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Bibliography on Language and Logic in Ancient India. Second Part: M - Z

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3. Matilal, Bimal Krishna. 1968. "Indian Theories of Knowledge and Truth. Review of Mohanty, 'Gangesa's Theory of Truth'." *Philosophy East and West* no. 18:321-333.
4. ———. 1968. *The Navya-Nyāya Doctrine of Negation: The Semantics and Ontology of Negative Statements in Navya-Nyāya Philosophy*. Cambridge: Harvard University Press.
5. ———. 1970. "Reference and Existence in Nyāya and Buddhist Logic." *Journal of Indian Philosophy* no. 1:83-108.
 "This Nyāya-Buddhist controversy over the empty subject term may well recall to a modern mind the Meinong-Russell controversy about 'existence' and 'denotation'. The Nyāya and the Buddhist logicians worried over the logical and the epistemological problem connected with the issue. The Nyāya interpreted "the rabbit's horn" not as a singular term but as a predicate complex attributing 'hornness' to something that belonged to the rabbit. "The rabbit's horn does not exist" ascribes the absence of hornness to something belonging to a rabbit, and is true. This analysis is closer to Russell's theory of description. The Buddhist, on the other hand, is prepared to allow some sort of 'fictional existence' to "the rabbit's horn" which is perhaps not very different from Meinong's 'theory of objects'. In epistemology the Nyāya believed that any object of cognition (which is expressible in words) must be either real or analyzable into constituents which are ultimately identifiable with some real entity or other. Only a complex object can be fictional. The Buddhists, however, hold that the objects of erroneous cognition are fictional."
6. ———. 1974. "A Note on the Nyāya Fallacy Sādhyasama and petitio principii." *Journal of Indian Philosophy* no. 2:211-224.
 "When H. N. Randle (in 1930) interpreted 'sādhyasama' as petitio principii, he made a mistake. Unfortunately, many scholars accepted Randle's interpretation. It has been shown that Randle was wrong about this interpretation. 'Sādhyasama' can be correctly translated as a fallacy of being in the same predicament with yet-to-be-proven proposition. Petitio is a different fallacy, as it has been described by Aristotle. Some general comments have been made on the notion of fallacy, and on the distinction between 'formal' and 'non-formal' fallacies."
7. ———. 1980. "Double Negation in Navya-Nyaya." In *Sanskrit and Indian Studies. Essays in Honour of Daniel H.H. Ingalls*, edited by Nagatomi, Masatoshi, Matilal, Bimal Krishna, Masson, J. Moussaieff and Dimock Jr., Edward C., 1-10. Dordrecht: Reidel.
8. ———. 1981. "Error and Truth: Classical Indian Theories." *Philosophy East and West* no. 31:215-224.
 "Classical Indian theories of error are discussed to show their relevance to the philosophical problems of the Cartesian epistemologists in general and the British empiricists in particular. The concept of "alambana" and "pratibhasa" as discussed by the Sautrantika-Yogacara School is explained and the views of the "sense-data" philosophers are discussed in this connection."
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Edited by Jonardon Ganeri and Heeraman Tiwari.
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18. Mejor, Marek. 2003. "Contribution of Polish Scholars to the Study of Indian Logic." *Journal of Indian Philosophy* no. 31:9-20.
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Edited by Jitendra Nath Mohanty.
20. Mohanty, Jitendra Nath. 1961. "Reflections on the Nyāya Theory of Avayavipratyakṣa." *Journal of Indian Philosophy* no. 1:30-41.
Reprinted in J. N. Mohanty, *Phenomenology and Ontology*, Den Haag: Martinus Nijhoff 1970, pp. 183-197.
Abstract: "It is well known that the Nyāya advocates an extreme form of direct realism and maintains that what we directly perceive are physical objects and not some intermediate entities called variously by philosophers 'ideas', 'contents' or even 'sense-data'. Gotama's sūtras 2.1.31 - 2.1.36 and Vātsāyana's commentaries on them contain arguments which may be regarded as constituting a very effective defence of what has come to be called the physical object language as against the sense-datum language. Gotama's, as well as his commentator's, direct interest however is twofold. In the first place, they are out to refute the suggestion that perception is not an independent source of knowledge but a variety of inference. In the course of this refutation, they are led to their second point: they try to show that the object of perception, that is to say, the physical object, is not a mere assemblage of parts but a true unity of some unanalysable kind. Our task in this paper will be to bring out the relevance of these arguments in the light of contemporary discussions of the problem of perception."
21. ———. 1966. "Nyāya Theory of Doubt." *Visva Bharati Journal of Philosophy* no. 3:15-35.
Reprinted in J. N. Mohanty, *Phenomenology and Ontology*, Den Haag: Martinus Nijhoff 1970, pp. 198-219 and in J. N. Mohanty, *Essays on Indian Philosophy*, New Delhi: Oxford: Oxford University Press 1963, pp. 44-61.
Abstract: "The Nyāya logic contains a theory of doubt. A preoccupation with the nature, origin and structure of doubt seems out of place in a logical system inasmuch as logic has been taken to be concerned, speaking rather broadly, with formally valid thought abstracted from its psychological context. Now, Nyāya logic — in fact all Indian logic — does not conform to this conception. It is in a broad sense coextensive with, and indeed indistinguishable from, a theory of knowledge, and concerns itself with all kinds of knowledge, the non-propositional and the

- invalid ones not excluding. In a narrower sense it is of course a theory of inference. But even as a theory of inference, (i) it does not concern itself with the bare form, though some amount of formalism has been developed, and (ii) it does not separate logic from psychology in a way in which western formal logic has done. Consequently, it is as much interested in the psychological conditions of the origin of a certain type of knowledge, say e.g. of inference, as in the conditions of its logical validity."
22. ———. 1980. "Indian Theories of Truth: Thoughts on their Common Framework." *Philosophy East and West* no. 30:439-451.
"The peculiar features of Indian theories of truth, according to this paper, are: (I) a theory of cognitive occurrence; (II) absence of a theory of meaning as distinct from reference; (III) a consequent position that avoids the extremes of logicism and psychologism; (IV) a restricted theory of necessary truths, a fallibilism with regard to empirical truths and infallibilism with regard to moral truths; (V) a close connection between cognitive enterprise and practice; and (VI) reliance on reflective analysis of the cognitive situation."
23. Mohanty, Jitendra Nath, Saha, S.R., Chatterjee, Amita, Sarkar, Tushar Kanti, and Bhattacharyya, Sibajiban. 2009. "Indian Logic." In *The Development of Modern Logic*, edited by Haaparanta, Leila, 903-961. New York: Oxford University Press.
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27. Mullick, Mohini. 1976. "Implication and Entailment in Navya-Nyāya Logic." *Journal of Indian Philosophy* no. 4:127-134.
"My attempt is to produce some evidence to show that the notions of implication and entailment are clearly distinguished in Navya-Nyāya logic. This is done by examining the nature of the Navya-Nyāya syllogism and showing that the Naiyayikas were aware of various definitions of material implication but rejected them as definitions of vyapti (implication), not because they led to inferential paradoxes but to semantic ones; they in fact never confused implication with entailment. The entailment relation is contained in their notion of "paramarsa" and appears as the last premise in the argument which immediately precedes and thus 'causes' the conclusion."
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29. Nemeč, John. 2022. "Logical Proofs in the Śivadr̥ṣṭi of Somānanda." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-23. Dordrecht: Delhi.
Abstract: "As is well known, Somānanda was a Brahmin of the Kashmir Valley who flourished circa 900–950 CE and who is the founding author of the famed Śaiva philosophical tradition known as the Pratyabhijñā or "Recognition" school. With the present chapter is pursued the somewhat modest concern of exploring various occasions when Somānanda deploys logical argumentation in his magnum opus, the *Śivadr̥ṣṭi* (ŚD). Three ways in which logic is deployed in the ŚD are examined in what follows. First is charted a syllogism appearing in the fourth chapter (*āhnikā*), which is meant to prove the unity of all in the form of Śiva-as-consciousness. Following this, the present essay examines arguments Somānanda develops to illustrate how his opponents' views can be understood to cohere logically only if they are understood implicitly to assume the existence of the ontological nondualism described by him. Finally, instances are examined in which

