

EMPIRICAL FACTS AND THE VAIŚEṢIKA SYSTEM OF CATEGORIES: TWO DIRECTIONS OF UDDYOTAKARA'S EXPLORATION FOR THE GROUND OF SOUND INFERENCE*

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1. Introduction

When the history of Nyāya theory of inference is delineated, the chronological gap between Uddyotakara and Vācaspati appears as one of the biggest difficulties for researchers. Not to mention the wide time span of four hundred years, important names such as Kumārila and Dharmakīrti, whose theory strongly influenced on the following generations beyond the difference of philosophical systems, flourished during this period, and thus it is reasonably assumed that there was a big shift in Nyāya theory of inference around this time. Although some Naiyāyikas, such as Viśvarūpa, Aviddhakarṇa, and Trilocana, are said to have written commentaries on the *Nyāyabhāṣya* between the time of Uddyotakara and Vācaspati,¹ it is almost impossible to know the details of their theories regarding inference, since their works have been lost except some small fragments.

Taking the above into consideration, philological investigation of relevant texts such as Jayanta's *Nyāyamañjarī* and Vyomaśiva's *Vyomavātī*, which were written during the time gap above, would become important even though they are not included in the line of

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¹ I here follow the chronology suggested by Potter [1977]. Matilal [1977: 84] considers Viśvarūpa as Uddyotakara's precedence.

typical *Nyāyasūtra*'s commentarial tradition. In the meanwhile, however, it is seemingly important to investigate the theories of inference held by Uddyotakara and Vācaspati respectively to clarify their similarities and dissimilarities in order to have a tentative perspective of the history of the Nyāya theory of inference. This paper aims to clarify Uddyotakara's theory of inference focusing on its epistemological aspect by dealing with his comment on the *Nyāyasūtra* 1.1.5.

2. Points of issue

When one infers fire from smoke on a mountain, it is necessary for him/her to know the invariable relationship between smoke and fire — i.e., “wherever smoke is there, there is fire.” As is well known, Vācaspati asserts that this invariable relationship is nothing but a natural relationship (*svābhāvikasambandha*), which is identified with the one free from any associate conditions (*upādhi*). He observes that because smoke in general is essentially related to fire in general, the inference of individual fire from individual smoke thus becomes possible. It is also well-known that his theory, which traces its origin to Trilocana, was inherited by Udayana and widely accepted among later Naiyāyikas.² In Uddyotakara's *Nyāyavārttika* (*NV*), on the other hand, there is no evidence found that he knew the theory of *svābhāvikasambandha*. Moreover, he even denies the existence of any relationship between smoke and fire, not only specific ones such as causal relationship (*kāryakāraṇabhāva*), inherence to one and the same thing (*ekārthasamavāya*) or coexistence (*sāhacarya*), but also relationships in general (*sambandhamātra*),³

This idea of him, which seems to be quite strange from our common sense view, has caught the attention of quite a few researchers leading them to try to give rational interpretations for it.⁴ The following is the passage which typically presents Uddyotakara's standpoint.

² For the concepts of *svābhāvikasambandha* and *upādhi* held by Vācaspati and their historical development, see Chakraborty [1978], Oberhammer [1964], and Suzuki [2011].

³ *NV*, p. 47,6-17.

⁴ For example, Randle [1930], Kajiyama [1983], and Okazaki [2005].

(Passage A: NV, p. 47, 16-22)

anagnir dhūmo dṛṣṭaḥ, adhūmaś cāgnir iti ubhayaṃ vyabhicāri / tasmāt na sāhacaryam api / yatra dhūmas tatra vahnir ity anenaiva pratyuktam / na cānyā gatir asti / tasmāt na dhūmena vahnir anumīyata iti / lokavirodha iti cet, yadi dhūmenāgnir nānumīyate nanu loko viruddhyate iti cet? nāsti virodhaḥ, dhūmaviśeṣeṇāgniviśeṣaṇasya dhūmasya pratipādyatvāt / katham punar ayam agnir dhūmaviśeṣanam bhavati? yadā guṇabhūto 'numeyo bhavati, agnimān ayam dhūma iti / dhūmaviśeṣeṇāsādhāranena pratipadyate!

