Non-one-sidedness: Context-sensitivity in Jain epistemological Dialogues

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Rational Inquiry in Classical India

Introduction of critical inquiry as an autonomous discipline in a treatise to educate future king:

> *The study of critical inquiry is always thought of as a lamp for all branches of knowledge; a means in all activities; and a support for all religious and social duty.* **[AS. 1.2.12]**

Kauṭilya's **Artha-śāstra** (Treatise on Gains, 4st c. B.C.)

The first logicians

Introduction of logical inquiry as a distinct discipline: not only is there rational methods, but there are rational goals too.

Logic is the examination of things with the help of methods of knowing. It is a critical proof, i.e. the proof of things intended, by means of an inference, and supported by observation and authority. **[NS. 1.1.1]**

Gautama Akṣapāda's **Nyāya-sūtras** (Aphorisms of Logic, 2nd c. AD)

Aim of logic (nyāya)

A logical investigation has to:

- Determine the 'artha' ('what is intended', i.e. goal, meaning, reference, external object)
- By means of an inference (rational investigation of the causes).
- Publicize this investigation (by means of a good five-stepped inference).
- Get a result respecting perception and oral and scriptural authorities.

Scope of logic

A logical investigation has to deal with all these fields:

- **Ontology:** What can I know?
- **Theory of knowledge and Formal Heuristics:** How can I know?
- **Theory of argumentation:** How can I publicize knowledge?

Logical disputations and the coming of Jain Logic

Three main schools of logic:

- **Nyāya approach (Hindu logic)**
- **Buddhist logic**
- **Jain logic**

Theories of knowledge in India are usually but a step in a soteriological project. Ideal knowledge is meant to be the project of an individual.

Scope of a context

Jain philosophers developed a contextual theory of cognition.
Knowledge is dependent upon a background bearing on its:

- **Definition** What are the established means to know?
- **Goal** Which soteriology?
- **Domain** What are the knowables? THIS LAST ISSUE IS WHAT IS TACKLED BY THE JAIN 'THEORY OF VIEWPOINTS', NAYA-VĀDA.

This context-sensitive approach is certainly one of the main Jain contributions to logic and epistemology in India. Specifying the notion of 'context' involved in the Jain literature is a great deal one scholar has to handle nowadays. *Today's talk is an attempt of contribution to this issue.*

Focus

The first step is to specify the domain of knowledge:

- **Jain realism:** the object itself is characterized by an infinity of aspects
- **Domain of the act of knowledge:** *one* focus on this multiple object
- **Example of focus on a pot:** a 'pot qua universal' (endowed with the essential properties of pot-ness)

A meta-theory of knowledge

One focus determines one 'viewpoint' ('naya'). There are seven viewpoints.

Every theory of knowledge existent in history can be classified within one of these. Three important features:

- A theory belonging to one viewpoint is by nature incomplete.
- From one focus to the other, the changes are paradigmatic ones. A theory claiming that it is belonging to several viewpoints is misleading.
- **Consequence:** there is no theory such that it is complete and Jainism has to face the same problem than Buddhism: their theory can just be the complete indication of what theories should be, a meta-theory.

Selected Jain texts

- **NAV**. Siddharṣigaṇi's *Nyāyāvatāra-vivṛti*, 'Commentary on the Handbook of Logic' (tenth century). First commentary to: **NA**. Siddhasena Divākara's *Nyāya-avatāra*, 'Handbook of Logic' (seventh century).

- **PKM**. Prabhācandra's *Prameya-kamala-mārtaṇḍa*, 'The Sun of the Lotus of the Knowables' (tenth century). First commentary to: **PM**. Māṇikyanandī's *Parīkṣa-mukham*, 'Introduction to Philosophical Investigation' (tenth century). Which itself is a summary of **Akalaṅka**'s masterpiece works (fifht century). Notably of the *Laghiyastraya*, the *Pramāṇasaṃgraha*, the *Nyāyaviniścayāvivarana* and the *Astasati*.

1. The viewpoint of intention (*naigama-naya*)

- '*Naigama*' as 'that which intend this intention'. From '*nigama*' taken as a synonym for '*saṃkalpaḥ*', 'intention'.
  Thesis: any time there is a knowing process, there is an object to be known. Now, since different types of knowing processes exist, several kinds of knowable objects are granted.