- Somānanda develops arguments with philosophical opponents, where the opponent is forced to accede to the nondualism for which he argues. Altogether, the present chapter illustrates the ways in which, for Somānanda, logical proofs offer more than mere rhetoric but are dispositive of the nature of reality itself."
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Abstract: "This article examines the emergence of the Nyāya distinction between *vāda* and *jalpa* as didactic-scientific and agonistic-sophistical forms of debate, respectively. Looking at the relevant sutras in Gautama's *Nyāya-sūtra* (NS 1.2.1-3) in light of the earlier discussion of the types of debate in Caraka-Saṃhitā 8, the article argues that certain ambiguities and obscurities in the former text can be explained on the hypothesis that the early Nyāya presupposed an agonistic understanding of *vāda* similar to what we find in Caraka."
 31. Nieuwendijk, Arthur. 1992. "Semantics and Comparative Logic." *Journal of Indian Philosophy* no. 20:377-418.
"The paper takes up the question as to which logical framework is most suitable for a formal interpretation of Navya-Nyāya logic. It is claimed that, for this purpose, the framework offered by extensional first-order predicate logic is inadequate. This claim is established by discussing three well-known difficulties: the interpretation of the notion of Jnana, the question whether contraposition is a law of NavyaNyaya logic, and the interpretation of the Navya-Nyāya scheme of inference. Next, the interrelatedness of these difficulties is pointed out, and, carrying through the analysis, it is examined whether situation semantics offers a suitable alternative framework."
 32. Nishankar, Vaishnavi. 2022. "Convergence and Divergence of Nyāya and Tattvavāda (Dvaita) Theories of Logic." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-26. Dordrecht: Delhi.
Abstract: "Indian epistemology has delved deep into the analysis of logic as a component of cognition. It is considered as an essential constituent or, rather, an essential process of inferential cognition. Most Indian schools of thought, except the materialists called Cārvākas, recognize inferential cognition as a kind of cognition. The varied schools developed conclusive theories of inference, each with their own unique contributions, resulting in a vast body of literature, often polemical, in this field of analysis.
This chapter focuses on providing an introduction to the various constituents and the logical process of inferential cognition according to the Indian intellectual tradition using illustrations, both classic and contemporary, for elucidation. It particularly focuses on the doctrines of the Nyāya and Dvaita Schools of philosophy in this regard and aims to objectively bring out the points of convergences and divergences in the theories of logic of the two schools and tries to provide the background for the divergences to clarify the reasons for the differences in their view points."
 33. Oetke, Claus. 1996. "Ancient Indian Logic as a Theory of Non-Monotonic Reasoning." *Journal of Indian Philosophy* no. 24:447-539.
"The aim of the paper is to demonstrate that the most ancient varieties of "Indian logic" are significantly related to theories associated with the term "non-monotonic logic" in so far as they try to account for reasoning relying on the ability to use general rules subject to exceptions and indicate a conception of context-dependent validity implying that valid inferences or arguments can lose this status in the context of additional information. On that background it is possible to give a theoretical justification for a number of features of Indian theories of inference which previously appeared theoretically ill motivated and which were often explained by historical coincidences."
 34. ———. 2003. "Indian Logic and Indian Syllogism." *Indo-Iranian Journal* no. 46:53-69.

35. ———. 2004. "In which sense are Indian theories of inference non-monotonic?" *Hōrin: Vergleichende Studien zur japanischen Kultur / Comparative Studies in Japanese Culture* no. 11:23-38.
36. ———. 2016. "Pramāṇa, Logic and Belief." In *Logic and Belief in Indian Philosophy*, edited by Balcerowicz, Piotr, 45-70. Warsaw: Indological Studies.
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39. Paris, Jeffrey B., and Vencovská, Alena. 2017. "Ancient Indian Logic, Pakṣa and Analogy." In *Philosophical Logic: Current Trends in Asia. Proceedings of AWPL-TPLC 2016*, edited by Yang, Syraya Chin-Mu, Lee, Kok Yong and Ono, Hiroakira, 45-58. Singapore: Springer Nature.
Abstract: "Abstract The authors B.K. Matilal, and earlier J.F. Staal, have suggested that the Indian Schema (erstwhile Hindu Syllogism) from Gotama's *Nyāya-sūtra* should be understood in terms of an occurrence relation of an event happening at a locus (*pakṣa*). Building on a reading of the Indian Schema as analogical reasoning, that is, smoke on the hill and the prior example of smoke in the kitchen being associated with fire in the kitchen leading to the conclusion that there is fire on the hill, we have previously suggested and investigated a formalisation of the Schema within a binary predicate language. In this paper we consider a version derived therefrom using just unary predicates. We go on to show that within the context of Pure Inductive Logic this formal version has a rational justification, in the sense that from the Principle of Atom Exchangeability (akin to Carnap's Attribute Symmetry and a property of Carnap's Continuum of Inductive Methods) it follows that under the assumptions of the Schema fire on the hill must be at least as probable as absence of fire on the hill."
40. Patil, Parimal G. 2010. "History, Philology, and the Philosophical Study of Sanskrit Texts." *Journal of Indian Philosophy* no. 38:163-202.
Abstract: "This paper is a critical review of Jonardan Ganeri's *Philosophy in Classical India*."
41. Perrett, Roy W. 1984. "Self-Refutation in Indian Philosophy." *Journal of Indian Philosophy* no. 12 (3):237-264.
42. ———. 1985. "A Note on the Navya-Nyāya Account of Number." *Journal of Indian Philosophy* no. 13:227-234.
"I maintain (contra Ingalls) that the Navya-Nyāya account of number as a property of classes should be understood intensionally, not extensionally. Such a theory is closer to Frege's earlier views than to Russell's and also has certain advantages over Russell's theory. However it seems that Navya-Nyāya cannot provide a criterion of identity for such intrinsically intensional properties; and this difficulty is particularly important for Navya-Nyāya, given its epistemological and metaphysical realism."
43. ———. 1999. "Is Whatever Exists Knowable and Nameable?" *Philosophy East and West* no. 49:401-414.
"Naiyayikas are fond of a slogan, which often appears as a kind of motto in their texts: "Whatever exists is knowable and nameable". What does this mean? Is it true? The first part of this essay offers a brief explication of this important Nyāya thesis; the second part argues that, given certain plausible assumptions, the thesis is demonstrably false."
44. ———, ed. 2001. *Indian Philosophy. A Collection of Readings. Vol. II. Logic and Philosophy of Language*. New York: Garland.