I would like to give my translation and interpretation later on. At the present stage, at least, it should be confirmed that Uddyotakara, though he does not accept any relationships between smoke and fire, considers inference of fire to be possible if the property of smoke is positioned as its *liṅga*. However the words “*viśeṣaṇa*” and “*guṇabhūta*,” which appear in the underlined part, make this passage difficult to understand in detail. The two words appear also in the description of inference of *ātman* from desire (*icchā*) etc, as follows:

(Passage B: NV, p. 48, 15-17)

icchādayaḥ khalu dharmiṇo bhavanti / ātmā ca viśeṣaṇam guṇabhūta iti / icchādīnām guṇatvam pratīto dharmah / tena dharmena tān eva icchādīn ātmagunaviśiṣṭān anumimīte / paratantrā icchādayo guṇatvāt, rūpavad iti /

There is considerable difference among researchers in interpretations of “*guṇabhūta*” and “*viśeṣaṇa*.” Kajiyama, for example, in interpreting passage A, regards “*guṇabhūta*” as the “thing which exists as a property of smoke” and considers it as “*anumeya*” signifying fire. As for “*dhūmaviśeṣaṇa*,” Kajiyama [1983: 198] considers it to be the “qualifier of smoke.” He thus interprets, probably influenced by the interpretation of Randle [1930: 284-287], Uddyotakara’s answer as it appears in the underlined part to mean that “[in inference of fire from smoke], what is known is smoke qualified by fire which exists as a property/quality of smoke.” Okazaki [2005: 48, 146], on the other hand, gives a translation as a “subordinate factor” for “*guṇa*” and a “qualifying factor” for “*viśeṣaṇa*,” observing that the two words are both related to a grammatical category rather than ontological category.

However it seems difficult to assume, as Kajiyama and accordingly Randle interpreted, that Uddyotakara accepted that fire exists in smoke as its *guṇa*. If Uddyotakara had accepted that there is

inherence between smoke and fire, his standpoint would contradict with his own preceding statement that there is no relationship between smoke and fire. In addition, it is obvious from passage B that Uddyotakara did not use these words in exactly the same meaning as that on which the Vaiśeṣika system of categories is constructed. Accordingly, the words should not be interpreted as “quality” and “qualifier which qualifies its substratum (*dharmin*) by inherence” as Okazaki observed. However Okazaki’s interpretation that those words should be related to grammatical category also does not seemingly explain the passages well, for the point of Uddyotakara’s argument here is regarding the requirement of the relational structure of things which supports logical invariable relationship.

3. *Guṇabhūta, viśeṣaṇa, and things involved in the epistemological process of inference*

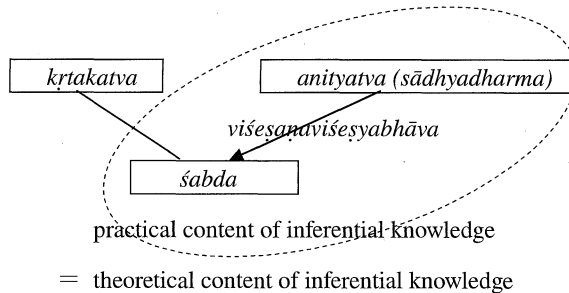
From the second sentence in passage B, it is understood that *ātman* here is considered as *guṇabhūta* and *viśeṣaṇa* since each word of them appears in the same case as the others. From the fourth sentence, at the same time, *icchā* etc, words grammatically qualified by another word ‘*ātmaguṇaviśiṣṭa*’ should reasonably be regarded as what is phenomenally qualified (*viśiṣṭa*) by *ātman*, which is nothing but a *guṇa*.