- Or '*Naigama*' from '*na-ekan-gama*', 'that which goes in a non unique way'.
  This derivation expresses exactly this consequence of including several distinct kinds of existent elements.

1. The viewpoint of intention (*naigama-naya*)

Consequence: a many-sorted domain. The whole ontological *apparatus* of the second, third and fourth viewpoints are here accepted:

- **Highest universals.** Within a type of knowledge, I apprehend the universal Being from which the pot participate (second viewpoint).
- **Intermediate universals.** Within a type of knowledge, I apprehend a reflect of the *pot-ness* (second viewpoint again).
- **Intermediate particulars.** Within a type of knowledge, I apprehend the particular pot (third viewpoint).
- **Highest particulars.** Within a type of knowledge, I apprehend one of the infinite pulverized modes of the pot (fourth viewpoint).

1. The viewpoint of intention (*naigama-naya*)

A proof-formula[1] **a propounder of this viewpoint needs to establish (NA.29.14) is the following one:**[2]
Thesis. The universal and the particular are disjoined from each other.
Reason. Because they are known separately.
Inference. In this world, whatever substances are known separately, they are disjoined from each other; for instance Devadatta and Yajñadatta.
Application. And indeed the universal and the particular are known separately.
Conclusion. Hence they are disjoined from each other.

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[1]'*Sādhana*', '*Pañcāvayava-vākya*' as 'proof-formula' following Balcerowicz [11] p.xl.
[2]The Indian school of Nyāya-Vaiśeṣika is considered by the Jainas as belonging to this viewpoint.

1-2. From the viewpoint of intentions to the viewpoint of classes

ATTACK ON REASON:

- There is at least one context from which one can attack the reason of this proof-formula
- E.g. according to the propounders of the second viewpoint, when we know the universals, by the same process we know the particulars. Hence both are the same.

2. The viewpoint of classes (*saṃgraha-naya*)

Only universals exist. We can know only what is permanent[3].
First sub-type:

- **Highest universal: there is only one class**
- E.g. The Universal Being alone is 'what there is'

    '(What is illusionary known as) the particulars are (in fact) the Being alone because they are not different from this Being'. **NA.29.15**

- E.g. There is only one substance. We say 'every thing is in substance' like we say 'this table is in wood'

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[3]The Monist school of Saṃkhyā is considered by the Jainas as belonging to this viewpoint.

2. The viewpoint of classes (*saṃgraha-naya*)

Second sub-type:

- **Intermediate universals: there are different classes.**
  Only *pot-ness* is existent. The perception of an individual pot is but an illusion due to the perception of a reflect of the *pot-ness*
- Either in the sense of this precise *pot-ness* (the *pot-ness$_a$*)
- Either in the sense of an intersection between classes
  (*The idea here would be that the only way to try to really get an individual is to cross as many classes as possible*)

2. The viewpoint of classes (*saṃgraha-naya*)

Consequence: only equivalence classes are considered by the different versions of this viewpoint.

- Any two substitutable elements are considered as being but the same in qualitative sense
- This is sufficient that there exist an equivalent class to which x and y both belong to infer that x and y are qualitatively identical

More intuitively, we can only say 'there is a pot on the floor' and not 'the pot is on the floor', which is precisely the point of next viewpoint.
Notice that the Sanskrit sentence is in both cases '*tale gaṭhaḥ*'.

2-3. From the viewpoint of classes to the pragmatic viewpoint

More precisely, let:

- A proponent of 2 say '*tale gaṭaḥ*', 'there is a pot on the floor'
- A proponent of 3 say '*tale gaṭaḥ*', 'the pot is on the floor'

The Jain claim is that it is mistaken to think that the two of them are saying the same thing and might agree/disagree according to material conditions.

- The first speaker is grasping essential properties
- While the other is differentiating for example, my will to cook in my pot and not in my neighbor's pot

3. The pragmatic viewpoint (*vyavahāra-naya*)

Only that which has impact on human actions is considered as existent.[4]

- Consequence: only particulars objects that possesses persistence (i.e. intermediate particulars) can be considered as existent.
- Because neither universals, neither ultimate particulars do the job.