- "Volume 2: *Logic and Philosophy of Language* is concerned with those parts of Indian *pramana* theory that Western philosophers would count as logic and philosophy of language. Indian philosophers and linguists were much concerned with philosophical issues to do with language, especially with theories of meaning, while the Indian logicians developed both a formalised canonical inference schema and a theory of fallacies. The logic of the standard Indian inferential model is deductive, but the premises are arrived at inductively. The later Navya-Nyāya logicians went on to develop too a powerful technical language, an intentional logic of cognitions, which became the language of all serious discourse in India. The selections in this volume discuss Indian treatments of topics in logic and the philosophy of language like the nature of inference, negation, necessity, counterfactual reasoning, many-valued logics, theory of meaning, reference and existence, compositionality and contextualism, the sense-reference distinction, and the nature of the signification relation."
45. Perszyk, Kenneth J. 1983. "'Virtue is not blue': Navya-Nyāya and some Western Views." *Journal of Indian Philosophy* no. 11:325-338.
46. ———. 1984. "The Nyāya and Russell on Empty Terms." *Philosophy East and West* no. 34:131-146.
"The purpose of this paper is to demonstrate how the Navya-Nyāya school of Indian philosophy determines the truth or falsity of a sentence which contains an empty term, and to point out some similarities and differences between its method of analysis and truth-value determinations of such sentences and that of Bertrand Russell."
47. ———. 1984. "Negative Entities and Negative Facts in Navya-Nyāya." *Journal of Indian Philosophy* no. 12:265-276.
"The purpose of this article is to discuss the Navya-Nyaya's thesis that absence is an ontological category, which is to say that there are negative entities, and its corollary that there are negative facts. The Nyāya resists all attempts to eliminate negative facts in favour of positive facts. In addition, we see that no atomic sentence can have a negative subject-term."
48. Potter, Karl H. 1974. "On the Realistic Proclivities of Navya-Nyāya as Explicated by Bhattacharyya." *Philosophy East and West* no. 24:343-347.
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Contents: Preface XI-XIII; Part One: Introduction to the Philosophy of Nyāya-Vaiśeṣika 1; Part Two: Summaries of Works 211-715; Notes 687; Index 717-744.
"The present volume provides a detailed resume of current knowledge about the classical Indian philosophical system of Nyāya-Vaiśeṣika in its earlier stages. Specifically, it covers the literatures of Nyāya and Vaiśeṣika from their inception in the respective *sūtras* up to the time of Gaṅgeśa, that is, about A.D. 1350. This dividing point is regularly accepted in the tradition, since with Gaṅgeśa it is felt that a new start is made within the systems, the result coming to be known as Navyanyāya, "new" Nyāya."
(...)
"The form of this book features an extended introductory section followed by summaries of works belonging to the system's literature. These summaries are arranged in relative chronological order to assist the reader in tracing the development of the school's thought. Summaries have been solicited from scholars around the world—Indian, Japanese, and American scholars have collaborated in the undertaking. This international aspect of the book is one of its pleasantest features, serving to put philosophers and Indologists around the world in closer touch with one another." (Preface. p. XI)

"Logic: Nyāya grew in part as a theory of philosophical debate, and among Hindus has been accepted as the system which specially studies the theory of arguments good and had, in keeping with the division of labor principle alluded to in the previous paragraph.

This does not mean that all Hindu philosophers accepted every point in the Nyāya account, but they certainly tended to look to Nyāya for definitive treatment and detailed discussions of intricate points.

Nyāya had its great rival, however, in the logic developed by the Buddhists, and from this controversy developed one of the most comprehensive logical theories the world has known. Indian logic is never conceived as "formal" in the Western sense, but as an account of sane processes of reasoning it has few equals in the West for attention to detail." (p. 2)

51. Potter, Karl H., and Bhattacharya, Sibajiban, eds. 1993. *Encyclopedia of Indian Philosophies. Vol. 6: Indian Philosophical Analysis: Nyāya-Vaiśeṣika from Gangeśa to Raghunātha Śīromani*. Delhi: Motilal Banarsidass.
Contents: Preface XI; Part One: Karl H. Potter, Sibajiban Bhattacharyya: Introduction to the Philosophy of Nyāya-Vaiśeṣika 3; Part Two: Summaries of Works 85-590; Notes 591; Index 633-672.
"Volume Six of the *Encyclopedia of Indian Philosophies* picks up the history of the Nyāya-Vaiśeṣika system where Volume Two left off.
The time covered in this volume is much smaller than in any of the previous volumes of the *Encyclopedia*, a scant two hundred years between approximately 1310 and 1510. There are good reasons for this intensive attention to such a brief period. For one thing, two of Indian's most remarkable philosophers, Gangeśa and Raghunātha Śīromani, are covered in these pages—in fact, they initiate and terminate the period surveyed.
More generally, we here begin to treat the literature of Navya-nyāya, a movement comparable in its implication to the burgeoning of symbolic logic and its concomitant philosophical speculations found in the writings of Frege, Russell and Wittgenstein in the West at the end of the 19th and beginning of the 20th centuries. The excitement of newly pioneered techniques of philosophical analysis developed by Gangeśa spawned a bevy of philosophical talents. Indeed, this period is even richer than we are able to summarize here, since a good part of it is still unavailable in print.
(...)
The form of this book features an extended introductory section followed by summaries of works belonging to the system's literature.
These summaries are arranged in relative chronological order to assist the reader in tracing the development of the school's thought. Summaries have been provided by scholars from India, England and the United States." (Preface, p. XI)
52. Pragati, Jain. 2000. "Saptabhaṅgī: The Jaina Theory of Sevenfold Predication: A Logical Analysis." *Philosophy East and West* no. 50:385-399.
53. Prasad, Jwala. 1930. "Discussion of the Buddhist Doctrines of Momentariness and Subjective Idealism in the Nyaya-Sutras." *Journal of the Royal Asiatic Society of Great Britain and Ireland* no. 1:31-39.
54. Prasad, K.S., ed. 2002. *The Philosophy of Language in Classical Indian Tradition*. New Delhi: Decent Books.
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Second edition; first edition 1963.
59. Raju, Poolla Tirupati. 1954. "The Principle of Four-Cornered Negation in Indian Philosophy." *The Review of Metaphysics* no. 7:694-713.
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Reprint: New Delhi: Oriental Books Reprint Corp., 1976.
61. Ranganathan, Shyam. *Hinduism: A Contemporary Philosophical Investigation*. New York: Routledge.
Chapter 4: *Logic: The nectar of immortality*, pp. 79-111.
62. Rastogi, Maharaj Narain. 1983. *The Theories of Implication in Indian and Western Philosophy. A Critical Study*. Delhi: Bharatiya Vidya Prakashan.
Foreword by Irving M. Copi.
63. Saha, Sukharanjan. 1962. *Perspectives on Nyāya Logic and Epistemology*. Calcutta: K. P. Bagchi & Company.
64. Sahota, Jaspal Peter. 2022. "Early Nyāya Logic: Pragmatic Aspects." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-20. Dordrecht: Delhi.
Abstract: "This chapter sets out and explains the discussion of inference (*anumāna*) in the Nyāya Sūtra of Akṣapāda Gautama and the Nyāya Bhāṣya of Vātsyāyana Paṅśilasvāmin. Affinities with the pragmatic method of Charles Peirce and modern scientific method are presented. Specifically, the procedural methodology of reasoning to form beliefs and the scope for legitimate doubt are shown to have a pragmatic character.
An initial definition of inference in NS 1.1.5 is followed by an objection in NS 2.1.37 and a response to the objection in NS 2.1.38. There is scope to read these either as a progressive refinement of a deductive schema or as a sequence of stages in a procedural logic of rational inquiry involving abductive and deductive elements. Accordingly, the definition, objection, and response are presented and analyzed according to a deductive syllogistic schema and according to an open-ended abductive-deductive schema. The extent to which either of these schemas conforms to the intentions of the early Nyāya authors is considered, with reference to Vātsyāyana's remarks in the Nyāya Bhāṣya in particular. Although the deductive schema is found to capture an important aspect of how Vātsyāyana understands correct inference, nevertheless the abductive schema more clearly demonstrates how the inference processes described by the early Nyāya authors are driven by pragmatic considerations, whereby the scope for belief adoption, suspension, and revision are constrained by observable evidence."
65. Salome, D. Judia, and Parthasarathi, Ranjani. 2011. "Mining Ontological Knowledge using Nyaya Framework." *International Journal of Networking and Virtual Organisations* no. 8:123-141.
Abstract: "Ontology has become the buzzword of the knowledge and semantics community. The process of automatically constructing an ontology with completeness and reduced time has become the need of the hour. This paper presents the method for automatically constructing an ontology for any domain based on the Indian philosophical system, the Nyaya Sastra. Nyaya defines the whole world from atom to universe. This categorisation provided by Nyaya acts as the framework for extracting ontological relations from documents obtained from the web. With Nyaya and Natural Language Processing (NLP) techniques, an improved and enriched knowledge can be obtained from web documents. This paper explains the way of constructing an ontology (i.e., extracting taxonomical and nontaxonomical relations) using Nyaya in detail. The extracted knowledge includes