Keeping this in mind, let us clarify the relational structure of the things which are involved in the process of each inference. In the inference of passage A, the subject of inference (*pakṣa*) is smoke (*dhūma*), the inferential mark (*liṅga*) is the property of going upwards in the form of a continuous line (*sātatyasaṃhatyūrdhvagatisvābhāvya*), and what is to be inferred (*sādhya*) is the property of having fire (*agnimattva*). In the inference of passage B, on the other hand, the subject of inference is desire (*icchā*) etc, the inferential mark is the property of being a quality (*guṇatva*) and what is to be inferred is the property of residing in some substratum (*paratantratva*). The word “*guṇabhūta*” does not appear very often in the *NV*,⁵ and Vācaspati, its commentator, does not put any specific comment on the word. However, those passages seem to be possible to interpret in the following manner when the above is well-considered.

⁵ I used e-text of the *NV* input by Okazaki (<http://user.numazu-ct.ac.jp/~nozawa/b/okazaki/readme.htm>) for searching this word. Interestingly, it appears only in the comment on *NS* 2.2.66, where Uddyotakara argues what the object of a word is.

In the underlined part of passage A, the opponent questions how fire can be a qualifier of smoke. This question is presumably presented against the logical conclusion that fire would not be able to become a qualifier of smoke if, as Uddyotakara previously assumes, there is no relationship between them. Thus, Uddyotakara’s reply should be understood as an explanation as to how the concrete and individual fire (*ayam agni*) can qualify smoke even though there is no relationship between smoke in general and fire in general. Unlike another common inference in which what is to be inferred (*sādhya**dharma*) is equal to the content of inferential knowledge,⁶ such as the inference of “non-eternity resides in sound from the property of being created” (Figure 1),⁷ in the above case the practical content of inferential knowledge (individual fire associated with smoke/smoke which associates individual fire) is different from what is theoretically required to be inferred (the property of having fire resides in smoke/smoke qualified by the property of having fire). In this sense, the practical content of inferential knowledge in the inference of passage A can be regarded as “what is to be secondary or subordinate (*guṇabhūta*)” (Figure 2).

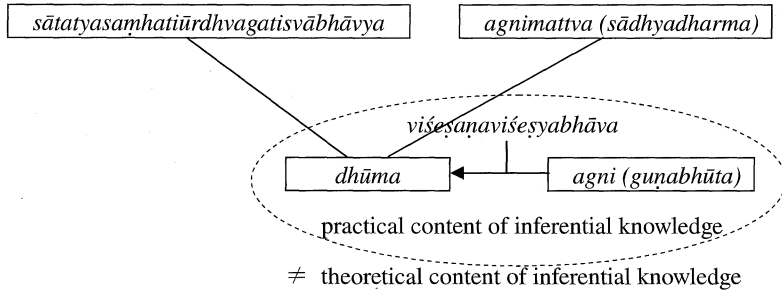
Figure 1: Structure of inference of non-eternity of sound



⁶ Cf. NV, p. 103,12: *prajñāpanīyadharmaviśiṣṭo dharmī sādhyah*.

⁷ Squares in the diagram signify components of the Vaiśeṣika category such as *dravya*, *guṇa*, *karma* etc. Lines signify the relationship between two relata. I here basically follow Wada [1990] in terms of the usage of the diagram.

Figure 2: Structure of inference of fire from smoke



Considering the above, we can translate passage A and B in the following manner. It should be noted here that the word “qualify” is applicable not only to two relata in supporter-supported relationship (*ādhārādheyabhāva*), but also to those in wider relationships.

(Translation of passage A)

<Uddyotakara> Since smoke without fire and fire without smoke can be seen, both smoke and fire deviate from each other. Thus, coexistence [of smoke and fire] is not [accepted as a relationship between them], too. For this very reason, [the viewpoint that there is a relationship in which] “wherever there is smoke, there is fire” [between them] is objected to. And there is no other way [for any relationship’s existence]. Accordingly, fire cannot be inferred by means of smoke.

<Opponent> [This opinion] contradicts our worldly common sense. [That is to say,] if fire cannot be inferred from smoke, it would contradict worldly common sense.

<Uddyotakara> There is not [such a contradiction], for, in this inference, smoke qualified by fire is inferred from the particularities of the smoke.

<Opponent> How, then, can this fire (individual fire) become a qualifier of smoke?