The implementation of this thesis has the following consequence:

- No sensitivity to upper-classes
- In the sense that as soon as there exists an equivalence class such that x belongs to it but not y, then x is different from y

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[4]The materialist Cārvakas are considered by the Jainas as belonging to this viewpoint

4. The viewpoint of the manifestation (*rju-sūtra-naya*)

Only transient objects, i.e. only modes occurring at a given time at a given place, exist. The perception of a persistent particular pot is but the illusion of the presence of a pot through the presence of one of its mode here and now.

- Consequence: no faith in induction
  Through the knowledge of a mode at t_1 and the successive knowledge of another mode at t_2, I can never infer the identity of both and, from this, the existence of a persistent object from t_1 to t_2

- Consequence: the whole ontology is changing from a temporal moment to another

The school classified here is the Buddhist, especially the Abhidharmikas, school. In these schools, the 'modes' are called '*dharmas*'.

5-7. Relation between words and objects

- Shared characteristic: determination of the relation between the word 'pot' (*śabda*) and the object 'pot' (*artha*).
- **They commit themselves to the proof-formula (NA.29.18)**:
    - **Thesis.** Object is not different from word
    - **Reason.** Because that (object) is known only when that (word) is known.
    - **Inference.** In this world, if x is known when y is known, then x turns out to be not different from y. For instance the intrinsic nature of that very (word) when the word is known.
    - **Application.** And indeed object is known when word is known.
    - **Conclusion.** Hence that (object) is not different from that (word).
- Grammarians and logicians

5-7. Universal or particular?

Is a word-object standing for a particular or for a universal?
Patañjali (around 1st century B.C.), a grammarian concerned with metaphysical questions, brought forwards in details this central question about meaning in India[5]. Considering the sentences:

- (1) The cow is white
- (2) The cow is an animal

It seems that both should be the case:

- In (1) the 'meaning' of 'cow' is the particular cow (its value is 'true' if this cow is white)
- In (2) the 'meaning' of 'cow' is the class of cows (its value is 'true' if the set of cows is a subset of the set of animals)

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[5]Cf. Ganeri's *Vyādi and the realist theory of meaning*

5-7. Meaning and theories of knowledge

The answer has an influence not only on the meaning, but on the truth value of the sentence involving this noun.

- For example, the inference from G(a) and F(a) to 'there is something which is G and F' is valid if a is taken to be a singular term, but not if a is taken to be a quantifier.
- Crucial for a theory of knowledge (which is what both Patañjali and the Jainas are aiming at)

Here, both links this dispute with the rules of the grammar of Pāṇini (as we will see)

5-7. Meaning and theories of knowledge

Consequences:

- Ontological questions become central in semantic analysis.
- Theory of knowledge becomes sensitive to grammatical distinctions.
- Grammatical distinctions are: tense (*kāla*), function (*kāraka*), gender (*liṅga*), number (*saṃkhyā*), person (*sādhana*)[6] and preverb (*upagraha*)[7].
- These 3 viewpoint are interested by the 'pot' as being uttered and endowed with a grammatical structure.

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[6]In Jain treatises, '*puruṣa*' and not '*sādhana*' is usually found.

[7]This Jain technical term is an equivalent to the pāṇinean term '*upasarga*' (as introduced in **A.1.4.59**, *Aṣṭa-Adhyāyī*, 'The eight lessons', *sūtra* 1.4.59).

5. The semantical viewpoint (*śabda-naya*)

The first semantical viewpoint considers that a given Sanskrit noun stands for an individual.

- Two statements that have the same meaning are considered as being identical with one another, and hence identical with the same individual.

- Consequence: a bad understanding of the meaning of a word might lead to a bad knowledge of the world.