- concepts, relations and qualities pertaining to a concept. A Semi-Supervised Learning (SSL) technique for learning Nyaya categories is also explained."
66. Sanyal, Manidipa. 2022. "Imperative Logic: Indian and Western." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-40. Dordrecht: Delhi.
Abstract: "Statements having imperative intents are found in plenty in the context of formal argumentative discourses. Commands of any form are commonly accepted as expressing a "prescription" as distinct from "proposition," though the possibility of their crossing over is not ruled out. The lingering question remains about the logical status of prescriptions as constituents of imperative arguments. Discussion of Vidhivākya (imperative) is extensively found in the Mīmāṃsā system and it has its pragmatic application in recent days in a very robust form. Since twentieth century, imperative arguments are considered as more than a possibility in the West. Its early history starts with Aristotle's practical syllogism, passes through the thoughts of the Stoics, Leibnitz, Hume, and finally has a primary line of development, i.e., becomes a formal logic for normatives in Ernst Mally's Principle of Inheritance of Obligation. Logicians take different stands in explaining the inferential property of an argument involving commands at par with that property of an inference of classical propositional logic. The present chapter undertakes a survey of the logic of imperatives both from the Indian and the Western points of view."
67. Sarkar, Tushar K. 2022. "Jaina Theory of "ANUMĀNA" [Inference]: Some Aspects." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar, 1-51. Dordrecht: Springer.
Abstract: "The chapter takes a thoroughly analytical, but somewhat nontraditional, look at the Jaina theory of *anumāna* in its various aspects. A critical analysis of the scheme of classification of *anumāna*-s into "svārtha" and "parārtha" is undertaken to show that a *svārthānumāna* is only a proto-*anumāna*, not a standard *anumāna* at all. So, it is wrong and misleading to consider both of them as "anumāna-s" in the same sense. Next, the features of *bahirvyāpti* and of *antarvyāpti* are compared, the respective roles played by each of them in universal generalizations and some severe limitations of *bahirvyāpti* in this respect, etc., are critically discussed one by one. After a detailed analysis of the definition of "antarvyāpti," it is claimed that *antarvyāpti* signifies a "semantic-conceptual linkage," and, in this respect, it has a thematic affinity to Kant's notion of "synthetic a priori judgements." "Logical" and "methodological" aspects of *antarvyāpti* are dis-entangled next. It is followed by a thorough discussion of the nature of *Hetvābhāsas*, the reasons why they are not to be viewed as purely formal fallacies, an enumeration of different types of *hetvābhāsas*, lessons to learn from some queer instances of "fallaciously valid" argument-patterns in Western logic, etc. Topics such as the Minimum Number of *avayava*-s required in an Inferential Unit, notion of "existence" and of *Vikalpa* as "existence proof," notions of Contradiction, Contextualization of LNC in Jaina Logic, etc., are discussed after it. The need of balancing between the ontic and the epistemic conceptions of logic, replacing the tautology-centric notion of "deductive validity" by an information-theoretic-cum-context-sensitive notion of "logical inferability" [Sanskrit, "anumeyatva"] are discussed next. In the section "Concluding Remarks," attention is drawn to what the author considers to be an emerging trend of mutual convergence of the respective outlooks [viz., the respective "epistemic" and "ontic" outlooks] of Indian and Western logicians. A final such convergence may even need a radical "paradigm-shift" in the patterns of logical thinking. It is not expected to be an easy task at all. Nevertheless, it feels better to keep dreaming about it as a realizable goal."
68. Sarma, V. V. S. 1994. "A Survey of Indian Logic from the Point of View of Computer Science." *Sadhana* no. 19:971-983.
69. Sarukkai, Sundar. 2005. *Indian Philosophy and Philosophy of Science*. New Delhi: Centre for Studies in Civilizations.

- Chapter 3: *Indfian Logic*, pp. 43-106.
70. ———. 2011. "Indian Logic and Philosophy of Science: The Logic-Epistemology Link." In *Proof, Computation and Agency: Logic at the Crossroads*, edited by van Benthem, Johan, Gupta, Amitabha and Parik, Rohit, 333-353. Dordrecht: Springer.
71. ———. 2011. "Possible Ideas of Necessity in Indian Logic." *Journal of Philosophical Logic* no. 40:563-582.
72. Sarukkai, Sundar, and Chakraborty, Mihir Kumar eds. 2022. *Handbook of Logical Thought in India*. Dordrecht: Delhi.
Not yet published; Table of Contents available on the Springer website.
73. Sasaki, Ryō. 2016. "Jayanta's Objection to Dharmakīrti's Criticism of the pratijnāhāni of the Nyāya School." *Journal of Indian and Buddhist Studies* no. 64:1093-1099.
74. Sastri, Gaurinath. 1959. *The Philosophy of Word and Meaning*. Calcutta: The Principal Sanskrit College.
Some Indian approaches with special reference to the philosophy of Bhartrhari.
75. ———. 1959. *The Philosophy of Word and Meaning. Some Indian Approaches with Special Reference to the Philosophy of Bhartrhari*. Calcutta: Sanskrit College.
76. Sastri, Kuppaswami. 1932. *A Primer of Indian Logic According to Annambhatta's Tarkasamgraha*. Mylapore: The Kuppaswami Sastri Research Institute.
Second edition 1951; Third edition 1961; Fourth edition 1998.
77. Schang, Fabien. 2010. "Two Indian Dialectical Logics: Saptabhaṅgī and Catuskoṭī" *Journal of Indian Council of Philosophical Research* no. 27:47-76.
78. ———. 2013. "A One-Valued Logic for Non-One-Sidedness." *International Journal of Jaina Studies (Online)* no. 9:1-25.
79. Scharf, Peter M. 1996. *The Denotation of Generic Terms in Ancient Indian Philosophy: Grammar, Nyāya and Mimamsa*. Philadelphia: American Philosophical Society.
80. Schayer, Stanislaw. 2001. "Studies on Indian Logic." In *Material of the International Seminar Argument and Reason in Indian Logic*, edited by Balcerowicz, Piotr and Mejer, Marek, 23-34. Warsaw: Instytut Orientalistyczny Uniwersytet Warszawski.
Originally published in German in 1932.
English translation by Piotr Balcerowicz.
81. ———. 2001. "On the Method of the Nyāya Research." In *Material of the International Seminar Argument and Reason in Indian Logic*, edited by Balcerowicz, Piotr and Mejer, Marek, 35-44. Warsaw: Instytut Orientalistyczny Uniwersytet Warszawski.
Originally published in German in 1932.
English translation by Piotr Balcerowicz.
82. Schmidt, Martin, and Sriraman, Bharath. 2021. "Nyāya Methodology and Western Mathematical Logic: Origins and Implications." In *Handbook of the Mathematics of the Arts and Sciences*, edited by Sriraman, Bharath, 2515-2537. Dordrecht: Springer.
83. Schumann, Andrew. 2019. "On the Origin of Indian Logic from the Viewpoint of the Pāli Canon." *Logica Universalis* no. 13:347-393.
Abstract: "Abstract. In this paper, I show that in the Pāli Canon there was a tradition of Buddhist logic, but this tradition was weak, and the proto-logic we can reconstruct on the basis of the early Pāli texts can be evaluated as a predecessor of the Hindu logic. According to the textual analysis of the Pāli texts, we can claim that at the time of the closing of the Pāli Canon (excluding the later addition of the *Milindapānha* into it by the Burmese tradition) there did not exist the Nyāya

