuddhi*, Translated and elucidated by Acharya Shibaprasad Dvivedi, Varanasi, Chowkhamba Vidyabhavan, 2003.

Vernon, P.E., 'Synaesthesia in Music', *Psyche*, 10, 1930, pp. 22-40.

Vidyāraṇya Muni, *Vivaraṇa Prameya Saṁgraha*, Translated in Bengali by Pramathanath Tarkabhushan, Kolkata, Vasumati Sahitya Mandir, 1927.

Vijayasree K., and Rajasekhar T., 'The Cognitive Perceptions in Synaesthesia: Indian Case Studies.' *International Research Journal of Medical Sciences*, 1, 6, July 2013, pp. 10-18.

Vijñānabhikṣu, *Sāṅkhyapravacanabhāṣyam: A Commentary on the Aphorisms of the Hindu Atheistic Philosophy (A Commentary on Sāṅkhyapravacanasūtra of Kapila)*, Edited by Fitz-Edward Hall, Calcutta, Hon. Court of Directors of the East India Company under the superintendence of Asiatic Society of Bengal (Bibliotheca Indica: Collection of Original Works), Printed by J. Thomas at the Baptist Mission Press, 1856.

Viśvanātha Pañcānana, *Bhāṣāpariccheda*, Edited and translated with the author's own commentary *Siddhāntamuktāvalī* by Dr. E. Röer, Calcutta, Hon. Court of Directors of the East India Company under the superintendence of Asiatic Society of Bengal (Bibliotheca Indica: Collection of Original Works, Vol. IX, No. 32 and 35), Printed by J. Thomas at the Baptist Mission Press, 1850.

Viśvanātha, *Bhāṣāpariccheda*, Translated and elucidated by Ashutosh Bhattacharya Nyāyācārya, Bijayayan, Kolkata, 1998.

Viśvanātha, *Bhāṣāpariccheda*, Translated and elucidated with an explanation on Viśvanātha's commentary *Nyāyasiddhāntamuktāvalī* named *Muktāvalīsamgraha* by Panchanan Bhattacharya, Kolkata, Sanskrit Pustak Bhandar, 1947.

Viśvanātha, *Kārikāvalī*, Edited with footnotes and Commentaries *Muktāvalī*, *Dinakarī* and *Rāmarudrī* by Atmaram Narayana Jere, Varanasi, Krishnadas Academy, 1988.

Wagar, B.M., Dixon, M.J., Smilek, D., and Cudahy, C., 'Coloured photisms prevent substitution masking in digit colour synaesthesia.' *Brain and Cognition*, 48, 2002, pp. 606-611.

Wang, R.F., and Simons, D.J., 'Active and passive scene recognition across views.' *Cognition*, 70, 1999, pp. 191-210.

Ward, J., and Simner, J., 'Is synaesthesia an X-linked dominant trait with lethality in males?' *Perception*, 34, 2005, pp. 611-623.

Ward, J., and Simner, J., 'Lexical-gustatory synaesthesia: linguistic and conceptual factors.' *Cognition*, 89, 3, October, 2003, pp. 237-261. doi:10.1016/S0010-0277(03)00122-7. PMID:12963263. <http://linkinghub.elsevier.com/retrieve/pii/S0010027703001227>.

Ward, J., and Simner, J., 'Lexical-gustatory synaesthesia: linguistic and conceptual factors.' *Cognition*, 89, 2003, pp. 237-261.

Ward, J., Huckstep, B., and Tsakanikos, E., 'Sound-Colour Synaesthesia: To What Extent Does It Use Cross-Modal Mechanisms Common To Us All?' *Cortex*, 42, 2, 2005, pp. 264-280.

Ward, J., Huckstep, B., and Tsakanikos, E., 'Sound-colour synaesthesia: to what extent does it use cross-modal mechanisms common to us all?' *Cortex*, 42, 2, 2006, pp. 264-280.

Ward, J., Huckstep, B., and Tsakanikos, E., 'Sound-colour synaesthesia: to what extent does it use cross-modal mechanisms common to us all?' *Cortex*, 42, 2, February, 2006, pp. 264-280.

- Ward, J., Simner, J., and Auyeung, V., 'A comparison of lexical-gustatory and grapheme-colour synaesthesia.' *Cognitive Neuropsychology*, 22, 1, 2005, pp. 28-41. doi:10.1080/02643290442000022.
- Warrington, E. K., and Taylor, A.M., 'Two categorical stages of object recognition.' *Perception*, 7, 1978, pp. 695-705.
- Weinberg, S., *Dreams of a Final Theory*, New York, Phanteon, 1992.
- Wilkins, W.K., and Wakefield, J., 'Brain evolution and neurolinguistic preconditions.' *Behavioral and Brain Sciences*, 18, 1, 1995, pp. 161-226.
- Wilson, M.A., and McNaughton, B.L., 'Reaction of hippocampal ensemble memories during sleep.' *Science*, 265, 1994, pp. 676-679.
- Wollen, K.A., and Ruggiero, F.T., 'Colored-letter synaesthesia.' *Journal of Mental Imagery*, 7, 1983, pp. 83-86.
- Woods, T.M., and Recanzone, G.H., 'Cross-modal interactions evidenced by ventriloquism effect in human and monkeys.' *The Handbook of Multisensory Processes*, eds. Gemma A. Calvert, Charles Spence and Barry E. Stein, Cambridge, Massachusetts, London, England, MIT Press, 2004, pp. 35-48.
- Wundt, W.M., *Outlines of Psychology*, 3<sup>rd</sup> English edn., Translated by C. H. Judd, Leipzig, Engelmann, 1907.
- Yeterian, E.H., and Pandya, D.N., 'Corticothalamic connections of the posterior parietal cortex in the rhesus monkey.' *Journal of Comparative Neurology*, 237, 3, 1985, pp. 408-426.
- Zangaladze, A., Epstein, C.M., Grafton, S.T., and Sathian, K., 'Involvement of visual cortex in tactile discrimination of orientation.' *Nature*, 401, 1999, pp. 587-590.
- Zeki, S. and Marini, L., 'Three Cortical Stages of Colour Processing in the Human Brain.' *Brain*, 121, 9, 1998, pp. 1669-1685.
- Zeki, S., *A Vision of the Brain*, Oxford, England, Blackwell, 1993.
- Zeki, S., Watson, J.D.G. and Frackowiak, R.S.J., 'Going beyond the information given: the relation of illusory visual motion to brain activity.' *Proceedings of the Royal Society of London B*, 252, 1993, pp. 215-222.
- Zellner, D.A. and Kautz M.A., 'Colour affects perceived odor intensity.' *Journal of Experimental Psychology*, 16, 2, 1990, pp. 391-397.