- Because if two different Sanskrit statements are falsely thought to have the same meaning, then two different objects might be wrongly taken as being the same. **One has to speak correct Sanskrit.**

5. The semantical viewpoint (*śabda-naya*)

The study of language is the main means to access a knowledge of the states of the world

- **Project :** Meaning elucidation from a set of relevant distinction [**PKM**, p.685] :
  - कालकारकलिङ्गसंख्यासाधनोपग्रहभेदाद्भिन्नमर्थं शपतीति शब्दो नयः शब्दप्रधानत्वात् ।
  - kāla-kāraka-liṅga-saṃkhyā-sādhana-upagraha-bhedād-bhinnam-arthaṃ śapati-iti śabdo nayaḥ śabda-pradhānatvāt|
  - **[This viewpoint is called] 'semantical viewpoint' because it first aim the word. Meaning** (artha) **is differentiated by the difference in time, function,** (kāraka) **, gender, number, person** (sādhana) **and preverb** (upagraha).[8]

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[8]Translated by Marie-Hélène Gorisse, proof-read by Judit Törzsök, who I would like to thank for her priceless help!

5. Grammarian Project

Grammarian Project: build a theory of everyday life Sanskrit sentences.

- ततोऽपास्तं वैयाकरणानां मतम् ।
- tato'pāstaṃ vaiyākaraṇānāṃ matam |
- **From this, what is considered by the grammarians is refuted.**

5. Temporal ambiguities

- Let us take a Sanskrit sentence with two imbricated tenses (**PKM** p.678)[9]
  (1) *viśva-dṛśvā asya putro bhāvitā*.

- Means in *verbatim* Sanskrit
  (2) 'he will have a son who has (already) seen everything'

- And is usually understood as '*yo viśvaṃ drakṣyati so'sya putro bhāvitā*'
  (**Event$_2$ — Speech, Reference — Event$_1$**)
  (3) 'he will have a son who will see everything'
  (as if it where *yo viśvaṃ drakṣyati so'sya putro bhāvitā*)
  (**Speech — Event$_2$ — Event$_1$, Reference**)

- Because of the shared assumption that a non yet born son can not see

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[9]Studied in Fontaine, Gorisse and Rahman in [3].

5. Perspectives in grammar

- Choosing this example, Jain philosophers put the focus on the possibility to consider the *perspective* of the speaker when evaluating the temporal value of a sentence.
- In Reichenbach's terms [16], this rule of grammar allows the reference point to be synchronic with the event and not with the discourse in some given situations.
- But this is highly anachronistic. Pāṇini speaks about 'future' and 'past', never about 'future anterior'.

5. Temporal nominal affix and Reference

- In Sanskrit, one can introduce temporal values within nominal expressions (expressions referring to an individual)
- From the rule **[A.3.2.94]**[10]: The affix 'vā' has the past value in compound expressions such that '*viśva-dr̥śvā*' ('an having-seen-everything' in *verbatim* Sanskrit).
- Temporal value determination includes the question of the domain of reference of the individual denoted by an expression containing a temporal value.
- What is more, the question is mixed with the problem of non existent entities.

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[10]'The Eight Lessons' (*Aṣṭa-Adhyāyī*) of Pāṇini, *sūtra* 3.2.94.

5. The ad-hoc grammar rule A.3.4.1

- **G-Rule**: THE TEMPORAL VALUE OF THE VERB OF THE SUBORDINATE CLAUSE IS EVALUATED ACCORDING TO THE TEMPORAL VALUE OF THE VERB OF THE MAIN CLAUSE

  DHĀTU-SAMBANDHE PRATYAYĀḤ
  A.3.4.1

- Here, the past 'he is having seen' is turned into the future 'he will see' according to the future of 'he will have a son'.

5. Text

ते हि 'धातुसम्बन्धे प्रत्ययाः' [पाणिनिव्या॰ ३।४।१] इति सूत्रमारभ्य
'विश्वदृश्वाऽस्य पुत्रो भविता' इत्यत्र कालभेदेप्येकं पदार्थमादृता 'यो विश्वं
द्रक्ष्यति सोऽस्य पुत्रो भविता' इति,
भविष्यत्कालेनातीतकालस्याऽभेदाभिधानात् तथा व्यवहारोपलम्भात्।

te hi 'DHĀTU-SAMBANDHE PRATYAYĀḤ' [Pāṇini-vyā ° 3.4.1] iti
sūtram-ārabhya 'viśva-dṛśvā'sya putro bhavitā' ity-atra kāla-bhede'py-ekaṃ
pada-artham-ādṛtāḥ 'yo viśvaṃ drakṣyati so'asya putro bhavitā' iti,
bhaviṣyat-kālena-atīta-kālasyā'bheda-abhidhānāt tathā
vyavahāra-upalambhāt|