- philosophy known by the *Nyāya Sūtra*. Meanwhile, we can assume that the Milindapāṇha, the best logical source of early Pāli literature, was written under influences of the Gandhāran Buddhists and this text preceded the Nyāya philosophy."
84. Schuster, Nancy. 1972. "Inference in the Vaisesikasutras." *Journal of Indian Philosophy* no. 2:341-386.
"Conflicting statements appear in the Vaisesikasutras about how knowledge of imperceptible entities is attained. Passages from the Sutras are compared with the Samkhya Sastitantra, the Nyayasutras, Nyayabhasya, and other early texts. Impact of the Sastitantra on Vaisesikasutras and Nyayabhasya was strong. Contradictions within Vaisesikasutras reveal the compilers' grappling with the Samkhya theory over a period of time. Bias in favor of direct perception dominates the Vaisesika text."
85. Selvamony, Nirmal. 2022. "Logic in nīlakēci and maṇimēkalai." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-20. Dordrecht: Delhi.
Abstract: "The present chapter attempts to unearth the salient features of logic in the Tamil epics, *nīlakēci* and *maṇimēkalai*. In the former text, we have a few verses which expound the fundamental validative criteria (*aḷavaikaḷ*) of the Jaina faith, and a surfeit of debates the heroine has with exponents of rival faith systems. These debates amply illustrate the techniques of debate called *uttikaḷ* explained in *tolkāppiyam*. Using these techniques, the heroine goes about demolishing rival arguments. The kind of debate she engages in is identified in the essay as "vātam." Though Jaina philosophy is based on the multivalued logical concept of *nayam*, *nīlakēci*'s debate is based on the bivalent logic of *vākai* (*vātam*). In the case of the Buddhist epic, *maṇimēkalai*, logical matters are dealt with primarily in two cantos (27 and 29). Unlike her Jaina counterpart, *maṇimēkalai*, the heroine, is content to listen to the tenets of rival faith systems and also to those of her own spiritual guru, *aṟavaṇa aṭikaḷ*. The exponents of Tamil logic are *aḷavai vāti*, the logician who explains all the ten *aḷavaikaḷ* of Tamil logic, and *aṟavaṇa aṭikaḷ* who deals with *aḷavaikaḷ* briefly, and inference elaborately. Though the latter speaks of the five-member Tamil syllogism-like text, he elaborates the proper forms and defects of the three-member counterpart adopted by the Buddhists. Similarly, though *aṭikaḷ* identifies *nayam* (based on multivalent logic) as a trait of Buddhist syllogistic text, the theory of inference he expounds is based on bivalent logic."
86. ———. 2022. "Logic in Tamil Tradition." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-22. Dordrecht: Delhi.
Abstract: "Logic, in Tamil tradition, is inseparably connected with philosophy and rhetoric. It is a reasoning praxis, which includes knowing the truth and communicating it. If the former is the epistemic aspect of logic, the latter is its rhetorical. The rhetorical branch has two main divisions, the monological (*tarukkam*) and the dialogical (*vākai*). Examples are provided from classical literature, folk songs, folk drama, religious polemics, political oration, screen play, research methodology, forum for disputation, and debating forum. The purpose of logic is to affirm the normative mode of truth of each type of society. If the truth of the Tamil primal society is differentiated continuity, that of the Tamil state society is foregone conclusion, and that of the Tamil industrial society is anarchic indeterminacy."
87. ———. 2022. "Logic in tolkāppiyam." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-21. Dordrecht: Delhi.
Abstract: "*tolkāppiyam* shows us that logic had an important place in the primal society (known as *tiṇai*). Such primal cultural practices as "tarukkam," "vākai," analogical reasoning, the use of the criteria of knowledge ("aḷavai") in premarital life situations and in oral texts (such as *mutumoli* and *kāṇṭikai*), and also the primal social institution, namely, the assembly (*avai*) where public debates were held, were

- all part of the philosophical tradition of this society. Such philosophy embraced logic, which had rhetorical as well as epistemic functions. If rhetorical logic was persuasive (as in tarukkam) and contestatory (as in *vākai* in combat and in the assembly), epistemic logic (*aḷavai*) was validative. In fact, early Tamil logic was a complex discipline not easily distinguishable from philosophy (especially, epistemology and ethics) and rhetoric."
88. Sen, Prabal Kumar. 1978. "Nyāyabhāskara - A Lost Nyāya Work." *Journal of Indian Philosophy* no. 5:267-274.
 89. Sen, Prabal Kumar, and Chatterjee, Amita. 2010. "Navya-Nyāya Logic." *Journal of the Indian Council of Philosophical Research* no. 27:77-99.
 90. Sharma, Dharendra. 1966. "Epistemological Negative Dialectics of Indian Logic - Abhāva versus Anupalabdhi." *Indo-Iranian Journal* no. 9:291-300.
 91. ———. 1969. *The Differentiation Theory of Meaning in Indian Logic*. The Hague: Mouton.
 92. Shaw, Jaysankar Lal. 1974. "Empty Terms: The Nyāya and the Buddhists." *Journal of Indian Philosophy* no. 2:332-343.
 93. ———. 1976. "Subject and Predicate." *Journal of Indian Philosophy* no. 4:155-179.
 94. ———. 1978. "The Nyāya on Existence, Knowability and Nameability." *Journal of Indian Philosophy* no. 5:255-266.
"One of the aims of this paper is to discuss the different senses of the term 'existence' as used by the Nyāya philosophers. This discussion leads us to a discussion on absence or negation and its role in logic. A discussion on empty terms has also been introduced in this context. According to the Nyāya, existence, knowability and nameability are considered as universal properties. The distinction between these universal properties has been discussed in this context. I have also discussed the question whether the Nyāya has used redundant terms in designating the same imposed property by using three different terms. A distinction between different senses of the term 'property' has also been discussed in this context."
 95. ———. 1980. "The Nyāya on Cognition and Negation." *Journal of Indian Philosophy* no. 8:279-302.
"The aim of this paper is to discuss the Nyāya concept of negation and the different types of negation. This discussion involves a discussion of the Nyāya concept of cognition, relation and meaning. The Nyāya has drawn a distinction between qualificative and non-qualificative cognition. A qualificative cognition can be represented by the form "arb". The Nyāya concept of negation cannot be said to be a term-negation, or a sentence-negation, or a propositional function negation. The conclusion is that the Nyāya concept of negation does not correspond to any Western concept of negation."
 96. ———. 1981. "Number: From the Nyāya to Frege-Russell." *Studia Logica: An International Journal for Symbolic Logic* no. 41:283-291.
Abstract: "The aim of this paper is to present the Nyāya concept of number in the light of contemporary philosophy and to show that the Frege-Russell concept of number does not contradict the Nyāya concept of number but rather supplements it."
 97. ———. 1991. "Universal Sentences: Russell, Wittgenstein, Prior, and the Nyāya." *Journal of Indian Philosophy* no. 19:103-119.
"The aim of this paper is to discuss I) whether the following sentences have the same meaning, II) whether they have the same truth-value, III) whether there is some assertion common to all of them, and IV) if there is some such assertion, whether it can be defined. 1) all men are mortal, 2) whoever is a man is mortal, 3) wherever there is humanity, then there is mortality, 4) if anyone is a man, then he is mortal, 5) if humanity is present somewhere, then mortality is also present there."