<Uddyotakara> As what is to be inferred is secondary (in the sense that it is not inferred directly), [individual fire as a qualifier of smoke] is inferred, in the form of the inferential knowledge that “this smoke has fire,” from the uncommon particularities of the smoke.

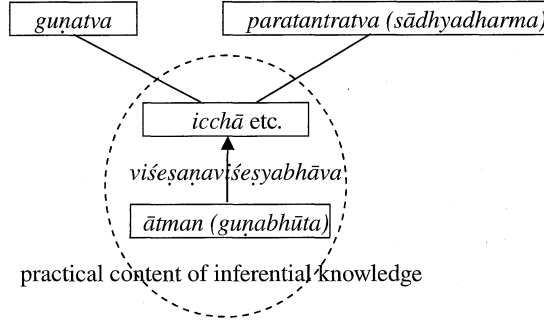
(Translation of passage B)

In fact, [in the inference of *ātman* from desire etc.,] desire etc. are substrata [of what is to be inferred]. And then *ātman* is their qualifier and secondary [object of the inference]. In this inference, the property of being a quality which resides in desire etc. is already known. By means of this property, one

infers desire etc. qualified by *ātman*, which is a secondary [object of the inference]. It is in the following process: “desire etc. are dependent upon something else, because it is a quality, like color.”

Also in passage B, *ātman*, which is substratum of desire etc., is not eligible to be a direct content of inference. Uddyotakara, then, presumably considered that *ātman* can be inferred by regarding it as the secondary object of the inference and as the *viśeṣaṇa* of desire etc. and reconciling the gap between the practical content of inferential knowledge and the one theoretically required to be brought according to the relational structure of things involved in the inference (Figure 3).

Figure 3: Structure of inference of *ātman* from desire



Following this understanding, the third interpretation of *pūrvavat*, i.e., inference of effect from its cause, can be understood in the following manner.

(Passage C: NV, p. 44, 2-17)

kāraṇadarśanāc ca kāryam anumīyata iti bruvāṇo ’numānamudrāṃ bhinatti/ ... ka evam āha kāraṇadarśanāt kāryāstitvaṃ pratipadyata iti? ko vā bravīti yatra kāraṇaṃ tatra kāryam iti / kāryaṃ tu kāraṇaviśeṣatvenopayuktam⁸ guṇabhūtam anumīyata iti sūtrārthah/ tathā ca na mudrābheda iti / ... udāharaṇam — meghonnatayā bhaviṣyati vṛṣṭir iti kāraṇena kāryānumānam / katham punar prayogaḥ / vṛṣṭimanta ete meghāḥ gambhīradhvānavattve sati, bahulabalākāvattve sati aciraprabhāvattve ca sati unnatavāt, tadanya-vṛṣṭimanmeghavad iti /

⁸ I here follow the reading of the NV(M): *kāraṇaviśeṣatvenopayuktam*.

(Translation of passage C)

<Opponent> One who says that effect can be inferred through perception of its cause contradicts with the essence of inference.

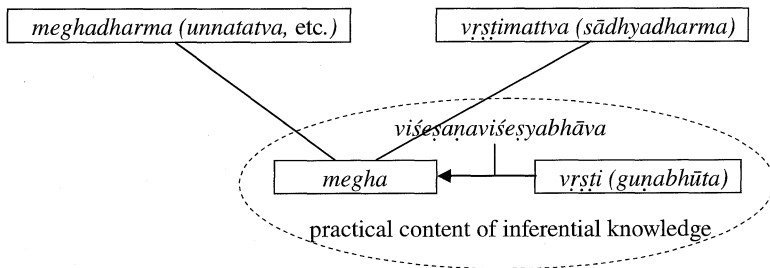
<Uddyotakara> ... Who says, as you point out, that the presence of effect can be inferred. Or, who says that whenever there is cause, there is effect? [Nobody says such things.] In fact, what the sūtra (*Nyāyasūtra* 1.1.5) means here is that effect, which is related [to its cause] as the cause's qualifier, is inferred as the secondary object (*gunabhūta*) [of the inference]. Accordingly, there is no contradiction against the essence of inference... for example, *pūrvavat* is the inference of future rain from rising clouds.