5. Text

[What the grammarians are saying is disproved] because, from the pāṇinian grammatical sūtra 3.4.1: 'the temporal value of verb of the subordinate clause is evaluated according to the temporal value of the verb of the main clause', they admit that the meaning of an expression is one even if there is a distinction due to the tenses. As in the example *'he will have a son who has seen everything'. Here, this is common sense to understand 'he will have a son who will see everything', i.e. to understand this sentence by means of a non distinction between past and future senses.
[ibid.]

5. Jain criticism

न खलु 'विश्वं दृष्टवान् = विश्वदृश्वा' इति शब्दस्य योऽर्थोऽतीतकालः, स
'भविता' इति शब्दस्यानागतकालोर्युक्तः ; पुत्रस्य भाविनोऽतीत वविरोधात् ।
अतीतकालस्याप्यनागत वाध्यारोपादेकार्थे वे तु न परमार्थतः
कालभेदेप्यभिन्नार्थव्यवस्था स्यात् ।

na khalu 'viśvaṃ dṛṣṭavān = viśvadṛśvā' iti śabdasya yo'rthe'atīta-kālaḥ,
sa 'bhavitā' iti śabdasya-anāgata-kālor-yuktaḥ ; putrasya
bhāvino'tītatva-virodhāt |
atīta-kālasya apy anāgatatva-adhya āropād eka-arthatve tu na
paramā-arthataḥ kāla-bhede 'py abhinna-artha 'vyavasthā syāt |

5. Jain criticism

Of course, the past tense of 'having seen everything' is not proper
for the future value of the expression 'he will be' because there
would be the undesirable consequence of the past state of an
ongoing son.
But if, getting a future value even for a past tense, these
expressions had a common meaning, one could infer not separated
meanings even when there is a different <meaning> due to time.
But this is not what we universally want.

5. Jain prescription

नन्वेवं लोकव्यवहारविरोधः स्यादिति चेत्; विरुध्यतामसौ तत्त्वं तु मीमांस्यते, न हि भेषजमातुरेच्छानुवर्ति ।

nanu-evaṃ loka-vyavahāra-virodhaḥ syād-iti cet; virudhyatām-asau tattvaṃ tu mīmāṃsyate, na hi bheṣajam-ātura-iccha-anuvarti |

Certainly, you may object following the same argumentation pattern that this does not match the everyday life practice (of understanding). If it is so, we will reply 'So go against this everyday life practice!', because what we seek to consider is truth and because the medicine does not always match the sick man's desires'. [ibid.]

5. Other examples

- The same structure is found for other distinctions relevant for meaning in grammatical analysis:
  - **Concerning kāraka**. The agent must not be confused with the object, such as in **A.3.1.87** where 'bhidyate kāṣṭhaṃ svayameva' has the same meaning than 'abhedi kāṣṭhaṃ svayameva' ('the wood is splitting').
  - **Concerning number**. Singular must not be confused with plural, such as in **A.1.2.58** where 'saṃpanno yavaḥ' has the same meaning than 'saṃpannā yavāḥ' ('mature wheat').

6. The etymological viewpoint (*samabhirūḍha-naya*)

Words are denoting (are being identical with) intermediate universals, and not intermediate particulars (individual objects).
In the fifth viewpoint, the three expressions 'Indra', 'Śakra' and 'Purandara' are identical with one another and with the same individual, namely the god Indra. But in the sixth viewpoint, each are identical with a distinct class of intermediate universals:

- 'Indra' denotes divine supremacy, and it is only metaphorically that it denotes the individual object that has this property.
- 'Śakra' denotes the ownership of might
- 'Purandara' the ability to destroy the strongholds.

6. The etymological viewpoint (*samabhirūḍha-naya*)

Proof-formula (NA.29.20): words that are synonyms denote different objects because the causes of their grammatical formation (respectively divine supremacy, possession of might and ability to destroy the strongholds in our example) are different.