98. ———. 1998. "The Nyāya on Double Negation." *Notre Dame Journal of Formal Logic* no. 20:139-154.
99. ———. 2000. "Conditions for Understanding the Meaning of a Sentence: The Nyāya and the Advaita Vedanta." *Journal of Indian Philosophy* no. 28:273-293.
100. ———. 2003. *The Nyaya on Meaning: A Commentary on Pandit Visvabandhu*. Calcutta: Punthi Pustak.
101. ———. 2014. *Logic and Metaphysics*. Wellington: Society for Philosophy & Culture.
Edited by D. L. Oxtoby.
102. ———. 2022. "The Nyāya on Logical Thought." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-72. Dordrecht: Delhi.
Abstract: "In this paper, I shall emphasize the following features of the Nyāya logical thought: (1) some of the uses of Occam's razor or the principle of simplicity; (2) how to avoid the postulation of tertiary entities, such as propositions or images; (3) how the concept of relevance has been used in the context of an inference; (4) the Nyāya view about understanding the meanings of contrary or contradictory expressions; (5) the Nyāya conception of negation, as it cannot be equated with the term negation or the proposition negation in Western philosophy; (6) the definition of the quantifier "all" as well as the pervader-pervaded relation; and (7) the reconstruction of Gadādhara's theory of definite descriptions.
I would also like to discuss the distinction between the pairs of terms *anuyogī-pratīyogī* (first term-second term), *ādhāra-ādheya* (substratum-superstratum), *viśeṣya-viśeṣaṇa* (qualificand-qualifier), *viśeṣya-prakāra* (qualificand-relational qualifier), *uddeśya-vidheya* (subject-predicate), and *pakṣa-sādhya* (the locus of inference-probandum), which are analogous to the subject-predicate distinction in Western philosophy.
These terms are used for the explanation of the distinction between perceptual, inferential, and verbal cognitions, as well as for the distinction in meaning between transformationally equivalent sentences and for suggesting a solution to Frege's problem, why predicate alone is to be considered as unsaturated or to use the term of Russell "incomplete"."
103. Shida, Taisei. 2011. "Hypothesis-Generating Logic in Udayana's Rational Theology." *Journal of Indian Philosophy* no. 39:503-520.
104. Shukla, Rajaram. 2022. "The Importance of Śābdabodha in Language Analysis." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-14. Dordrecht: Delhi.
Abstract: "In order to protect the Vedas, several linguistic theories covering various aspects of knowledge ranging from phonetics to understanding a sentential meaning were developed in India. A theory dealing with verbal cognition, known as śābdabodha in Sanskrit, is one of them. The discipline of understanding the verbal communication deals with various aspects of linguistic communication such as the nature of the relation between a word and its meaning, the reason behind naming an object, the process of arriving at the meaning of a sentence from its constituents, and various factors that contribute to this process. In this chapter, we present a bird's eye view of the discussions presented by different schools in the Indian philosophical literature."
105. Siderits, Mark. 1986. "The Sense-Reference Distinction in Indian Philosophy of Language." *Synthese* no. 69:81-106.
Published also in the *Journal of Chinese Philosophy*, 14, 1987, pp. 331-355.
106. ———. 1991. *Indian Philosophy of Language: Studies in Selected Issues*. Dordrecht: Kluwer.
107. Simonson, Solomon. 1946. "The Categories of Proof in Indian Logic." *International Phenomenological Society* no. 6:400-409.

108. Sin, Fujinaga. 2000. "Determining Which Jaina Philosopher was the Object of Dharmakīrti's Criticisms." *Philosophy East and West* no. 50:378-384.
109. Sinha, Sweta. 2016. "Indian Schools of Logic: A Critical Assessment." *International Journal of Sanskrit Research* no. 2:170-172.
110. Smart, Ninian. 1964. *Doctrine and Argument in Indian Philosophy*. London: Allen and Unwin.
Reprint: Atlantic Highland: Humanities Press, 1976; Second revised edition: Leiden: Brill, 1992.
111. Solomon, Esther A. 1976. *Indian Dialectics: Methods of Philosophical Discussion*. Ahmedabad: B. J. Institute of Learning and Research Gujarat Vidya Sabha. Two volumes.
112. Soni, Jayandra. 2022. "General Introduction to Logic in Jainism with a List of Logicians and Their Texts." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar, 1-21. Dordrecht: Springer.
Abstract: "In comparison to the work and research done in Brahmanism/Hinduism and Buddhism, studies in Jaina philosophy and particularly Jaina logic are relatively ignored areas. The Jaina contribution to the land of its origin, for example, to literature, art, and architecture, is widely acknowledged, and one is hard pressed to find a reason for the scanty interest in its philosophy and logic. This chapter suggests a possible reason for this in the Indian tradition. At the same time, it is shown that Jaina philosophers and especially logicians have made significant contributions to the development of ideas throughout the history of Indian philosophy. A short list of 13 thinkers and their major works (annotated) is regarded as the minimum one needs for a study of the basic orientation to the development of Jaina logic over a period of 1,500 years. A long list of 43 thinkers with their major works related specifically to logic is also provided additionally. This long list too is a succinct and summary one, especially when it is known that in the Jaina tradition, a list can be drawn entailing, e.g., 352 authors and 951 works."
113. Staal, Frits. 1960. "Formal Structures in Indian Logic." *Synthese* no. 12:279-286.
Reprinted as Chapter 2 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 73-80.
Abstract: "There is a use of the term 'model' in which it can be said that a linguistic expression, in a natural language, is a model for its sense. A translation of a linguistic expression from one language into another may be said to provide another model for the sense of the original. If the sense of a linguistic expression is of a logical nature, the expression can be translated into an expression of formal logic or into a formula. This is not surprising, for logic and mathematics came into being when expressions of natural languages were translated into formal symbolisms, which were more precise and practical and less cumbersome. Subsequently these artificial languages attained full independence and started a development of their own. Originally, however, these symbolisms could only have been constructed along the lines suggested by the possibilities of expression and the scope of expression of the natural languages themselves. That in mathematics and in modern logic such a linguistic origin of the symbolism has often receded into the background does not imply that the origin of certain symbolisms was independent from the structure of natural languages."
114. ———. 1960. "Correlations between Language and Logic in Indian Thought." *Bulletin of the School of Oriental and African* no. 23:109-122.
Reprinted as Chapter 1 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 59-72.
115. ———. 1960. "Means of Formalization in Indian and Western Logic." In *Proceedings of the XIIth International Congress of Philosophy (Venezia, 1958)*, 221-227. Firenze: Sansoni.
Reprinted as Chapter 3 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 81-87.