<Opponent> How then is the formula of this inference?

<Uddyotakara> “These clouds have future rain, for it has the property of rising, with being accompanied by deep rumbling, many cranes flying away, flashes of lightning, like other clouds which have future rain.”

It is usually impossible to infer the existence of effect from its cause because cause has deviation from its effect in some cases. In the above explanation of *pūrvavat*, however, Uddyotakara asserts that it is possible to infer future rain from clouds if we regard clouds as *pakṣa* of the inference, some specific features of them as its *liṅga* and the property of having rain as its *sādhya*. Just like in the inference of fire from smoke Uddyotakara here presumably calls the individual and concrete phenomenon of future rain, which should be practically inferred in the inference, *gunabhūta*, to assert that future rain can be inferred from present clouds even though there is no invariable relationship between them. It should be noted here that the relational structure of things involved in this inference is completely the same with that of the inference of smoke from fire (Figure 4).

Figure 4: Structure of inference of future rain from rising clouds



4. The Ground of Soundness of Inference in Uddyotakara's Theory

Uddyotakara thus explains the above inferences by using the notions of “*guṇabhūta*” and “*viśeṣaṇaviśeṣyabhāva* in a wider sense.” His intention for doing so can probably be summarized into the following two points. Firstly, he tried to find coherence between the concepts used for the construction of their theory of inference — such as *pakṣa*, *liṅga* and *sādhya* — and the relational structure of the things involved in the epistemological process of inference. Secondly, he investigated the phenomenal background in which the things correspondent to *liṅga* should be invariably related to the ones correspondent to *sādhya*.

Regarding the latter point, Uddyotakara broadly presents his own idea by saying that the relationship between *liṅga* and *liṅgin* (i.e., *sādhya*) can be grasped by perception,⁹ but does not argue in detail. However, from the passages mentioned above, we can seemingly pick up two essential directions of his exploration for it.

(1) Thorough observation of empirical facts

Uddyotakara denies the universal relationship between smoke in general and fire in general, and asserts that individual fire can be secondarily inferred from smoke's specific properties such as “going upwards” as we have seen in passage A. The reason why universal relationship between smoke in general and fire in general should be denied is, according to him, smoke without fire can be found in some cases. As has already been pointed out by Randle [1930: 284-285] and Kajiyama [1983: 201], Uddyotakara here refuses the abstraction of the individuals involved in inference and limits the relationship which ensures invariability of *liṅga* and *sādhya* to inseparable relationship to one and the same substratum. However, even from Uddyotakara's standpoint, unless the relationship between these properties of smoke, i.e., “going upwards etc.” and “having fire,” is ascertained, inference does not occur. For Uddyotakara the epistemological ground of this relationship's ascertainment is obviously past perception of the inference agent and the content of ascertained knowledge that “the smoke which has the property of going upwards etc. has the property of having fire” is nothing but the concrete knowledge acquired from the past experience. It is not like abstracted and universalized relationship through repeated observation (*bhūyodarśana*) such as the

⁹ NV, p. 41,7-11.

one Kumārila holds. Invariable relationship in *pūrvavat* inference clarified above can be understood in the same manner. The reason why Uddyotakara enumerates several concrete properties of clouds as the conditions for occurrence of inference of future rain is that he thinks it necessary to ensure the similarity between the clouds which the inference agent sees at the moment of inference and that which he/she saw in the past. It is quite natural that Uddyotakara put “the other clouds” for an example (*sapakṣa*) given Uddyotakara’s opinion regarding invariable relationship. To this aspect of his idea, the suggestion of Gokhale [1992: 71] that what Uddyotakara calls *liṅga-liṅgisambandha* “refers to the observed world, and does not at all refer to the ‘whole world,’” is applicable. It is considered, thus, Uddyotakara denied abstraction of the concrete and individual phenomenon even in the common sense level and explored the ground for establishment of invariable relationship into pure experience and observation.