- Two different Sanskrit expressions must denote two different intermediate universals
- An object has one and only one name

Consequence: no numerical identity, no substitution between two names in the language (except for the identity between an expression and itself).

7. The descriptive viewpoint (*evaṃbhūta-naya*)

In the same line than the sixth, this viewpoint considers that an object has one and only one name. The difference is that this attribution of a name is only a temporary fact:

- Outside the property of *potising*, there is nothing on which I can ultimately rely to say 'I know that this is a pot'.
- Consequence: we can not know an object that is not instantiating its 'being-such'
- Only objects that are instantiating their 'being-such' exist. *For example, a president exists only when he is performing his functions of president. If he is in a familial dinner, he can not be truly called 'president'. No president exist in this situation.*

7. The descriptive viewpoint (*evaṃbhūta-naya*)

Hypothesis: a Sanskrit expression is intended as a definite description
without the baptismal act that would entail that this description does
design this particular object whatever the (temporal, local) situation may
be.
**Consequence: there are only temporary names. The meaning is
reinitialized at every instant.**

From viewpoints to knowledge statements in a debate

How is a Jain to express a knowledge statement in a philosophical debate?

- Given the context-dependent approach of Jain theory of viewpoints
- And given the fact that asserting within a philosophical debate is in India conceived as being able to defend one's own thesis against all possible attacks coming from all possible viewpoints

The operator 'syāt'

The syādvāda (theory of the 'syāt') is precisely the attempt to answer such a question: it is meant to be a framework in which the accurate tools of knowledge can be used while taking the viewpoint into account.

- It incorporates the seven theories
- By introducing a manifold predication (predication as conditioned)
  Goes beyond the nayavāda in which each viewpoint considers an object from only one perspective, when the object should be considered as multiple

Syādvāda

Thanks to the 'operator' *syāt*, Jain logicians can list seven modes of predication (*saptabhaṅgī*):

- 'Syāt': optative mood of the verb *'asti-'* ('to be')
  - 'Arguably', 'in some given circumstances', 'let...'.
  - This is a means by which predication is conditioned: '*there is a viewpoint in which*' (cf. Ganeri in [4])

Seven ways to predicate

Now inside this operator, three primary behaviors are defined:

- Assertion
- Denial
- Unassertablity ('*Avaktavyam*', literally 'which is not to be said')

And the four others are but a combination of these three (hence excluding the case where non of them hold)

1. The first manner

The first way of defending a contextual knowledge statement pertains to a contextualized assertion with 'syāt' as its main operator:

<div align="center">

स्यादस्त्येव ।

Syāt asti eva

Arguably it is so and so

</div>

'It' refers to some object at stake

2. The second manner

The second way of defending a thesis pertains to a denial:

<div align="center">

स्यान्नास्त्येव ।
Syāt na asti eva
Arguably it is not so and so

</div>

3. The third manner

The third way of defending a thesis is a combination of the first two ways:

<div align="center">

स्यादस्त्येव स्यान्नास्त्येव ।

Syāt asti eva, syāt na asti eva

Arguably it so and so, arguably it is not so and so

</div>

4. The fourth manner

The fourth way of defending a thesis pertains to the third and last argumentative attitude: unassertability.

<div align="center">

स्यादवक्तव्यमेव ।

Syāt avaktavyam eva

Arguably it is unassertable

</div>

4. Interpreting the fourth manner

There have been great controversies among Jain scholars so as to see whether this value should be considered as a gap or as an over-lapping. Ganeri in [4] put this problem forward and quoted this passage of our text of Prabhācandra:

Opponent: Just as the values 'true' and 'false', taken successively, form a new truth-value 'true-false', so do the values 'true' and 'true-false'. Therefore, the claim that there are seven truth values is wrong.

Reply: No: the successive combination of 'true' and 'true-false' does not form a new truth-value, because it is impossible to have 'true' twice. In the same way, the successive combination of 'false' and 'true-false' does not form a new truth-value.