116. ———. 1961. "The Theory of Definition in Indian Logic." *Journal of the American Oriental* no. 81:122-126.
Reprinted as Chapter 4 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 88-92.
117. ———. 1962. "Contraposition in Indian Logic." In *Logic, Methodology and Philosophy of Science: Proceedings of the 1960 International Congress*, 634-649. Stanford, California: Stanford University Press.
Reprinted as Chapter 5 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 93-108.
118. ———. 1962. "Negation and the Law of Contradiction in Indian Thought: A Comparative Study." *Bulletin of the School of Oriental and African Studies* no. 25:52-71.
Reprinted as Chapter 6 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 109-128.
119. ———. 1973. "The Concept of *Paksa* in Indian Logic." *Journal of Indian Philosophy* no. 2:156-165.
Reprinted as Chapter 7 in F. Staal, *Universals: Studies in Indian Logic and Linguistics*, pp. 129-139.
120. ———. 1975. "The concept of Metalanguage and Its Indian Background." *Journal of Indian Philosophy* no. 3:315-354.
"In Indian culture the concept of metalanguage originated early in the context of linguistics and speculations on language; in the West, late in the context of logic. This is related to the grammatical character of Indian culture and the mathematical character of Western culture. Connections are made between metalinguistic notions and technical, in particular poetic and ritual languages; Mantras; the origin of phonetic writing; communication and metacommunication among animals and men; and the origin of language."
121. ———. 1988. *Universals: Studies in Indian Logic and Linguistics*. Chicago: University of Chicago Press.
122. ———. 2003. "The Science of Language." In *The Blackwell Companion to Hinduism*, edited by Flood, Gavin, 348-359. Malden: Blackwell Publishing.
123. Sugiura, Sadajiro. 1900. *Hindu Logic as Preserved in China and Japan*. Philadelphia: Ginn & Co.
124. Taber, John A. 1989. "The Theory of the Sentence in Purva Mimamsa and Western Philosophy." *Journal of Indian Philosophy* no. 17:407-430.
"The Mimamsa school of Indian philosophy developed two distinct theories of the relation of the meaning of a sentence to the meanings of the words that comprise it, the Anvitabhidhana or "qualified designation" theory and the Abhihitavaya or "designated relation" theory. Both of these theories, I attempt to show, turn on the observation that the meanings of individual words change in different sentences. I go on to suggest that an appreciation of this fact can lead to a solution of the problem, first raised by Frege, of the change of meaning of terms in intensional contexts."
125. ———. 2004. "Is Indian Logic Nonmonotonic?" *Philosophy East and West* no. 54:143-170.
"Claus Oetke, in his "Ancient Indian logic as a theory of non-monotonic reasoning," presents a sweeping new interpretation of the early history of Indian logic. His main proposal is that Indian logic up until Dharmakirti was nonmonotonic in character—similar to some of the newer logics that have been explored in the field of Artificial Intelligence, such as default logic, which abandon deductive validity as a requirement for formally acceptable arguments; Dharmakirti, he suggests, was the first to consider that a good argument should be one for which it is not possible for the property

- identified as the "reason" (hetu) to occur without the property to be proved (sadhya) -- a requirement akin to deductive validity. Oetke's approach is challenged here, arguing that from the very beginning in India something like monotonic, that is, deductively valid, reasoning was the ideal or norm, but that the conception of that ideal was continually refined, in that the criteria for determining when it is realized were progressively sharpened."
126. Tachikawa, Musashi. 1971. "A Sixth-Century Manual of Indian Logic." *Journal of Indian Philosophy* no. 1:111-145.
"This article consists of four parts: explanations of basic technical terms as an introduction, a translation of the Nyayapravesa, notes to the translation, and a romanized text based upon Dhruva's edition. This work is Samkarasvamin's introduction to Dignaga's logic, and deals with means of proof, fallacious means of proof, means of refutation, perception, inference, fallacious perception and fallacious inference."
127. ———. 1981. *The Structure of the World in Udayana's Realism: Laksanavali and the Kiranavali*. Dordrecht: Reidel.
128. Tarkatirtha, Visvabandhu. 1991. "The Nyāya on the Meaning of Some Words." *Journal of Indian Philosophy* no. 20:41-88.
Translated by Jaysankar Las Shaw.
"The aim of this paper is to discuss the views of Nyāya philosophers on meaning. This paper deals with the meaning and reference of proper names, and general terms. It also deals with the meanings of homonymous expressions, and discusses the question whether demonstrative pronouns are homonymous terms. Different uses of personal pronouns have been mentioned. The section on the quantifier 'all' deals with different uses of it. Similarly, the section on interrogative pronoun deals with as many as seven uses of an interrogative pronoun. This paper ends with the discussion of the meaning of a sentence."
129. Thero, Lenagala Siriniwasa. 2017. "Origin and Development of Indian Logic and Buddhist Logic." *International Journal of Science and Research (IJSR)* no. 6:890-900.
130. Timalsina, Sthaneshwar 2022. "Abhinavagupta on Śānta Rasa: The Logic of Emotional Repose." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-18. Dordrecht: Delhi.
Abstract: "This chapter explores the ways Abhinavagupta, an eleventh-century Kashmirian polymath, establishes the experience of serenity (śānta) as one of the appraised emotions called rasa. Beyond the issue of whether serenity can be the savoring of rasa, this chapter explores various models from classical Hindu and Buddhist philosophies that establish serenity in order to contextualize the phenomenology of experiencing serenity. For Abhinava, this experience is not a mere negation of emotions but a positive experience. And to establish his argument, Abhinava explores the ways absence is analyzed in Hindu and Buddhist traditions. One of the central problems of aesthetics that overlaps metaphysics is whether the experience of serenity is identical to the experience of liberation. Abhinava paves his path through the middle, without collapsing this experience to the mystical experience of the Brahman or to common everyday experiences. By rejecting the argument that serenity is a product of cessation or that dispassion evolves into serenity, Abhinava argues that serenity emerges from self-awareness."
131. Tiwari, Heeraman. 1994. "One and Many: The Early Naiyayikas and the Problem of Universals." *Journal of Indian Philosophy* no. 22:137-170.
"The problem of universals in Indian philosophy is as old as c. 400 b. C. In his great work, Astadhyayi, the grammarian Panini introduced the problem of universals while discussing the meaning of a noun. Later, the Nyāya and Vaisesika systems of Indian philosophy discussed the universals in great detail. The present article deals with the early Nyāya view of universals. The article is divided in two parts: one gives a brief general introduction to the problem; the other contains a fresh