(2) Vaiśeṣika system of categories as an axiom

On the other hand, Uddyotakara’s theory of inference has another aspect which cannot be explained only from the viewpoint of emphasis on empirical facts. The typical case that represents this aspect is the inference of *ātman* from desire etc. According to the Vaiśeṣika system of categories, desire etc. (i.e., *guṇas*) and *ātman* (i.e., *dravya*), cannot reside in the same substratum.¹⁰ Uddyotakara, by assigning desire, etc. to *pakṣa*, the property of being quality (*guṇatva*) to *liṅga* and the property of being dependent on some substratum (*paratantratva*) to *sādhya*, asserts that *ātman* can be inferred as the secondary object of the inference. The fundamental idea behind this inference is similar to that of smoke from fire, but in this inference, the abstract and universal relationship that “whatever it may be, if it is a *guṇa*, it depends on some substratum” is presupposed unlike the case of the previous inference. The background of Uddyotakara’s idea that this inference can presuppose the abstract and universal relationship is not made of pure empirical facts but of assurance by the Vaiśeṣika system of categories based on *dharma-dharmin* relationship between *dravya*, *guṇa*, *karma* etc. Uddyotakara does not doubt the universal relationship between *liṅga* and *sādhya* as long as it is supported by the

¹⁰ As Praśastapāda prescribes, desire etc. are *guṇas* of *ātman* and thus reside in *ātman* itself according to the Vaiśeṣika theory. Cf. *PBh*, p. 70,10.

Vaišeṣika system of categories. To put it another way, we may be able to consider that he based his assertion not only on pure observation of phenomenal world but also on his belief that the Vaišeṣika system of categories reflects relational structure of the world.

(3) Conventionally accepted concomitance

The above two are thought to be Uddyotakara's major orientations toward ascertainment of invariable relationship. However, there are some statements of his found in the *NV* which cannot be included into these two. A typical case appears in the inference of water from existence of cranes, which is mentioned as an example of the third interpretation of *sāmānyato dr̥ṣṭam*.¹¹ Uddyotakara seemingly asserts here, though it is in an obscure manner, that "one infers the existence of water from the property of having cranes, putting a concrete place regarding which invariable relationship between cranes and water is well-known (*prasiddha*) into *pakṣa*." In this inference, inseparable relationship to one and the same substratum is forcibly ensured by considering "the property of having cranes (*balākāvattva*)" and "the property of having water (*salilavattva*)" as *liṅga* and *sādhya* respectively. However, what is practically considered to be the ground of their invariability is nothing but the conventionally accepted concomitance that "wherever in this area cranes are seen, water is also seen."

5. Conclusion

With proper understanding of the logical structure which valid inference should satisfy, Uddyotakara explored the relationship between *liṅga* and *sādhya* which ensures its logical soundness. The directions of his exploration are mainly directed to empirical facts exclusively observed without worldly common sense and the Vaišeṣika system of categories which is traditionally regarded as the reflection of the world.

However, on the other hand, another factor is also found in his theory of inference. As is well known, Naiyāyikas after Vācaspati, who identified invariable concomitance with natural relationship, held that investigation of non-existence of associate condition (*upādhi*),

¹¹ *NV*, p. 44,21-22: *yāvān asya deśo balākayājahadvṛttitvena prasiddho bhavati, tāvantam antarbhāvya vr̥kṣādikam artham pakṣikṛtya balākāvattvena sādhayati.*

which is implemented as ascertainment of relation's essentiality, should not be too sceptical and go beyond our common sense.¹² In this viewpoint, which considers that relationship *is natural and essential* as long as existence of an associate condition *is not commonly accepted*, we can find abandonment of thorough observation of empirical facts and a compromise for a logical jump from worldly common sense to ultra-empirical and universal rule. The fact that Uddyotakara partly recognizes worldly accepted (*prasiddha*) concomitance as invariable and universal presents Uddyotakara's theory of inference, which is recognized as unique, as having also symptoms that lead to the later Naiyāyika theory.

There seems to be a fluctuation in Uddyotakara's theory of inference as to what is considered to be the ground for invariable relationship. It presents to us, however, the evidence of his sincere investigation for establishment of sound inference.