4. The fourth manner, again

Opponent: How then does the combination of the first and the fourth, or the second and the forth, or the third and the fourth, form a new value?
Reply: It is because, in the fourth value 'non-assertible', there is no grasp of truth or falsity. In fact, the word 'non-assertible' does not denote the simultaneous combination of truth and falsity. What then? **What is meant by the truth-value 'non-assertible' is that it is impossible to say which of 'true' and 'false' it is.** [PKM, p.689].

5-7. Combining the three attitudes

The fifth:

स्यादस्त्येव स्यादवक्तव्यमेव ।
Syāt asti eva, syāt avaktavyam eva
Arguably it is so and so, arguably it is unassertable

The sixth:

स्यात्रास्त्येव स्यादवक्तव्यमेव ।
Syāt na asti eva, syāt avaktavyam eva
Arguably it is not so and so, arguably it is unassertable

And the seventh:

स्यादस्त्येव स्यात्रास्त्येव स्यादवक्तव्यमेव ।
Syāt asti eva, syāt na asti eva, syāt avaktavyam eva
Arguably it is so and so, arguably it is not so and so, arguably it is unassertable

Which logic for the Jains?

Hypothesis: Jain contextualized notion of truth comes from the link Jain philosophers draw between:

- Logic and epistemology
- Logic and theory of argumentation

In modern approaches, after the work of Tarski in the fifties, the prevailing way to conceive logic is based on:

- Syntax (proof theory),
- Semantics (model theory),
- And their correspondence.

Such a perspective pays little attention to the procedural aspect of inference, and to the way logic is rooted in the practice of rational debate.

Which logic for the Jains?

Alternative approaches have been developed in the past decades which invite us to think again about logic and meaning in terms of **interaction between agents in a dialogue**.

Hypothesis: these new approaches share much more with Jain discussions on contextualization than other modern approaches to logic.

Among them, the **Dialogical approach** introduced by Lorenz and Lorenzen (Erlangen School), and developed nowadays by Rahman is sensitive to:

- **Philosophical pluralism** It considers the coexistence of a plurality of sets of rational norms

- **Logical pragmatism** It considers meaning in terms of interactions between agents and in relation to a given goal

Dialogical logic

- The Dialogical tradition takes it that speech acts are best understood as forms of interaction submitted to rules
  Dialogues are games in which what is at stake is a formula
- Dialogical approach enable in a friendly way to make explicit the contexts in which speech acts are made
  Furthermore, changes of contexts are understood as occurring after some choice.

Dialogical logic

Structural rules describe the general way an argumentation game is built. They rule the global running of a game, and put constraints on the allowed choices for players in given circumstances.

- How the game begins
- Which moves are authorized or forbidden
    - The formal use of atomic assertions
    - The proper way to change Dialogical contexts
- How the game ends
- The conditions for winning

Usually, they are designed such that the existence of a winning strategy for the player who proposed the thesis matches the validity of the thesis. For more on this, see [7] or [14].

Jain logic: First steps

Three particular features of the Jain approach deserve special attention:

- The contextualisation process is not about propositions, but about objects

- The determination of context has to be done outside the object language (before testing the formula at stake)

- We need to provide Jain theory with a suitable formal theory of meaning which is not model-theoretic, but which is done in terms of argumentative practices

Jain logic is not a modal logic

A modal approach does not seem to match the use of 'syāt'
E.g. 'syāt' is not meant to be iterated: as far as we know, the Jain logicians were not interested with statements of the form 'there is a viewpoint in which there is a viewpoint in which...'

- Each viewpoint attempts to deal with what is the case, not with what could have been the case.
- Modal Logic introduced in Lewis [8] to overcome some problems relating to relevance inside the object language (the difference between turnstile ($\vdash$) and material implication ($\rightarrow$) is that the former contains a modality)
    - Indian logicians seem to be concerned with the same problems of relevance, but not with the task of their resolution inside of the object language:
    - **they clearly posit themselves at the level of speech and of determination of semantic values**

Nayavāda: First steps

Proposition:

- The variations between one viewpoint and another can be understood as strategical changes (contextual structural changes)
- I.e. changes on the set of moves allowed in a given Dialogue (e.g. rules of substitution only allowed in viewpoints considering universals)

Instead of erasing the differences between the seven viewpoints by expressing them in a common modal language, my approach proposes to take into account the nayavāda by permitting several different ontologies and theories of meaning.