- translation of the Nyāya-Sutras 2.2.58-70 and Vatsyayana's commentary on them. The translation is also supplied with discussions and analysis. The article tries to demonstrate that the Nyāya system extends the debate about word and meaning which was inaugurated by early Sanskrit grammarian (viz., Panini, Patanjali etc.)."
132. Trikha, Himal. 2022. "Logical Argument in Vidyānandin's Satya-śāsana-parīkṣā." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar, 1-15. Dordrecht: Springer.
Abstract: "The Jainas used variations of the pan-Indian sets of dialectical, epistemological, and logical principles in order to justify their ontological and soteriological convictions. The article analyses the application of logical principles in an ontological argument of a Jaina Digambara author. After the explication of the ontological aspect of the argumentation, central logical principles are examined against the backdrop of their definitions in Digambara Sanskrit works."
133. van Ditmarsch, Hans, Parikh, Rohit, and Ramanujam, R. 2011. "Logic in India—Editorial Introduction." *Journal of Philosophical Logic* no. 40:557-561.
134. Vattanky, John. 1979. "Śāśadhara's Īśvaravāda. An Important Source of Gangeśa's Īśvaravāda." *Journal of Indian Philosophy* no. 7:257-266.
135. ———. 1993. "The Referent of Words: Universal or Individual, the Controversies between Mimansakas and Naiyayikas." *Journal of Indian Philosophy*:51-78.
"One of the most important problems discussed in Nyāya philosophy of language is whether words denote an individual or a universal. On this point there are basically two schools of thought which oppose one another, i.e., the Mimansakas and the Naiyayikas. The texts of Muktavali, Dinakari and Ramarudri dealing with this topic give a brilliant summary of the long drawn out conflict between the two Schools. The authors of these texts established the Nyāya position that the denotative function of words is in the individual as qualified by the universal and the present essay examines these arguments and counterarguments."
136. ———. 1995. *Nyāya Philosophy of Language. Analysis, Text, Translation and Interpretation of Upamana and Sabda sections of Karikavali, Muktavali and Dinakari*. Delhi: Sri Satguru Publications.
137. ———. 2003. *A System of Indian Logic: The Nyāya Theory of Inference*. London: Routledge Curzon.
Analysis, text, translation and interpretation of the *Anumana* section of Karikavali, Muktavali and Dinakari.
"Nyāya is the most rational and logical of all the classical Indian philosophical systems. In the study of Nyāya philosophy, Karikavali with its commentary Muktavali, both by Visvanatha Nyayapancanana, with the commentaries Dinakari and Ramarudri, have been of decisive significance for the last few centuries as advanced introductions to this subject. The present work concentrates on inference (anumana) in Karikavali, Muktavali and Dinakari, carefully divided into significant units according to the subject, and translates and interprets them. Its commentary makes use of the primary interpretation in Sanskrit contained especially in the Ramarudri and Subodhini. The book begins with the Sanskrit texts of Karikavali and Muktavali; followed by English translation of these texts. Next is given the Sanskrit text of Dinakari which comments on the first two texts, followed by its English translation. Lastly, the book contains a commentary on all the texts included."
138. Venkataramana, B. V. 2022. "Influence of Navya-Nyāya Concepts and Language in Vyākaraṇa." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-23. Dordrecht: Delhi.
Abstract: "The schools of Nyāya and Vyākaraṇa are mighty Śāstras among the traditional Indian knowledge systems. Both the Śāstras have a long and strong traditional lineage with vast literature, original and commentarial, delineating their unique doctrines, even on common topics between them, that are concluded after much systematic deliberation and in line with the ontology and tenets of the

- respective Śāstras. Such long traditions of knowledge have much dialectic and polemic engagement, thereby, mutually influencing the pathways the Śāstras traverse as the tradition moves ahead in time.
- Gaṅgeśopādhyāya, a radical thinker of the Nyāya school, not only changed the landscape of the ontology of his own school by bringing in more brevity in categorization and precision in expression, but also influenced the knowledge community then on greatly by giving them the gift of precision in expression through many technical axioms that he adopted for drawing conclusions through the thicket of gruesome complexities that epistemological topics dragged the scholars through.
- Incidentally, the scholars of other schools like Vyākaraṇa, Vedānta, Sāhitya, etc. borrowed the terminology, methodology, and axioms that the Navya-Nyāya school propagated for more incisive logical presentation of their doctrines and used them to refute the viewpoints of other schools, including Nyāya, and establish their own theories. This article throws light on how the Nyāya concepts, axioms, and language influenced the Vyākaraṇa scholars and gave them the tools for analytical and critical thinking, aiding them to establish their doctrines by defending the refutations from other schools and also refuting the viewpoints of other schools while claiming supremacy of their own theories."
139. Vidyabhusana, Satis Chandra. 1909. *History of the Mediaeval School of Indian Logic*. Calcutta: Calcutta University.
140. ———. 1918. "Influence of Aristotle on the Development of the Syllogism in Indian Logic." *The Journal of the Royal Asiatic Society of Great Britain and Ireland*:469-488.
141. ———. 1920. *A History of Indian Logic (Ancient, Mediaeval and Modern Schools)*. Delhi: Motilal Banarsidass. Reprint 1988.
142. Vinay, P. 2022. "Dependency of Inference on Perception and Verbal Testimony." In *Handbook of Logical Thought in India*, edited by Sarukkai, Sundar and Chakraborty, Mihir Kumar, 1-16. Dordrecht: Delhi.
- Abstract: "Indian philosophical schools heavily depend upon the means of valid cognition (*Pramāṇas*) to establish the findings of metaphysics and the stand of one's school. Although there is divergence of opinion with the regard to the number of *Pramāṇas*, roughly three distinct means of valid cognition are acknowledged widely: perception, inference, and verbal testimony. Perception refers to sensory means of knowing, while inference is argument to arrive at some conclusion. Verbal testimony is a word of authority which propounds truth of one's experience. In the present chapter, it is examined as to how inference depends upon perception and verbal testimony for its functioning and soundness. Various arguments forwarded by Dvaita thinkers (the school of Indian realism propounded by Śrī Madhvācārya, twelfth-century C.E.) are culled from the classical texts and presented. It is shown as to how any inference is subject to the *Pramāṇya* of perception and verbal testimony for its intrinsic soundness. The potency of perception, on natural stature as well as being supportive, is being presented here. When the argument at hand is about the sensory objects, the role of perception as supportive to inference is indispensable. In case of an apparent contradiction, the inference which is dependent loses soundness on empirical grounds. Similarly, if the argument is about the supra-sensuals like the virtue and vice, it cannot hope to contradict verbal testimony, since the latter is the actual means to know the supra-sensuals, and not mere inference. The factor of dependency and the grounds thereof with suitable examples have been presented in the present chapter. The working patterns of the *Pramāṇas* pertaining to dependency have been portrayed in the chapter. The views of different schools such as that of Vācāspati Mīśra and others are presented on the subject and reviewed on the backdrop of great thinkers like Śrī vyāsatīrtha and others of Dvaita school."

143. Wada, Toshihiro. 2001. "The Analytical Method of Navya-Nyāya." *Journal of Indian Philosophy* no. 29:519-530.
144. ———. 2017. "A History of Navya-nyāya Study and Its Future: From the Methodological Point of View." *Journal of Indian and Buddhist Studies* no. 65:1073-1081.
145. Wayman, Alex. 1958. "The Rules of Debate According to Asaṅga." *Journal of the American Oriental Society* no. 78:29-40.
146. Zhang, Zhongyi, and Zhang, Jialong. 2009. "The Three-Form Reasoning of New Hetu-vidya in Indian Logic from the Perspective of Modern Logic." *Frontiers of Philosophy in China* no. 4:631-645.
147. Zilberman, David B. 2006. "History of Indian Logic." In *Analogy in Indian and Western Philosophical Thought*, edited by Gourko, Helena and Cohen, Robert S., 110-120. Dordrecht: Springer.
148. ———. 2006. "Analogy in Navya-Nyāya." In *Analogy in Indian and Western Philosophical Thought*, edited by Gourko, Helena and Cohen, Robert S., 56-109. Dordrecht: Springer.