BIBLIOGRAPHY

1) Primary sources

- Kir* *Kiraṇāvālī*, edited with *Praśastapādabhāṣya* by Jitendra S. Jetly, Gaekwad's Oriental Series 154, Baroda: Oriental Institute, 1971 (rpt.1991).
NS *Nyāyasūtra*, edited with *Bhāṣya* of Vātsyāyana by Anantalal Thakur, Delhi: Indian Council of Philosophical Research, 1996.
NV *Nyāyavārttika*, edited by Anantalal Thakur, Delhi: Indian Council of Philosophical Research, 1997.
NV(M) *Nyāyavārttika*, edited with Gautama's *Sūtra*, Vātsyāyana's *Bhāṣya*, Vācaspati Miśra's *Tātparyāṭikā* and Viśvanātha's *Vṛtti* by Taranātha Tarkatīrtha and Amarendramohan Tarkatīrtha, Calcutta: Munshiram Manoharlal Publishers, 1985.
NVTT *Nyāyavārttikatātparyāṭikā*, edited by Anantalal Thakur, *Nyāyacaturgranthikā* 3, Delhi: Indian Council of Philosophical Research, 1996.
NVTP *Nyāyavārttikatātparyāpariśuddhi*, edited by Anantalal Thakur, *Nyāyacaturgranthikā* 4, Delhi: Indian Council of Philosophical Research, 1996.
PBh *Praśastapādabhāṣya*, edited by Vindhyesvari Prasad Dvivedin, Delhi: Indian Books Centre, 1895 (rpt. 1984).

2) Secondary sources

- Chakraborty, Krishna
 1978 "The Nyāya Concept of Svābhāvika Sambandha: A Historical Retrospect," *Journal of Indian Philosophy* 5: 385-392.
 Gokhale, Pradeep
 1992 *Inference and Fallacies Discussed in Ancient Indian Logic: With Special Reference to Nyāya and Buddhism*, Delhi: Indian Books Centre.
 Jhā, Gaṅgānātha
 1912 *Nyāyasūtras of Gautama with Vātsyāyana's Bhāṣya and Uddyotakara's Vārttika (English translation)*, Delhi: Motilal Banarsidas (rpt. 1999).
 Kajiyama, Yuuichi
 1983 *Bukkyo niokeru Sonzai to Chishiki (Existence and Knowledge in Buddhism)*, Tokyo: Kinokuniya Shoten. (in Japanese)
 Matilal, Bimal Krishna
 1977 *Nyaya-Vaisesika (A History of Indian Literature vol. 6: Scientific and Technical Literature fasc. 2)*, Wiesbaden: Harrassowitz.

¹² *NVTT*, pp. 135,17-136,2; *NVTP*, pp. 188,15-189, 2; *Kir*, p. 200,20-23.

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- Oberhammer, Gerhard
1964 "Der Svābhāvikasambandha, Ein Geschichtlicher Beitrag zur Nyāya Logik," *Wiener Zeitschrift für der Kunde Süd-und Ostasiens* 8: 131-181.
- Okazaki, Yasuhiro
2005 *Uddyotakara no Ronrigaku: Bukkyo Ronrigaku tono Soukoku to sono Toutatsuten (Logic of Uddyotakara: Its Conflict with the Buddhist Logic and Arrival Points)*, Kyoto: Heirakuji Shoten. (in Japanese)
- Potter, K.H. (ed.)
1977 *Encyclopedia of Indian Philosophies Vol. 2 (Indian Metaphysics and Epistemology: The Tradition of Nyāya-Vaiśeṣika up to Gaṅgeśa)*, Delhi: Motilal Banarsidass.
- Randle, H.N.
1930 *Indian Logic in the Early Schools*, Oxford: Oxford University Press (rpt. Delhi: Oriental Books Reprint Corporation, 1976).
- Suzuki, Takanori
2011 "On the Historical Development of the Concept of Inferential Upādhi," *Asiatische Studien / Études Asiatiques* 65(1): 211-225.
- Wada, Toshihiro
1990 *Invariable Concomitance in Navya-Nyāya*, Delhi: Indian Books Centre.

Nagoya