Syādvāda: First steps

Proposition: incorporating those seven systems into a single logical (meta-) system.

- The language of such a system must feature a way to talk about different logical systems, which is precisely the formal counterpart of 'syāt'.

- Giving credence to Wittgenstein's claim that 'meaning is use', the meaning of 'syāt' is in our reading a Dialogical move during which the speaker is allowed to choose a specific mode of argumentation for his thesis.

Let's practice!

Let us state '*syād asty eva gaṭaḥ*', 'arguably the pot indeed is'.

- The meaning of '*syāt*' is the opening of an argumentation context in which the rules will be either the rules of the viewpoint of classes, or the ones of the pragmatic viewpoint, but never both at the same time.
- E.g. if I choose to utter within the viewpoint of classes, what I will need in order to test the validity of my thesis within a debate is a given set of rules among which there would be a rule to account for the fact that this viewpoint focuses on classes (properties) and not on elements (individuals).

Let's practice!

One way to express such a requirement is to allow qualitative identity between the values of first-order variables:

- **(SR-N_2) 'Inverse Substitution' Rule.** Whenever **X** asserted Pc_i and Pc_j (where P is a unary predicate, $i \neq j$ and $c_i, c_j \in \mathcal{C}_1 \cup \mathcal{C}_2$) in the same subdialogue, **Y** can ask **X** to assert $c_i \approx c_j$ in this subdialogue
- *In more intuitive terms, it is sufficient that there exists an equivalent class to which both x and y belong and infers that x and y are qualitatively identical*
- A Dialogical system for a first-order language with this rule probably characterizes a logic which is equivalent with a first-order logic where quantifiers range over sets

Now the difference between the second and third viewpoints is obviously formulated as the reject of **(SR-N_2)** in the Dialogical system for the third viewpoint(the focus is replaced on elements).

Let's practice!

Let us test the formula expressing the idea that 'if there exist an equivalent class to which x and y both belong, then x and y are qualitatively identical' within two different Dialogical systems. Consider first the Dialogues for the Second Viewpoint N_2:

	O			**P**	
				$\forall x \forall y ((Px \wedge Py) \rightarrow (x \approx y))$	0
1	$?_{k_1}$	0		$\forall y ((Pk_1 \wedge Py) \rightarrow (k_1 \approx y))$	2
3	$?_{k_2}$	2		$(Pk_1 \wedge P_{k_2}) \rightarrow (k_1 \approx k_2)$	4
5	$Pk_1 \wedge Pk_2$	4		$k_1 \approx k_2$	12
7	Pk_1		5	$?_L$	6
9	Pk_2		5	$?_R$	8
11	$k_1 \approx k_2$			$?_{k_1 \approx k_2}$	10

Let's practice!

Now consider the Dialogue played with the rules for the Third Viewpoint N_3:

	O			**P**	
				$\forall x \forall y ((Px \wedge Py) \rightarrow (x \approx y))$	0
1	$?_{k_1}$	0		$\forall y ((Pk_1 \wedge Py) \rightarrow (k_1 \approx y))$	2
3	$?_{k_2}$	2		$(Pk_1 \wedge P_{k_2}) \rightarrow (k_1 \approx k_2)$	4
5	$Pk_1 \wedge Pk_2$	4			
7	Pk_1		5	$?_L$	6
9	Pk_2		5	$?_R$	8

In the second Dialogue, the 'Inverse Substitution Rule' is not available thus **P** cannot ask **O** to assert $(k_1 \approx k_2)$. Since this is an atomic formula, he cannot answer **O**'s fifth move either. The Dialogue is finished but not closed: **P** looses.

Concluding Remarks

In conclusion, the resulting meta-system has distinctive modal features,
but transposed at the level that may be called 'meta-argumentation'.

- Firstly, in this system we are unable to enunciate iterated '*syāt*'
- Secondly, this seems to be exactly what Jain philosophy is about: **an
  argumentation about the different ways one should argue in
  relation to a given goal**

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